Question Bank (I-scheme)

Name of subject: Emerging Trend in Mechanical Engg. Unit Test: II
Subject code: 22652
Course: ME6I
Semester: VI

Chapter 3: Recent Trend in Manufacturing Industry

3.1 Smart Factory

1. Smart manufacturing technology is____
A. Smart manufacturing is a broad category of manufacturing that employs computer-integrated manufacturing.
B. Smart manufacturing is a broad category of manufacturing that employs integrated manufacturing.
C. Smart manufacturing is a broad category of manufacturing that employs calculator-integrated manufacturing.
D. Smart manufacturing is a broad category of manufacturing that employs numeric-integrated manufacturing.

2. Main advantage of smart manufacturing
A. Quick design change.
B. High levels of adaptability.
C. Digital information technology.
D. All answer

3. Industry 4.0 is____
A. The computerization of traditional industries such as manufacturing.
B. The computerization of transport.
C. The computerization of supply.
D. The computerization of design.

4. The advantage of industry 4.0 is___
A. Higher Efficiency.
B. Improved Flexibility.
C. Increased profitability.
D. All answer

5. The disadvantage of industry 4.0 is____
A. Higher initial cost.
B. Increased labour cost.
C. Deceased accuracy.
D. Less profitability.

6. _____country is the pioneer of the smart manufacturing technology.
A. India.
B. Germany.
C. China.
D. Japan.

7. Smart manufacturing technology utilizes.....
A. Electric cars.
B. Internet connected machinery.
C. Heavy Mechanical machinery.
D. Traditional manufacturing techniques.

8. _____manufacturing technology utilizes autonomous-advanced industrial robots.
A. Traditional manufacturing technology.
B. Smart manufacturing technology.
C. Small workshops
D. None of the above

9. Main application of smart manufacturing technology_____
A. Job production.
B. Mass production.
C. Batch production.
D. All answer.

10. Main application of 3D printing_____
A. Rapid prototyping.
B. Design iteration.
C. Small scale production.
D. All answer.

11. The term smart manufacturing (SM) is originated from which country?
a) **United States**
b) New Zealand
c) Australia
d) Switzerland

12. _____is the application of smart manufacturing.
a) **Information communication technology**
b) Both a and c
c) Information complex technology
d) None of the given

13. _____ are the key technologies that enables smart manufacturing.
A. Sensor technologies
B. Wireless connectivity
C. Data analytics
D. A**ll answer**

14. _____ are the different innovations that takes place in smart manufacturing
    A. Complexity
    B. Risks
    C. Costs
    D. **All answer**
15. _____ is the smart manufacturing.
    A. it is described as paradigm shift made possible by technological advances which constitutes a reversal of conventional production process logic
    B. it is described as rapid shaft made possible by smart technologies
    C. both a and b
    D. all of the above
16. _____ can the smart manufacturing benefit your company.
    A) Increased revenue
    B) Productivity
    C) Market share
    D) **All answer**
17. _____ manufacturers is smart manufacturing empowering.
    A) Food and beverages
    B) Milky products
    C) Packaged products
    D) None of the above
18. _____economical potential do you see in smart manufacturing in German speaking area?
    A) A plus of 43 billion euros until 2025 in value chain
    B) A plus of 59 billion euros until 2025 in value chain.
    C) A possible plus of 78 billion euros until 2025 in value chain
    D) None of the above
19. _____role does internet of technologies play in context of smart manufacturing.
    A) **They form the base to connect everyday items**,
    B) They form the base for an environmental friendly production
    C) They form among the other the base for corporate communication
    D) None of the above
20. Smart manufacturing will reach the market_____
    A) To reach a production environment this will not happen before 2030
    B) First implementation will be released by 2020
    C) Industry 4.0 is already being used in several production lines.
    D) All of the above.

21) Smart manufacturing technology is_____
a) is technology that utilize internet connected to machinery to the monitor production process.
b) is not combination of various technology of manufacturing processes.
c) both a and b.
d) none of the above.

22) _____ is smart manufacturing technology
a) Manufacturing design.
b) CNC Machining
c) 3D printing and hybrid manufacture.
d) All the above.

23) Higher quality products, increase energy efficiency and improve productivity are benefit of smart manufacturing technology.
a) True.
b) False.

24) The smart manufacturing technology is also known as_____
a) IIOT [industrial internet of things].
b) Industry 4.0
c) Both a and b.
d) None of the above.

25) _____ is correct essential features of smart manufacturing.
a) People are not key players.
b) Digital life cycle management is good.
c) Slow integration and flexible configuration.
d) None of the above.

26) _____ is correct benefit of smart manufacturing technology.
a) Lower quality product.
b) Does not sustain safer plant floor.
c) Lower the energy efficiency.
d) Improve productivity.

27) _____ is percent of smart manufacturing technology by till date.
a) 70%
b) 33%
c) 50%
d) 100%

28) _____are elements of smart manufacturing technology

a) Devices. c) People and process.

b) Connectivity. **d) all of the above.**

29) Is the decentralization is the one design feature for smart manufacturing technology

a) True. b) False.

30. _____ of the followings is NOT best described about Industry 4.0?

a) Analytics c) **Speed**

b) Smart Factory d) Prediction

31. _____are the objective for industry 4.0.

a. Increase efficiency c. Enabled self-controlling

b. Reduce complexity d. A**ll** .

32. _____ many design principles are applied for Industry 4.0.

a. 6 c**.** 2

b. 4 d. 5

33. Is Decentralization one of the design principles for Industry 4.0

a. **Yes** b. No

34. 5 steps to turn big data become smart data. Please choose the correct one.

a. Data > Knowledge > Information > Wisdom > Decisions

b. Data > Information > Knowledge > Wisdom > Decisions

c. Data > Information > > Decisions > Wisdom > Knowledge

d. Data > Information > Wisdom > Knowledge > Decisions

35. Below is the tools/ software/ applications we have today for Industry 4.0 except

a. Cockpit c. Condition Monitoring

b. 3D visualization d. **Performance Manager**

36. One of the solutions we develop to present information for industry 4.0.

a. Auto PiQ c. **Cockpit**

b. Availability Manager d. Condition Monitoring

37. _____ is the 6 design principles of Industry 4.0

a. Interoperability, real time capability, visualization, service orientation, decentralization, modular

b. Interoperability, real time capability, visualization, service orientation, decentralization, decisions

c. Interoperability, real time capability, data, service orientation, decentralization, modularity

d. Interoperability, real time capability, visualization, prediction, decentralization, modularity

38. **_____ industry branches are suitable for industry 4.0 development**

a. Industry 4.0 is in first instance an enrichment for the service industry.

b. Industries 4.0 can be used in all industrial contexts where processes need to be more intelligent.

c. Especially in the automotive and agricultural sector.

d. All of the above.

39. **_____is a Smart Factory.**

a. Robots who will replace people.

b. Factories and logistic systems that will operate and organise themselves without human interaction?

c. Factories and logisitc systems that will organise themselves by human interaction.

d. All of the above.

40. Smart manufacturing is a broad category of _____

a. **Manufacturing** **c.** Production

b. Generation d. Services

41. The broad definition of smart manufacturing process cover many different _____

a. Analog c. Digital

b. Technologies **d.** Smart production

42. Smart manufacturing is a technology that utilizes internet connected machinery to monitor the _____ process

a. Production

b. Generation

c. Manufacturing
d. Services

43. The goal of smart manufacturing is to identify the opportunities for _____ operation
    a. Automating
    b. Manual
    c. Robotics
    d. Digital transformation
44. Automating operations use data analysis to improve the _____ process
    a. Production
    b. Manufacturing
    c. Services
    d. Generation
45. Manufacturers can also analyse the data to try to spot steps in the process where _____ down
    a. Production slow
    b. Production fast
    c. None of the above
    d. Both A&B
46. As _____ manufacturing becomes more common in the world of automation
    a. Good
    b. Smart
    c. Digital
    d. None of above
47. Full form of NIST
    a. National institute of standards technology
    b. National institute of smart technology
    c. Nation institute of smart technology
    d. None of above
48. Smart manufacturing offers a number of benefits including improved _____
    a. Efficiency
    b. Product rate
    c. Quality rate
    d. All of above
49. Modern machines are often equipped with the _____ sensor
    a. Remote
    b. Keyless
    c. A &B
    d. All of above
50. In smart manufacturing increase in sensors are being used in equipment to……
    a. Self-Sense
    b. Self act
    c. communicate with each other
    d. All of above

3.2 **INDUSTRIAL ROBOTICS**

1. ____ is the name for information sent from robot sensors to robot controllers.
    a) temperature
    b) pressure
    c) feedback
    d) signal
2. Full Form of AGV in Industrial Robotics is_____
    a) Automated Grouped Vehicles
    b) Automatic Guided Vehicles
    c) Alternative Guided Vehicles
    d) All Time Guided Vehicles

3. The following terms refers to the rotational motion of a robot arm____
a) swivel
b) axle
c) retrograde
d) roll

4. _____ is the name for space inside which a robot unit operates.
a) environment
b) spatial base
c) work envelope
d) exclusion zone

5. Which of the following terms is NOT one of the five basic parts of a robot.
a) peripheral tools
b) end effectors
c) controller
d) drive

6. Decision support programs are designed to help managers make _____
a) budget projections
b) visual presentations
c) business decisions
d) vacation schedules

7. The number of moveable joints in the base, the arm, and the end effectors of the robot determines_____
a) degrees of freedom
b) payload capacity
c) operational limits
d) flexibility

8. The following places would be LEAST likely to include operational robots.
a) warehouse
b) factory
c) hospitals
d) private homes

9. For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have.
a) three
b) four
c) six
d) eight

10. _____is basic parts of a robot unit would include the computer circuitry that could be programmed to determine what the robot would do?
a) sensor
b) controller
c) arm
d) end effector

11. The following is not an actuator
a) digital actuator
b) pneumatic actuator
c) hydraulic actuator
d) electric actuator

12. A_____ translates signals from the controller into the motor voltage and current signals.
a) Servo motor
b) Servo amplifier
c) AC motor
d) DC motor

13. Motors used for electronic actuator drives :
a) AC servo motors

b) DC servo motors
c) Stepper motors
d) All of the mentioned
14. The basic components of hydraulic fluid power system are :
a) Reservoir
b) Pump and lines
c) Actuating devices and control valves
d) All of the mentioned
15. Pumps that discharge liquid in a continuous flow are referred to as non-positive displacement.
a) True
b) False
16. Connectors and fittings are used in the fluid power system :
a) To connect to various sections of the fluid lines to each other
b) To detach the fluid lines to the components of the system
c) They are used in the high pressure fluid system
d) None of the mentioned
17. _____ is the back and forth motion of pistons inside of cylinders that provide the flow of fluid.
a) Fluid pump
b) Gravity pump
c) Reciprocating pump
d) Displacement pump
18. Deciding the method of control by:
a) The purpose of valve
b) Type of fluid
c) Design and purpose of the system
d) All of the mentioned
19. Valves can be classified according to their use as:
a) Directional flow
b) Pressure control
c) Flow control
d) All of the mentioned
20. The kinematic part of the robot or the manipulator is called as
a) link
b) joint
c) end effector
d) sensors

21-Robot is derived from Czech word
(A) Rabota
(B) Robota
(C) Rebota
(D) Ribota
22-A Robot is a
(A) Programmable
(B) Multi functional manipulator
(C) Both (A) and (B)
(D) None of the above
23-The main objective(s) of Industrial robot is to
(A) To minimize the labour requirement
(B) To increase productivity
(C) To enhance the life of production machines
(D) All of the above
24-The following is true for a Robot and NC Machine
(A) Similar power drive technology is used in both
(B) Different feedback systems are used in both
(C) Programming is same for both

(D) All of the above
25-Match the following

Robot part	Function
a. Manipulator arm	1. For holding a piece or tool
b. Controllers	2. Move the manipulator arm and end effector
c. Drives	3. Number of degrees of freedom of movement
d. Gripper	4. Delivers commands to the actuators

(A) a-1, b-4, c-2, d-3
(B) a-3, b-4, c-2, d-1
(C) a-3, b-2, c-4, d-1
(D) a-4, b-3, c-2, d-1
26-Drives are also known as
(A) Actuators
(B) Controller
(C) Sensors
(D) Manipulator
27-Clockwise of Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through
(A) Shoulder swivel
(B) Elbow extension
(C) Arm sweep
(D) Wrist bend
28-Radial movement (in & out) to the manipulator arm is provided by
(A) Elbow extension
(B) Wrist bend
(C) Wrist swivel
(D) Wrist yaw
29-Industrial Robots are generally designed to carry which of the following coordinate system(s).
(A) Cartesian coordinate systems
(B) Polar coordinate systems
(C) Cylindrical coordinate system
(D) All of the above
30-The Robot designed with Cartesian coordinate systems has
(A) Three linear movements
(B) Three rotational movements
(C) Two linear and one rotational movement
(D) Two rotational and one linear movement
31) The following is true for a Robot and NC Machine
(A) Similar power drive technology is used in both
(B) Different feedback systems are used in both
(C) Programming is same for both
(D) All of the above
32) Radial movement (in & out) to the manipulator arm is provided by
(A) Elbow extension
(B) Wrist bend
(C) Wrist swivel
(D) Wrist yaw
33) The Robot designed with Polar coordinate systems has
(A) Three linear movements
(B) Three rotational movements
(C) Two linear and one rotational movement
(D) Two rotational and one linear movement

34) The Robot designed with cylindrical coordinate systems has
(A) Three linear movements
(B) Three rotational movements
(C) Two linear and one rotational movement
(D) Two rotational and one linear movement
35) The following work is done by General purpose robot.
(A) Part picking
(B) Welding
(C) Spray painting
(D) All of the above
36) The following drive is used for lighter class of Robot.
(A) Pneumatic drive
(B) Hydraulic drive
(C) Electric drive
(D) All of the above
37) Internal state sensors are used for measuring _____ of the end effector.
(A) Position
(B) Position & Velocity
(C) Velocity & Acceleration
(D) Position, Velocity & Acceleration
38) ____sensors determines the relationship of the robot and its environment and the objects handled by it
(A) Internal State sensors
(B) External State sensors
(C) Both (A) and (B)
(D) None of the above
39) Which of the following is not a programming language for computer controlled robot?
(A) AMU
(B) VAL
(C) RAIL
(D) HELP
40) In which of the following operations Continuous Path System is used
(A) Pick and Place
(B) Loading and Unloading
(C) Continuous welding
(D) All of the above

41. Robots require extensive information about their environment in order to function effectively.
    A. **True**.
    B. False.

42. The sensors used to measure position, velocity, and acceleration of the robot joints or end effectors are called as.
    a) External sensors.
    b) **Internal sensors**.
    c) Proximity sensors.

43. Simple touch sensors senses the
    a) **Presence or absence of an object**.
    b) Shape, size or hardness of an object.
    c) Forces along a single axis.
    d) Forces along multiple axis.

44. Complex touch sensors senses the
    a) Forces along a single axis.
    b) Forces along multiple axis.
    c) Presence or absence of an object.
    d) Shape, size or hardness of an object.

45. Simple force sensors senses the
    a) Presence or absence of an object.

b) Shape, size or hardness of an object.
c) Forces along a single axis.
d) Forces along multiple axis.

46. Complex force sensors senses the
    a) Presence or absence of an object.
    b) Shape, size or hardness of an object.
    c) Forces along a single axis.
    d) **Forces along multiple axis**.
47. Simple vision sensors are used for
    a) Detecting holes.
    b) Detecting edges.
    c) Detecting corners.
    d) All of the above.
48. Complex vision sensors are used for
    a) Resizing objects.
    b) Refining objects.
    c) Recognizing objects.
    d) None of the above.
49. Proximity sensors are used for
    a) Contact detection of an object.
    b) Non- contact detection of an object.
    c) Both (a) & (b) are correct.
    d) None of the above.
50. A tactile sensor is defined as a
    a) Sensor which measures information arising from physical interaction with its environment.
    b) Sensor which measures pressure at the end effectors.
    c) Sensor used in navigation of the system.
    d) None of the above.
51. An accelerometer is a device which measures acceleration and ……
    a) Retardation
    b) Tilt
    c) Movement
    d) None of the above
52. Photovoltaic cells convert solar radiation into …….
    a) Thermal energy
    b) Kinetic energy
    c) Mechanical energy
    d) Electrical energy
53. Sensors can also be used for ……
    a) Sound measurement
    b) Distance measurement
    c) Both a) and b) correct
    d) None of the above
54. IMU stands for inertial measurement units.
    a) True
    b) False
55. Robotic sensors are used to estimate a ……
    a) Robot’s movement and environment
    b) Robot’s movement and condition
    c) Robot’s condition and environment
    d) None of the above
56. Gyro Sensor measures the robot's…….. and changes in its orientation.
    a) Linear motion
    b) Angular motion

c) Rotational motion
d) All of the above

57. A major advantage of ultrasound sensing is its susceptibility to *specular reflection.*
a) True
b) False

58. Range sensor is implemented in ……. of the robot.
a) End effector
b) Actuator
c) Robotic arm
d) None of the above

59. A sensing device that specifies the contact between an object, and the sensor is considered as …….
a) IR sensor
b) Tactile sensor
c) Proximity sensor
d) Photo resistor sensor

60. Magnetic sensor is a type of non-contacting sensor which converts the magnetic energy into
a) Mechanical energy
b) Kinetic energy
c) Electrical energy
d) Pressure energy

61. The anatomy of robot is also known as…… Of robot.
a) Position
b) Structure
c) Motion
d) Component

62. The Anatomy of Industrial Robots deals with the assembling of outer components of a robot such as
a) Wrist
b) Arm
c) Body
d) All of the above

63. Most of the robots are composed of 3 main parts**:** the controller, mechanical parts and…….
a) Sensors
b) Actuators
c) Grippers
d) Manipulator

64. From the beginning robot arm kinematics followed four basic geometrics: cartesian, polar, revolt and……
a) Square
b) Circular
c) Cylindrical
d) Rectangular

65. The robot's movements are executed by the mechanical parts likes links,....., and transmission system along with internal sensors housed within Manipulator.
a) Motion
b) Shoulder
c) Power joints
d) Levers

66. Links are…….. members between joints.
a) Rigid
b) Flexible
c) Strong
d) Weak

67. Most robots possess five or six…….
a) Parts
b) Degree of freedom
c) Arms

d) Motors

68. Robot manipulator consists of two sections: wrist assembly and……..

a) Body and arm
b) Body and body
c) Arm and shoulder
d) Shoulder and body

69. The two main light sensors used in robots are photovoltaic cells and photo……

a) Conductor b) Capacitor c)Inductor d)**Resistor**

70. The manipulator comprises of arm, wrist and……..

a) Shoulder **b)Base** c)Leg d)Head

3.3 Industrial Robot Applications

1)Which of the following is not an advantage of Robots?

1. They can assist humans with disabilities
2. **They can replace jobs**
3. They can be used in dangerous environment
4. They don't get tired or require a break

2) The three characteristic capabilities that define a robot_____

1.Comment
2.Sensor
3.Sense-Plan-Act
4.NXT Brick

3) The main objective(s) of Industrial robot is to

1.To minimise the labour requirement
2.To increase productivity
3.To enhance the life of production machines
4.All of the above

4)_____ work is done by General purpose robot

1.Part picking
2.Welding
3.Spray painting
4.All of the above

5) Internal state sensors are used for measuring _____ of the end effector.

1.Position
2.Position & Velocity
3.Velocity & Acceleration
4.Position, Velocity & Acceleration

6) Which of the name for information sent from robot sensors to robot controllers?

1.temperature
2.pressure
3.signal
4.feedback

7) For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?

1.three 2.four
3.eight **4.six**

8) State the types of robot welding

1.Arc welding 2.spot welding
3.Both 1&2 4.ramp welding

9) Advantage of robotic assembly

1.High capital cost required

2.high expertise required for set up
3.Decreases jobs
4.Improves quality
10) Robotic spot welding brings
1.assistance to operator
2.operator safety
3.better control to operator
4.all the above
11.____ is a highly automated group of GT machine cell.
A. Flexible manufacturing system
B. Group technology
C. Automated system
D. None of the above
12.From the following which is the main components of Flexible manufacturing system(FMS).
A. Main frame computer
B. Automated guided vehicle
C. Material handling system
D. All of the above
13.From the following what is the full form of AGV?
A. Automatic Guided Vehicle
B. Automated Gas Vehicle
C. Automated Guided Vehicle
D. None of the above
14. From the following which is the types of Automated Guided Vehicle (AGV).
A. Driver less train
B. Pallet trucks
C. Unit load carriers
D. All of the above
15. From the following which method is used to guide the AGV.
A. Wire guided
B. Paint strip
C. Self guided vehicle
D. All of the above
16.From the following which is not the application of AGV.
A. Truck loading and unloading
B. To change the tool
C. Material transfer
D. Paper roll transfer
17.From the following which is the benefits of AGV.
A. Reduction in man-hours
B. Useful in hazardous area
C. Both A & B
D. None of the above
18.A combination of equipment and controls which handles, stores and retrieves materials with precision, accuracy and speed under a defined degree of automation is known as ____
A. Automated storage and retrieval system (AS/RS)
B. Flexible manufacturing system
C. Automated guided vehicle
D. None of the above
19.From the following which is the benefits of AS/RS
A. Less product damage
B. Good and easy housekeeping in FMS
C. Reduce labour cost
D. All of the above
20.From the following which is the type of FMS layout

A. In line layout
B. Ladder layout
C. Both A &B
D. None of the above

3.4 **Immersive Technology**

1 .What does VR stand for?
A)Very Right
B)Vertal Reality
C)Virtual Reality
D)Virtual Realty

2 .What does AR stand for?
A)Application Reality
B)Augmented Reality
C)Application Realive
D)Augmented Realive

3 .Who invented the VR headset?
A)Bob Garry
B)Brian Sanog
C)John Forrest
D)Ivan Sutherland

4 .Which definition best fits "Augmented Reality"?
A)Technology that turns physical objects into digital objects
B)Technology that can achieve a human-level understanding of images
C)Technology that overlays digital information on top of real world items
D)Technology that completely immerses users in a new digital environment

5 .When was the VR headset made?
A)1968
B)1972
C)1981
D)1990

6 .A game based on which animated franchise propelled augmented reality (AR) into the mainstream in recent years?
A)Pokemon
B)Fortnite
C)Super Mario
D)World of Warcraft

7 .HMD stands for?
A)Head Made Display
B)Head Mounted Display
C)Head Masked Display
D)Head Mounted Detection

8 .Augmented reality experiences can be enabled through which of these mediums?
A)Laptops
B)Smartphones
C)Smart boards
D)All of the above

9 .Immersive virtual reality is the most expensive form of VR
A)True
B)False

10 .Why does virtual reality enhance instruction?
A)It allows teachers to communicate with parents

B)It tally's rewards to help with classroom management
C)It provides a deeper understanding with realistic 3D imagery
D)All of the above
11 .Why is investment costs an issue when using AR for education?
A)It cost money to train teachers
B)Schools have to acquire technologies
C)Maintenance cost should be considered
D)All of the above
12 .Which is caused by Augmented Reality?
A)Holocaust
B)Hologram
C)Holophrastic
D)Screensaver
13 .An example of non-immersive VR device is
A)An iPad
B)An IMAX
C)A Screen Projection
D)A Virtual Reality Headset
14 .Who is the father of augmented reality?
A)Steve Mann
B)Brian Sanog
C)John Forrest
D)Kevin Warwick
15 .VR may be useful for students with special needs because
A)They can attend class from home
B)Teachers can develop personalized lessons for students
C)It allows them to escape from difficult social situations
D)None of the Above
16 .Which of the following is NOT a constraint of VR?
A)It can be costly
B)Resistance to new technology from teachers
C)Developing lessons/experiences can be time consuming
D)It can only be used for Science and Geography
17 .A ____ is a display device, worn on head as a part of helmet that has a small display optic.
A)HD
B)MD
C)HMD
D)ARD
18 .What are the 3 types of Virtual Reality?
A)3D, non-immersive, digital
B)Immersive, 3D, non-immersive
C)Digital, semi-immersive, projective
D)Immersive, semi-immersive, non-immersive
19 .A _____ can be recorded using a normal light source.
A)Holograph
B)Holography
C)Photography
D)Photograph
20 .A tracking based on geo-location information.
A)GPS
B)Markerless
C)Location based
D)Marker based

Chapter 4: Energy Audit and Management

4.1 Standards and Labelling

1) Energy audit is a kind of scientific management method of ……
   - **a) Energy**
   - b) Power
   - c) Force
   - d) Fuel
2) Energy audit is conducted by……..
   - a) government
   - b) Company
   - **c) Energy utilization unit**
   - d) Auditor
3) Energy audit refers to the……..
   - a) Inspecting
   - b) Examining
   - c) Analyzing
   - **d) All of the above**
4) The targets of energy audit are….
   - **a) Investigating problem**
   - b) Rectifying problem
   - c) Analyzing problem
   - d) None of the above
5) The ultimate aim of energy audit is to encourage enterprises to…….
   - a) Save energy
   - b) Reduce production cost
   - c) Increase economic benefit
   - **d) All of the above**
6) During an audit and expert examines the facility for….
   - **a) Energy leakage**
   - **b)** Reduction
   - **c)** Energy conservation
   - **d)** None of the above
7) Energy audit is an assessment of…….
   - **a) How much energy a facility consumes**
   - b) How much money of facility consumes
   - c) Cost of the facility
   - d) Size of the facility
8) According to…… "energy audit" means verification, monitoring, analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption.
   - **a) Energy conservation act 2001**
   - b) Industrial act 1946
   - c) Factory act 1947
   - d) none of act
9) Energy audit can also save you significant amount of money by……..
   - **a) Maximum energy efficiency**
   - b) Minimum energy efficiency
   - c) None of the above
   - d) All of the above

10) The strategy of adjusting and optimising energy using systems and procedures so as to reduce energy requirements per unit of output while holding constant or reducing total cost of producing the output from the systems is…….

a) Energy Management
b) Energy audit
c) Energy utilisation
d) Energy wastage

11.The fundamental goal of energy management is to _____

A. Produce goods and provide services with least cost and least environmental effects
B. Produce goods and provide services with more cost and more environmental effects
C. Produce goods and provide services with No cost and no environmental effects
D. All of the above

12. Definition of energy management given by cape hart , turner and Kennedy is ____

A. **The Judicious and effective use of energy to maximize profits and enhance competitive position**.
B. The Judicious and effective use of energy to minimize profits and enhance competitive position.
C. The systematic approach for decision making in area of energy management.
D. All of the above

13. The objective of energy management is ____

A. To achieve and maintain optimum energy procurement and utilization throughout the organization
B. To minimize the energy cost without affecting production and quality
C. To minimize the environmental effects
D. All of the above

14. Energy savings is not the driving face when companies decide to purchase _____

A. **New equipment** C. New technologies
B. Ne resources D. New low tech materials

15.The systematic approach for decision making in area of energy management is _____

A. **Energy audit** C. Energy effect
B. Energy savings D. All of the above

16.The form of implementing the new energy efficiency technologies, new materials and new manufacturing process is _____

A. **Energy management** C. Energy savings
B. Energy audit D. All of the above

17. The major inputs for the economic development of any country is ____

A. **Energy** C. Energy management
B. Energy audit D. Energy saving

18. To balance the total energy inputs with its use which , serves to identify all the energy streams in a faculty is __

A. **Energy management** C. Energy saving
B. Energy audit D. Energy

19. In the case of developing country which sector assumes a critical importance in view of the ever increasing needs

A. **Energy sector** C. Energy audit sector
B. Energy management sector D. Energy saving sector

20 .The ultimate aim to encourage the enterprise to save the energy , reduce the production cost and increase economic benefits is ____

A. **Energy audit** C. Energy saving
B. Energy management D. Energy

21. Full form of BEE

a. Bureau of energy efficient

b. Basic electrical and electronics
c. Basic thermal engineering
d. None of the above.

22. BEE under the provisions of the act _____.
A. 2000 **C) 2001**
B. 2002 D) 1999

23. The standards and labeling scheme lunched in _____
A) may 2006 C) march 2006
B) Feb 2005 D) June 2006

24. A star rating, ranging from _____ in the asending order of energy efficiency.
A) 1 to 4. **C) 1 to 5**
B) 1 to 6. D) 1 to 10

25. The informative labels affixed _____.
A) Product. C) equipment
B) tool. D) machine .

26. _____ has been formulated by Bureau of energy efficient.
A) star labeling program. B) computer program
C) ranking program. D) None of the above.

27. BEE is under of ministry of _____.
A) health. B) defense
C) power. D) all of the above.

28. HVAC stands for _____.
A) heating, ventilation, air conditioning
B) height, velocity ,area
C) all of the above.
D) None of the above.

29. The Prohibit manufacturers sale and import such equipment _____.
A) which is confirm to the standard **B) which does not conform to the standard**
C) which is rejected. D) None of the above.

30. S&L stands for _____.
A) sale and lost. **B) standard and labeling**.
C) None of the above. D) All of the above.

31. _____ is a level of quality or attainment.
A) Standards C) monitoring energy
B) Labels D) none of the above

32. _____ mainly give consumers the necessary information to make informed purchase.
A) Energy management **C) label**
B) Standards D) energy efficiency

33. The full form of MEPS
A) Minimum energy protection standards C) minimum energy policies standard
B) Minimum energy performance standards D) minimum efficiency performance standards

34. The ratio of the total amount of heat that equipment can remove from the indoors to travel and amount of energy consumed by the equipment is known as
A) Energy performance ratio (EPR). **C) Energy efficiency RATIO (EER).**
B) Energy consumption ratio (ECR). D) None of the above

35. In power saving guides "more stars more savings".
A) True B) false

36. _____ is the minimum EER for 5-star in India in 2019.
A) 4.50 C) 4.00
B) 7.10 D) 4.49

37. What is the full form of BEE?

A) Basic electrical and electronics. **C) Bureau of energy efficiency.**

B) Bureau of energy equipment. D) all of the above.

38. In power saving guide efficiency parameter is mention.

A) True B) false

39. Allow consumer to compare the energy consumption of similar products and factor life time running cost into their purchasing decision is called as

A) Comparative label C) category label

B) Endorsement label D) none of the above

40. Provide a certification to inform prospective purchasers that the product is highly energy efficient for its category is known as.

A) Comparative label C) category label

B) Endorsement label D) none of the above

41. One time registration fee of rupees 1,00,000 for large-scale and Rs _____ for small scale industry.

A. 30,000 C. 15,000

B. **25,000** D. 28,000

42. S.S.I. stands for _____

A. Small scale industry C. Scanner scale industry

B. Scalar scale industry D. None of the above

43. Quality management system certificate has _____

A. ISO 9001. C. ISO 9005

B. ISO 9004. D. ISO 9006

44. S.S.I certificate is provided to _____ industry.

A. Large scale. C. **Small scale**

B. Medium scale. D. All of these

45. Agreement between BEE and user of label should be done on ₹ 100 _____ stamp paper.

A. Judicial stamp paper. C. Court fee stamp paper

B. **Non judicial paper** D. Normal fee paper

46. For each product under S&L scheme, BEE should upload the information on the ____ web portal

A. Government C. **S&L web portal**

B. Small scale web D. Private portal

47. The Bureau initiated the standard and labeling program from ___

A. 2006 C. 2009

B. 2008. D. 2010

48. The registration for BEE is done in _____ stage

A. Three stage. C. Four stage

B. Two stage. D. Single stage

49. The models applied to BEE should highlighted in the endorsement _____ sheet

A. Endorsement C. Blank

B. General. D. None of above

50. Labelling on the induction motor is voluntary

A. True

B. False

51…… are provided to the major kind of appliances in the form of lablels.

A) Graphic data. C) **star rating**

B) Star labeling. D) all of the above.

52. Star rating are given out of ……..

A) 3. C) 4

B) 5. D) 6.

53. The manufacturer are officially required to put this label as per the standards and labelling program introduce in……

A) 2004. C) 2005
B) 2006. D) 2007

54. Prime importance of star rating is …….. to consumer about how the energy efficient each product is.
A) Educate. C) Inform
B) Indicate. D) **Educate and inform.**

55. BEE (in star rating) stand for.
A) Bureau of Earth Efficiency . C) Bicycle energy expenditure
B) Bureau of Energy Efficiency . D) Bureau of Energy Expenditure

56. BEE star rating is solely based on appliance's power .....
A) Consumption. C) Delivery.
B) Recovery. D) Rejection.

57. Appliances need to have BEE star rating label are……
A) Frost free refrigerator. C) Color TV
B) Distribution Transformer. D) **All of the above.**

58. Types of scale used in BEE star rating labels.
A) Small. C) Big.
B) Both A and C. D) None of the above

59. Small label can be found in plants which usually don't consume …….. energy.
A) Less. C) **More**
B) Medium. D) None of the above

60. Follow product has big label.
A) Ceiling fan. C) Tubelight
B) Computer. D) **Refrigerator**

61. Higher the number stars, EER or efficiency will be.
A. **Greater** C. Lesser
B. Moderate D. None of the above

62. EER in BTU/HR/W = _____ X EER in W/W
A. 3.410 C. 3.411
B. 3.412 D. **3.413**

63. Full form of EER is _____
A. Energy Electric Ratio **C. Energy Efficiency Ratio**
B. Energy Effective Ratio D. Energy Electron Ratio

64. Full form of BEE is ____
A. Basic Electronics and Engineering C. Bureau of Electric Energy
B. Bureau of Electric Efficiency D. **Bureau of Energy Efficiency**

65. Energy Efficiency Ratio is Equal
A. Cooling Capacity (W) + Power consumption (W)
B. Cooling Capacity (W) - Power consumption (W)
C. Cooling Capacity (W) / Power consumption (W)
D. Cooling Capacity (W) X Power consumption (W)

66. Total number of stars is limited to ____for all ACs
A. **5** C.4
B. 6 D.7

67. Number of stars in Red background indicates _____
A. The rating granted to that shop
B. The rating granted to that company
C. The rating granted to that particular model
D. The rating granted to that group

68. Full form of COP is
A. Coefficient of Pressure

B. Coefficient of performance
C. Coefficient of program
D. None of the above

69. Full form of ISEER is _____
A. Indian seasonal electric efficiency ratio
B. Indian seasonal efficiency energy ratio
C. International seasonal efficiency energy ratio
D. Indian seasonal energy efficiency ratio

70. Power saving guide label is stickled on_____
A. Internal parts of AC C. On condenser and compressor
B. **External cover of AC** D. On back cover of AC

71. If we take the numder above, we can see that with increase of energy star rating there is a possibility of saving up to _____.
a) **14%** c) 15-20%
b) 35% d) 30%

72. In comparison an inverter tech AC being flexible tonnage AC can save more over_____star AC.
a) BEE3 c) BEE1
b) **BEE5** d) BEE4

73. In inverter tech AC some manufactures claim up to saving_____.
a) 50% c) **60%**
b) 20% d) 80%

74. Inverter tech AC if usage of AC is more than 1000 hour in a year and per unit cost of electricity is more than rs _____per unit.
a) 10 c) **5**
b) 7 d) 4

75. You may recover the incremental capital cost used to purchase a _____ air conditioner.
a) Lower star c) **Higher star**
b) Higher power d) Lower power

76. 5Star air conditioner will provide the same amount of colling using _____ power than 1 star air conditioner of same tonnage.
a) **Lesser** c) more
b) Equal d) all of the above

77. Star rating are provided to all the major kind of appliance in the form of _____.
a) **Label** c) stamp
b) Punching d) sticker

78. Inverter technology AC cost further.
a) **More** c) less
b) Equal d) all of the above

79 …….. product on which labeling is voluntary.
A. LPG stoves C. laptops
B. Ballast **D. All of above**

80. How many stages of application for registration?
A. only one **C. two**
B. five D. four

81. Which are the following stages of registration?
a) Company registration
b) Product registration
c) Model registration
d) Symbol registration

A. a) and b) C. b) and c)
B. a) and c) D. a) and d)

82. Each and every document submitted to BEE must be ……and …….
A. verified and authorized **C. sign and stamp**
B. registered and uploaded D. verified and uploaded
83. …… documents are not accepted as per general guideline of company registration.
A. without proper filling and loosing C. folded or improper
B. Both A and B D. None of above
84. Covering letter include…….....
A. Annexure 1A and 2A C. Annexure 1 and report
B. Annexure 1 and 2 D. None of above
85. One time company registration fee for large scale industry is Rs……..
A. 150000 **C. 100000**
B. 50000 D. 75000
86. Company registration fee for small scale industry is Rs ……
A. 10000 C. 15000
B. 25000 D. 20000
87. Name of the user of label include in ……. Certificate.
A. Tread mark B. SSI
C. BIS D. None of above
88. If small scale industry applying for registration first time required ……..certificate
A. BIS **B. SSI**
C. Both A and B D. None of above
89. The applications of S&L scheme are _____.
a) Procedure for obtaining a label b) Financial obligations involved
c) **Frost free refrigerator** d) Model registration
90. The following are the types of labels.
a) **Comparative label** b) Brand label
b) Descriptive label d) Grade label
91._____ are the function of a label.
a) Well defined test protocols b) Target limits on energy performance
b) Disseminate information on the benefits to consumers d) **Describes energy performance**
92. Products on which labeling is voluntary are
a) Electric geysers b) Induction motors
b) Ceiling fans d) **All of the above**
93. The meaning of standard are
a) Target limits on energy performance
b) Well defined test protocols to obtain a sufficiently accurate estimate
c) **Both are correct**
d) Both are wrong
95. The effectiveness of energy labels depend upon what factors?
a) How they present information to consumer
b) How they are supported by information to the consumer
c) How they are supported by information campaigns
d) **All of the above**
96. Energy labels can be used ____
a) Efficiently b) Effectively
b) **Stand alone** d) None of the above
97. The function of comparative label is ____
a) Allow consumers to compare the energy consumption of similar products
b) Provide a certification to inform prospective purchasers
c) Gives necessary information

d) Target limits on energy performance

98. Function of endorsement label is ___.

a) Gives necessary information
b) Target limits on energy performance
c) Allow consumers to compare the energy consumption of similar products
d) Provide a certification to inform prospective purchasers

99. Products on which labeling is mandatory are _____.

a) Colour TV
b) Room air conditioners
b) Direct cool refrigerator
d) All of the above

100. Labeling is voluntary on

a) Solid State inverters
b)Diesel Generator
c) LED retrofit lamps
d) all of above.

101. Registration is done in two stages :

a) Registration
b) Model Registration
c) Both a. And b.
d. None of above

102. An applicant is required to apply online through

a) Customer portal
b) Project Management Portal
c) S & L portal
d) none of above

103. Documents which are clipped or only stapled

a) Will be accepted
b) Will not be accepted
c) will be approved
d) none of above

104. Deviation from the process would be treated as _____to application.

a) Compliance
b) Non-compliance
c) acceptance
d) none of above

105. Covering letter is given in

. a) Annexure 1
c) Annexure 2
c) both (a) and (c)
d)None of above

106. For large scale industries the One time registration fee is

a) Rs.25000
b) Rs.100000
c) Rs.250000
d) Rs.700000

107. For small scale industries the company registration fee is

a) Rs.100000
b)Rs.250000
c) Rs.25000
d) Rs.150000

108. Payment of the fees can be made through

a) cheque
b) cash
c) demand draft
d) none of above

109. One time company registration fee can be paid through

a) demand draft
b) online
c) both a) and b)
d) None of above

110. Model registration fee for each model is

a. **1000**
b. 2000
c. 3000
d. 4000

111. Model registration fee payment can be done by...

a. Demand draft
b. Online
c. Cash
d. Both a & b

112. Manufacturers are required to put star rating labels as per the...

a. ISO
b. ASME
c. The standards and labeling program
d. RBI

113. The standards and labeling program was introduced in

a. 2003
c. 2009

b. 2006 d. 2012

114. Star rating are provided to all major kinds of _____ in the form of labels.

a. Appliances c. Eatables

b. Clothes d. Vehicles

115. Appliances which need to have energy Star rating mandatorily:

a. Refrigerator c. AC

b. TV **d. All of above**

116. Full form of NABL

a. National athletic basketball league

b. National Accreditation Board for Testing and Calibration Laboratories

c. National Accreditation Board limited

d. National athletic baseball league

117. The new BEE start rating came into effect from _____ onwards

a. May 2019 **c. August 2019**

b. July 2019 d. January 2020

118. The appliance with the lowest energy consumption are given...

a. Lowest rating c. 1 star

b. Highest rating d. 2 star

119. The appliance with the highest energy consumption are given...

a. Lowest rating **c.** 5 star

b. Highest rating d. 4 star

120. BEE star rating labels show additional information such as

a. Product c. brand name

b. Product category **d. All of the above**

121. For consumers, _____ is helpful as it allows you to calculate the actual money you would spend in electricity bills for that particular product.

a. Electricity bill **c. BEE Star Rating**

b. User manual d. Water bill

123. Following product have small BEE Star Rating label

a. Refrigerator c. Geysers

b. Washing machine **d. Ceiling fans**

124. Following product have big BEE Star Rating label

a. Ceiling fans c. Tube light

b. Refrigerator d. Television

125. The _____ is aimed at appliances which have a constant usage andconsume more electricity.

a. Electricity bill **c. BEE Star Rating**

b. User manual d. Water bill

126. Bee star rating label just give _____ representation of the energy consumption levels byshowing star ratings.

a. Physical **c. Visual**

b. Both a and c d. None of the above

127. Choose the correct statement about BEE Star rating label

a. Higher the number of stars, greater will be the efficiency

b. Lesser the number of stars, greater will be the efficiency

c. Higher the number of stars, lesser will be the efficiency

d. None of the above

128. Choose the correct star rating for BEE Star rating label limit

a. 1< to 5 **c. 1 to 5**

b. 1 to 5> d. None of the above

129. Higher the number of stars, _____ will be the efficiency or EER

a) Lesser **c) Greater**

b) Likewise e) average

130. We have defined EER by

a) BTU/hr/W c) BTU/min/W

b) BTU/sec/W d) BTU/hr/V

131. EER in BTU/hr/W =

a) 3.222 * EER in W/W **c) 3.413 * EER in W/W**

b) 3.234 * EER in W/W d) 3.400 * EER in W/W

132. A 5 star AC in the previous year may become a _____ AC the next year after revision of rating takes place.

a) 5 star **c) 3 star**

b) 7 star d) 10 star

133. Factor apart from cost that determines the selection of an AC is

a) It's appearance **c) Power saving guide label**

b) It's type d) it's durability

134. BEE Energy efficiency ratings are based on

a) Savings in cost c) savings in electricity consumption

b) Savings in input **d) savings in machinery**

135. Small labels can be found in appliances which usually

a) Don't consume more energy c) don't have higher cost

b) Don't consume less energy d) don't have high maintenance

136. Products with big label are

a) Refrigerator c) AC

b) Washing machine **d) all of above**

137. Big label helps to calculate actual money to be spent on

a) Maintenance bills **c) Electricity bills**

b) Repairing d) None of above

138. Labels show information such as

a) Brand name c) product category

b) Energy consumption of the product **d) All of above**

139. _____ is the system to reduce the amount of energy input into the system without negatively affecting the output.

A) Energy Management. C) ISEER.

B) **Energy audit.** D) Energy monitoring.

140. Energy audit is the first step towards systematic effort for _____.

a) Realting energy inputs and production. **C) Conversation of energy.**

b) Reducing the amount of energy input. D) None of the above.

141. Correct objectives of energy audit-

a) Identifying the quality and cost of various energy inputs.

b) Relating energy inputs and production output

c) Highlighting wastage in major areas.

d) All of the above.

142. The PEA is the first step in implementing an energy conversation programme, and consists of essentially collecting and analyzing data.

a) True.

b) False.

143. The primary objective of energy audit is to determine ways to _____ energy consumption per unit of product output.

A. Increase. C) Slightly increase.

B. **Reduce.** D) Change.

144. Energy audit can be classified into the following two types:-

I) Preliminary audit. II) Secondary audit.

A. Correct.

B. **Incorrect.**

145. The _____ audit is the simplest and quickest thpe of audit.

A. Primary audit. C) Tertiary audit.

B. Secondary audit. **D) Preliminary audit.**

146. The instrument for measurement of flow/ velocity is_____.

A. Bimetallic. **C) Turbine meter.**

B. Manometer. D) Wattmeter.

147. Pressure is measured with the help of-

A. Manometer. C) Thermocouple.

B. Ammeter. D) Orifice plate.

148. Considerable savings are possible through small improvements in the "house keeping" practices.

A. True.

B. False.

149. The Bureau of Energy Efficiency initiated the standard and labelling programme for equipments & appliances in

A. 2001.

B. 2004.

C. 2006.

D. 2008.

150. The S & L activity has been identified as a key activity for energy efficiency improvement which stands for

A. Standards & Listening.

B. Standards & Labelling.

C. Standards & Logistics.

D. Standards & Lateral.

151. The relation between EER in BTU/hr/W EER in W/W is given as_____.

A. EER in BTU/hr/W = 3.245 EER in W/W.

B. EER in BTU/hr/W = 3.44 EER in W/W.

C. EER in BTU/hr/W = 3.413 EER in W/W.

D. EER in BTU/hr/W = 1.234 EER in W/W.

152. The standard and labelling scheme is invoked for 20 equipment from which _____ number of equipment are mandatory.

A. 30.

B. 20.

C. 10.

D. 15.

153. State whether the given product have been notified under the mandatory labelling as on May 2018. (Inverter type Room A/c).

A. True.

B. False.

154. The label which allows consumer to compare the energy consumption of similar products and factor lifetime running cost into their purchasing decisions.

A. Comparative label.

B. Endorsement label.

C) Standard label.

D) None of the above.

155. The label which provides a certification to inform prospective purchasers that the product is highly energy efficient for its category.

A. Standard label.

B. Comparative label.

C. Endorsement label.

D. None of the above.

156. State whether the Diesel Engine Driven Monoset Pumps for agricultural purposes have been notified under the voluntary labelling.

A. True.

B. False.

157. The Model Registration fee for each model is _____ & payment can be made through ____.

A. 1500rs & only bank DD.

B. 1000rs & bank DD or through online.

C. 10,000rs & only through online.

D. None of the above.

4.2 ENERGY MOUNTING AND TARGETING

1. The energy used by any business varies with _____ processes.

a) Input b) Volumes

c) Production. **d) All of the above**

2. Future energy use is likely to vary if you change____ of your business

a) Labour. b) Funds

c) Aspects d) Efficiency

3. _____ will provide indications of effectiveness of your operations.

a) Benchmarking b) Stops

c) Production d) machines

4. Energy audit is an_____ of energy flows

a) Inspection b) Survey

c) Analysis. **c) All of the above**

5. Energy audit will help to keep focus on _____ which occurs in energy.

a) difficulty b) change

c) variations d) conversion

6. In any industry three top operating expenses are found to be _____.

a) wnergy. b) labour cost

c) all of the above d) material

7. CUSUM stands for _____

a) Constant summation. b) Current sums

c) Control construction **d) Cumulative sum**

8. CUSUM technique provides _____

a) Deployment. b) Maintenance

c) Development. **d) Trend line**

9. Annual total energy & production chart smoothens out ____ in energy timing of meter readings.

a) Errors b) Efficiency

c) Accuracy. d) Repeatability

10. SEC is _____

a) Specific engine control b) System error control

c) Second error control **d) Specific Energy Consumption**

11. Energy monitoring and targeting is primarily a_____ technique.

A) management C) information

B) installation D) none of above

12. Energy monitoring and targeting is primarily a management technique that use Energy system on basic to

A) Eliminate waste C) Reduce pollution

B) **Both A & C are correct** D) None of above

13. It builds on the principle "you can't manage _____

A) what you don't measure". C) what you measure. “

B) what you weight. “ D) none of above

14. A management goal to work towards energy _____.
A) preservation **C) conservation**
B) consumption D) all of above.
14.It involves a _____ disciplined division of the facility into Energy Cost Centre
A) kinematics C) pneumatic
B) systematic D) none of above.
16. the energy used is compared with production _____
A) space **C) volume**
B) material D) mass
17. The information is available on a regular basic ,variances can be spotted and _____
A) interpreted C) discarded
B) change D) none of above
18. The Monitoring and Targeting programs they show typical elections in annual energy costs
A) selection C) power
B) election D) none of above
19. monitoring is essentially aimed at establishing the existing pattern of energy consumption.
A) surface C) marking
B) pattern D) none of above.
20._____ information can be derived from the financial accounting systems - utilities cost centre
a) **Plant level** b) Plant department level
c) System level d) Equipment level
21. Plant level information can be found in?
a) variable yield data **b) energy consumption data**
c) both A & B d) none of the above
22. Sub metering data helps to determine which data.
a) financial data b) yield data
c) **system level performance data** d) none of the above
23. Equipment level information is obtained from ____ & ____
a) **name plate data & schedule information** b) low unit cost & financial data
c) Both a & b d) none of the above
24. Electric bills and other fuel bills should be collected _____.
a) daily b) monthly
c) **periodically** d)none of the above
25. A critical feature of M&T is to understand____
a) energy management. b) **what drives energy consumption**
c) product configuration d) none of the above
26. The next stage of monitoring process is to ____
a) **study and analyze the data** b) obtain a visual representation
c) both a & b d) none of the above
27. It js strongly recommended that the data be _____.
a) presented graphically b) non of above
c) presented visually d) both A&B are correct
28. A better appreciation of variations is always obtained from_____
a) energy-production relationships b) **visual representation**
c) business process automation d) both A&C are correct
29. Graphs provide an effective means of developing the _____
a) energy - production relationships b) production data
c) hours of operation d) none of the above
30. _____ energy use, so that projects intended to improve energy efficiency can be checked.
a] Recording c] Checking
b] Controlling. d]Allocating

31. _____one is not the essential elements of M&T system.

a] Recording c] Analyzing

b] **Source** d] Checking

32_____ energy consumption to an appropriate standard or benchmark.

a] Setting target **c] Comparing.**

b] Reporting d] Allocating

33. ____ the result including any variances from the targets which have been set.

a] Reporting c] Determining

b] Recording d] Highlighting

34. _____ to reduce or control energy consumption.

a] Determining c] Highlighting

b] Recording **d] Setting Targets**

35. Particular M&T system will involve the following:

a] Checking c] Determining

b] Allocating **d] All of the above**

36. _____ energy costs to specific departments (energy/Accounting Centres)

a] Recording **c] Allocating**

b] Checking d] Determining

37. _____ energy performance/ efficiency.

a] Allocating c] Allocating

b] Checking **d] Determining**

38. Comparing energy consumption to the set target on a regular basis is called as _____.

a]Reporting c] Determining

b] Recording d] Highlighting

39. Implementing management measures to correct any variances, which may have occurred _____.

a] Recording c] Checking

b] Controlling. d] Allocating

40. A critical feature of _____ is to understand what drives energy consumption.

a) M&Y b) **M&T**

c) T&M. d) C&V

41. After collection of what monitoring process starts

a) **production data.** b) visual presentation

c) money. d) all of the above

42. what is the next step of monitoring process?

a) visual presentation. b) Bar chart

c) **study and analysis.** d) none of the above

43. it is strongly recommended that the data be presented graphically.

a) true. b) false.

44. A better appreciation of variation is almost always obtained from a _____

a) **visual presentation.** b) table of number

c) both a & b. d) none of the above

45. Graphs generally provide an effective means of developing what

a) map. b) **energy production**

c) relationship. d) none of the above

46. The energy data entered into____

a) **spreadsheet.** b) bar chart

c) histogram d) all of the above

47. It is hard to envisage it is happening from

a) energy bills. b) data

c) energy production. d) **plain data**

48. The starting point is to collect and collate _____ months of energy bills
a) 24/24. b) 12/24
c) 12/12. d) 24/12
49 Having how much months of production and energy data, we can plot a moving annual total
a) Three. b) Five
c) **Twelve**. d) six
50. In the production of wave energy _____ form of energy is used.
a) Potential energy
b) Kinetic energy
c) Solar energy
d) Wind energy
51._____ energy sources does not produce carbon dioxide.
a) Oil
b) Uranium
c) Coal
d) Natural gas
52. _____energy source is the largest source used in India.
a. CNG
b. LPG
c. Coal
d. Bio Gas
53. _____ is the most popular kitchen fuel in India
a. LPG
b. Kerosene
c. Coal
d. Firewood
54. Common energy source in Indian villages is:
(a) Electricity
(b) Coal
(c) Sun
(d) Wood and animal dung
55. Five of the world's top fourteen oil producing countries are located in
a) Middle East
b) USA
c) Canada
d) Russia
56. Energy is released from fossil fuels when they are_____
a) Pumped
b) Cooled
c) Burned
d) Pressurized
57. In the production of wave energy which form of energy is used?
a) Potential energy
b) Kinetic energy
c) Solar energy
d) Wind energy
58. Energy in the form of heat and light is obtained by_____
a) Biomass
b) Fossil fuels
c) Sun
d) Wind
59. How many forms of fossil fuels are there_____
a) One
b) Two
c) Three

d) Four
60. Energy monitoring and targeting is built on the principle of " _____".
a) "production can be reduced to achieve reduced energy consumption"
b) "Consumption of energy is proportional to production rate"
c) "You cannot manage what you do not measure"
d) None of the above.
61. Poor scattering on trend line of production Vs Energy consumption indicates ___.
a) poor level of control
b) good level of control
c) both the above
d) none of above.
62. Energy and production data is useful to calculate……
a) Specific Energy Consumption
b) Specific Fuel consumption
c) Specific Cost
d) None
63. Data required to plot a moving annual total is ____.
a) Production
b) Energy
c) Both a and b
d) None the above
64. For any company, energy consumption mostly relates to……..
a) Profits
b) Inventory
c) Production
d) All the above
65. The best way of correlating production and energy data in any plant is…..
a) Text format
b) Graphical representation
c) Oral communication
d) None
66. The energy used by any manufacturing process varies with
a) Production volume
b) Type of process
c) Resource input
d) All the above
67. To draw a CUSUM chart following data is required
a) Monthly energy consumption& monthly production
b) Monthly specific energy consumption and turn over
c) Monthly profits and production
d) None
68. One of the following is not the element of energy monitoring & targeting system
a) Recording the energy consumption
b) Comparing the energy consumption
c) Controlling the energy consumption
d) Reducing the production
69. Level of production may have an effect on specific energy consumption. State
a) True b) False
70. India's position in the Global Wind Energy Council (GWEC) is_____
a) Fourth
b) Third
c) Second
d) First
71. Total primary energy consumption of fuel in the world is lead by _____
a) Coal

b) Nuclear
c) Hydro
d) Oil
72. The world's top consuming country of domestically produced hydroelectricity is _____
a) India
b) Brazil
c) China
d) Japan
73. India's energy consumption growth in 2016 is_____
a) 3.6%
b) 4.6%
c) 2.9%
d) 1.5%
74. The maximum work attainable as the system comes in equilibrium with surrounding is called__
a) Energy
b) Availability
c) Exergy
d) Entropy
75. Exergic _____ is a measure of the perfectness of a thermal system.
a) Enthalpy
b) Efficiency
c) Strength
d) Degree
76. _____ power does the small scale wind machine generate.
a) 18 KW
b) 2 KW
c) 12 KW
d) 30 KW
77. _____type of generator are made use in wind turbines.
a) Recreational generators
b) Synchronous generator
c) Asynchronous generator
d) Alternator
78 India's total primary energy consumption is _____
a) 24.3 BTU
b) 19.01 BTU
c) 120 BTU
d) 30.1 BTU
79 State true or false. Nordic countries consumption of energy per capita is among the highest in the world.
a) True b) False
80. _____many percent of energy transferred from one trophic level to the next higher level.
a) 20%
b) 10%
c) 50%
d) 100%
81. The value of the reference value is chosen _____
a) 3/4 ways between mean and the out-of-control mean towards the mean
b) 1/2 ways between mean and the out-of-control mean
c) 3/4 ways between mean and the out-of-control mean towards the out-of-control mean
d) 1/4 ways between mean and the out-of-control mean towards the mean
82. After the value of Ci– increasing than the value of _____ the process is said to be out-of-control.
a) Control interval **b) Decision interval**
c) Distribution interval d) Calculation interval
83. If the value of $\mu 0 > \mu 1$, K will have a negative value.
a) True **b) False**

84. Each vertical bar in cusum status chart represents _____
a) The value of Ci+ and Ci– b) The value of Ci–
c) The value of Ci+ d) Neither the value of Ci+ nor Ci–
85. The value of K and H should be determined according to the ARL required for the corresponding cusum chart.
a) True b) False

86. To apply Shewhart-cusum combined procedure, the Shewhart control limits should be applied almost _____ standard deviation from the center.
a) 2 b) 1
c) 1.5 **d) 3.5**
87. Combined Cusum-Shewhart procedure is applied _____
a) On-line control b) On-line measure
c) Off-line control d) On-line measure
88. The standardized variable vi was subjected to vary more with respect to ____ than process mean.
a) Sample mean b) Sample variance
c) Process variance d) Process standard deviation
89. Each vertical bar in cusum status chart represents _____
a) The value of Ci+ and Ci– b) The value of Ci–
c) The value of Ci+ d) Neither the value of Ci+ nor Ci–
90. Only two-sided cusums are useful all over the industries.
a) True **b) False**
91. M&T is an established technique that was the first launch as a National program in the UK in …….
a.1900. c.1992
b.1971. **d.1980**
92. Its …….. goal is to meet in said pattern by providing all the necessary data on the energy consumption as well as certain driving factors as identified during preliminary investigation.
a. Secondary. **c. Primary**
b. Tertiary. d. None.
93. M&T techniques rely on the …… main principles.
a. two **c. three**
b. one. d. six
94. Energy monitoring and targeting is …….
a. primary management techniques
b. secondary management techniques
c. tertiary management techniques
d. None
95. As per pie chart on energy consumption the supply unit of the electricity is……..
a. kWh c. kV
b. kg. d. Watts
96. As per the case study of the CUSUM technique energy consumption and the production data were collected for plant over a period of …….. months.
a. 20. c. 19
b. 6. **d. 18**
97. Energy monitoring and techniques builds on the principle of "you can manage what you measure".
a. true
b. false
98. Monitoring and targeting programs have been so effective that they show typical reductions in annual energy cost in the various industrial sectors between…….
a. 10 to 30 % **c. 5 to 20%**
b. 5 to 10 % d. 5 to 30%
99. As per chart on energy consumption the supply unit of furnace oil is ……
a. kWh c. kV
b. kg. d. Watts

100. A CUSUM graph follows a random fluctuation trend and oscillates around.
a) 100
b) 100%
c) 0
d) none of the above
102. To draw a CUSUM chart following data is required
a) Monthly energy consumption& monthly production
b) Monthly specific energy consumption and turn over
c) Monthly profits and production
d) None
103. What is specific energy consumption.
a) energy consumption per month
b) Energy consumed per unit of production
c) energy consumption per year
d) none of the above
104. Data required to plot a moving annual total is ____.
a) production
b) energy
c) both the above
d) none the above
105. Energy and production data is useful to calculate……
a) Specific Energy Consumption
b) Specific Fuel consumption
c) Specific Cost
d) None
106. What type of data is useful to find out the fixed energy consumption?
a) SEC Vs production
b) SEC Vs Energy
c) Production Vs energy
d) None
107. What do you mean by "toe"
a) Total oil equivalent
b) Tons of effluent
c) Tons of oil equivalent
d) none of the above
108._____ is primarily a management technique that uses energy information as a basis to eliminate waste, reduce and control current level of energy use and improve the existing operating procedures.

a) Energy monitoring and targeting
b) CUSUM
c) Specific energy consumption
d) Production

109._____is essentially aimed at preserving an established pattern.

a) Targeting
b) Analysing
c) Monitoring
d) ecording

110._____is the identification of energy consumption level, which is desirable as a management objective to work towards energy conservation

a) Recording
b) Targeting
c) Analysing

d) Monitoring

111. "The judicious and effective use of energy to maximise profits and enhance competitive positions". This can be the definition of:
a) Energy conservation **c) Energy management**
b) Energy policy d) Energy Audit

112. The energy management function is generally vested in –
a) Senior Management **c) Distributed among number of middle manager**
b) One energy manager or co-ordinator d) (b) & (c) together

113. The objective of energy management includes
c) Minimising energy costs c) Minimising environmental degradation
d) Minimising waste **d) all the above**

114. One unit of electricity is equivalent to ___ kcal heat units.
a) 800 c) 400
b) **860** d) 680

115. Which instrument is used to monitor O2, CO in flue gas?
a) **Combustion analyzer** c) Pyrometer
b) Power analyzer d) Fyrite

116. Lux meter is used to measure……
a) **Illumination level** c) Harmonics
b) Sound intensity and illumination level d) Speed

117. For a cement plant the parameter, "kWh/MT of clinker "indicates
a) **Energy Index parameter** c) Production factor
b) Utility factor d) load factor

118. Energy manger should be well versed with
a) Manufacturing and processing skills c) Technical and marketing skills
b) **Managerial and technical skills** d) Managerial and commercial skills

119. CO2 measurement of Fyrite kit is based on (EA
a) Weight basis (dry) c) Weight basis (wet)
b) **Volume basis (dry)** d) Volume basis (wet)

120. Non contact speed measurements can be carried out bb
a) Tachometer c) **Stroboscope**
b) Stroboscope d) Speedometer

121.Energy monitoring and targeting is built on the principle of " _____".
a) "production can be reduced to achieve reduced energy consumption"
b) "Consumption of energy is proportional to production rate"
c) "You cannot manage what you do not measure"
d) None of the above.

122. One of the following is not the element of energy monitoring & targeting system
a) Recording the energy consumption b) comparing the energy consumption
C) Controlling the energy consumption **d) Reducing the production**

123. Which of the variable does not contribute to energy consumption?
a) Production b) Hours c) Climate **d) none of the above**

124. Poor scattering on trend line of production Vs Energy consumption indicates ___.
a) poor level of control b) good level of control
c) both the above d) none of above.

125. Level of production may have an effect on specific energy consumption.
a) **True** b) False

126. M & T involves a systematic, disciplines division of the facility in to energy cost centres.
a) **True** b) False?

126. "The judicious and effective use of energy to maximise profits and enhance competitive positions". This can be the definition of:

e) Energy conservation **c) Energy management**

f) Energy policy d) Energy Audit

127. The energy management function is generally vested in –

c) Senior Management **c) Distributed among number of middle manager**

d) One energy manager or co-ordinator d) (b) & (c) together

128. The objective of energy management includes

g) Minimising energy costs c) Minimising environmental degradation

h) Minimising waste **d) all the above**

129. One unit of electricity is equivalent to ___ kcal heat units.

c) 800 c) 400

d) **860** d) 680

130. Which instrument is used to monitor O2, CO in flue gas?

c) **Combustion analyzer** c) Pyrometer

d) Power analyzer d) Fyrite

131. Lux meter is used to measure……

c) **Illumination level** c) Harmonics

d) Sound intensity and illumination level d) Speed

132. For a cement plant the parameter, "kWh/MT of clinker "indicates

c) **Energy Index parameter** c) Production factor

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d) **Managerial and technical skills** d) Managerial and commercial skills

134. CO2 measurement of Fyrite kit is based on (EA

c) Weight basis (dry) c) Weight basis (wet)

d) **Volume basis (dry)** d) Volume basis (wet)

135. Non contact speed measurements can be carried out bb

c) Tachometer c) **Stroboscope**

d) Stroboscope d) Speedometer

136. Which of the following is must in food labeling?

a) Name c) Standard specification

b) Place of origin **d) All of the mentioned**

137. Which of the following need not to be in the same vision of field

c) Product name c) Quantity

d) Date mark **d) Place** above **of origin**

138. Food authenticity means_____

e) **The food should match the description** c) The food should taste good

f) It should be cheap d) None of the above

139. Which of the following is the form of mis-description?

g) Incorrect Origin c) Incorrect quantitative description

h) Extending the food **d) All of the above**

140. Which of the following food item has been exempted from labeling?

i) On the spot food like bakery items c) Ready to eat food

j) Food served on plane machine **d) All of the above**

141. According to CODEX standards, which of the following item is hypersensitive?

k) Cereals c) Nuts

l) Milky products **d) All of the above**

142. Which among the following claims is prohibited?

m) **Substantiated Claims** c) All of the above

n) Claims of Veg/non- veg d) None of the above

143. Arrange the steps involved in Energy Management strategy

A- Set up energy monitoring and reporting system
B- Appoint energy management
C- Conduct energy audit
D- Identify the strategic corporate approach

a) **D – B – A - C**
b) A - B – C – D
c) D – A – B – C
d) C – A – B – C

144. The percentage of energy saved at the current rate of use ,compared to the refference year rate of use is called……..

a) Energy Utilization
b) Energy Performance
c) Energy Efficiency
d) None

145. An energy policy does not include ……

a) Target Energy Consumption Reduction
b) Time Period for Reduction
c) Declaration of top Management Commitment
d) Future Production Projection

146. The various types of instruments required during audit is not need to be….

a) Easy to carry
b) Inexpensive
c) Easy to operate
d) Unreadable

147. M&T is an established technique that was the first launch as a National program in the UK in …….

a.1900. c.1992
b.1971. **d.1980**

148. Its …….. goal is to meet in said pattern by providing all the necessary data on the energy consumption as well as certain driving factors as identified during preliminary investigation.

a. Secondary. **c. Primary**
b. Tertiary. d. None.

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b. one. d. six

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c. tertiary management techniques
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b. 6. **d. 18**

153. Energy monitoring and techniques builds on the principle of "you can manage what you measure".

a. true
b. false

154. Monitoring and targeting programs have been so effective that they show typical reductions in annual energy cost in the various industrial sectors between…….

a. 10 to 30 % **c. 5 to 20%**
b. 5 to 10 % d. 5 to 30%

155. As per chart on energy consumption the supply unit of furnace oil is ……
a. kWh c. kV
b. kg. d. Watts

156. India's position in the Global Wind Energy Council (GWEC) is_______
a) fourth
b) third
c) second
d) first

157. Where does India stand on solar energy production?
a) First
b) Third
c) Fifth
d) Seventh

158. _____ country leads in the production of biofuel in the world?
a) United States of America
b) Brazil
c) Germany
d) Argentina

159. India is placed within the top 25 nations, in terms of oil production in the world.
a) True
b) False

The Arab states of the Persian Gulf are known for the production of _____
a) Coal
b) Copper
c) Gold
d) Petroleum

160. India stands in the first position, in the production of coal in the world.
a) True
b) False

161._____ country produces the largest share of electricity generated by nuclear power.
a) India
b) France
c) China
d) Japan

162. Total primary energy consumption of fuel in the world is lead by _____
a) Coal
b) Nuclear
c) Hydro
d) Oil

163. India's energy consumption growth in 2016 is_____
a) 3.6%
b) 4.6%
c) 2.9%
d) 1.5%

164. _____ is the world's biggest oil consuming country?
a) United States of America
b) Japan
c) India
d) China

4.3 Energy management and Audit

1. The fundamental goal of energy management is
   a) To produce goods and provide services with the least cost.
   b) To produce goods and provide services
   c) To sell goods only
   d) To give services only
2. _____is the Objective of the energy management from the following :-
   a) To give each product a label
   b) To evolve minimum energy consumption
   c) To minimize environmental effects
   d) To achieve optimum energy procurement.
3. Energy Efficiency rating in BTU/hr/W is equal to
   a) 4.413 W/W
   b) 2.413 W/W
   c) 3.413 W/W
   d) none of the above
4. On which Product is Labeling mandatory
   a) Colour TV
   b) LPG stoves
   c) Ballast
   d) Office Equipments
5. On which products is Labeling Voluntary
   a) Direct cool Refrigerator
   b) Ceiling fans
   c) Colour TV
   d) Tubular Florescent Lamps
6. The standards and labelings scheme (S&L) is one of the major thurst areas of _____.
   a) BEE
   b) ISEER
   c) HVAC
   d) ISO
7. _____ gives the consumers the necessary information to make informed purchase.
   a) Barcodes
   b) QR codes
   c) Labels
   d) Serial numbers
8. _____is the one time Company Registration fee for large scale industries ?
   a) 50000/-
   b) 100000/-
   c) 150000/-
   d) None of the above

9. Salient feature of Energy Conservation Act 2001 is
(a) establishment of BEE
(b) to prescribe energy conservation building codes for all buildings
(c) to specify energy consumption
(d) both (b) & (c)

10. The Act which is proposed to bring the qualitative transformation of the electricity sector is
(a) Regulatory Commission Act, 1998
(b) Indian Electricity Act, 1910
(c) Electricity Act, 2003
(d) Supply Act, 1948

11. The energy sources that are either found or stored in nature are

a) Secondary Energy Sources
b) Primary Energy Sources
c) both (a) and (b)
d) none of the above
12. _____ is commercial energy source.
a) Electricity
b) Coal
c) Oil
d) All the above
13. Inexhaustible energy sources are known as
a) commercial Energy
b) renewable Energy
c) primary energy
d) secondary energy
14. _____ country has the largest share of the global coal reserves?
a) Russia
b) China
c) USA
d) India
15. Infrared thermometer is used to measure
a) Surface temperature
b) Flame temperature
c) Flue gas temperature
d) Hot water temperature
16. The objective of energy management includes
a) Minimising energy costs
b) Minimising waste
c) Minimising environmental degradation
d) All the above
17. The various types of the instruments, which requires during audit need to be
a) Easy to carry
b) Easy to operate
c) Inexpensive
d) All above
18. For a cement plant the parameter, "kWh/MT of clinker "indicates
a) Energy Index parameter
b) Utility factor
c) Production factor
d) Load factor
18. Energy manger should be well versed with
a) Manufacturing and processing skills
b) Managerial and technical skills
c) Technical and marketing skills
d) Managerial and commercial skills
19. An energy policy does not include
a) Target energy consumption reduction
b) Time period for reduction
c) Declaration of top management commitment
d) Future production projection
20. CO2 measurement of Fyrite kit is based on
a) Weight basis (dry)
b) Volume basis (dry)
c) Weight basis (wet)

d) Volume basis (wet)
21. Non-contact speed measurements can be carried out by
a) Tachometer
b) Stroboscope
c) Oscilloscope
d) Speedometer
22. The tool used for performance assessment and logical evaluation of avenues for improvement in Energy management and audit is
a) Fuel substitution
b) Monitoring and verification
c) Energy pricing
d) Bench marking
23. Infrared thermometer is used to measure
a) Surface temperature
b) Flame temperature
c) Flue gas temperature
d) Hot water temperature
24. Find out the 'odd' among the following choices for fuel substitution for industrial sector of India.
a) LDO with LSHS
b) Coal with rice husk
c) Natural gas for fertilizer plant
d) LPG for soft coke
25. The various types of the instruments, which requires during audit need to be
a) Easy to carry
b) Easy to operate
c) Inexpensive
d) All (a) to (c)
26. Air velocity in ducts can be measured by using ___ and manometer
a) Orifice meter
b) Borden gauge
c) Pitot tube
d) Anemometer
27. "The judicious and effective use of energy to maximise profits and enhance competitive positions". This can be the definition of:
a) Energy conservation
b) Energy management
c) Energy policy
d) Energy Audit
28. The energy management function is generally vested in –
(a) Senior Management
(b) One energy manager or co-ordinator
(c) Distributed among number of middle manager
(d) (b) & (c) together
29. The objective of energy management includes
a) Minimising energy costs
b) Minimising waste
c) Minimising environmental degradation
d) All the above
30. The ratio of current year's production to the reference year's production is called as
a) Demand factor

b) Production factor
c) Utilisation factor
d) Load factor
31. Replacement of steam based hot water generation by solar system is an example of
a) Matching energy usage to the requirement
b) Maximising system efficiency
c) Energy substitution
d) Performance improvement
32. One unit of electricity is equivalent to ___ kcal heat units.
a) 800
b) 860
c) 400
d) 680
33. The benchmarking parameter for air conditioning equipment is
a) kW/Ton of Refrigeration
b) kW/ kg of refrigerant handled
c) kcal/m3 of chilled water
d) Differential temperature across chiller
34. The percentage of energy saved at the current rate of use, compared to the reference year rate of use, is called
a) Energy Utilization
b) Energy Performance
c) Energy Efficiency
d) None
35. _____ instrument is used to monitor O2, CO in flue gas (EA)
a) Combustion analyzer
b) Power analyzer
c) Pyrometer
d) Fyrite
36. Lux meter is used to measure……
a) Illumination level
b) Sound intensity and illumination level
c) Harmonics
d) Speed
37. Why is a food web more realistic way of portraying an ecosystem than a food chain?
a) Because it shows the relation of organisms with each other in a habitat
b) Because food chains use only a small sampling of organisms
c) Because it doesn't shows the relation of organisms with each other in a habitat
d) Because it compares the number of consumers to the number of micro-organisms.
38. ____ is called for an organism that helps to define an entire ecosystem.
a) Super species c) Dominant species
b) Keystone species d) Precious species
39. ____ is called for the diagram that shows how food chain linked together into more complex feeding relationship.
a) Food web c) Food circle
b) Food chain d) Food triangle
40. Find condition is true for food web
a) A food web only follows just one path c) A food web starts with a consumer
b) A food web ends with a producer **d) A food web shoes many paths plants and animals connected**
41. _____ one of the the major difference between food web and food chain.
a) Food chain and food web are linear pathway
b) Food chain and food web are interconnected pathway

c) Food chain is a single linear pathway and food web is interconnected pathway
d) Food chain is interconnected pathway through which food web is single linear pathway
42. Food webs derive their energy from sunlight.
a) True
b) False
43. In which of the following we can have more than one source of organisms for energy
a) Food chain c) Food circle
b) Food web d) Food rotation
44. _____ following is the highest trophic level organism in grassland food web.
a) Grass c) Lizard
b) Grasshopper **d) Hawk**
45._____following is correct order of food web for aquatic food web.
a) Diatoms->pteropods->lantern fish->squid->marlin b) Diatoms->lantern fish->squid->marlin->pteropods
c) Lantern fish-> diatoms-> squid-> marlin->pteropods d) Lantern fish-> diatoms-> squid-> pteropods-> marlin
46.Large sharks remain in the highest trophic level in the aquatic food web.
a) Because large sharks are predators c) Because large sharks are phytoplankton
b) Because large sharks are top predators d) Because large sharks are zooplankton
47. Minimum EER of 5-star rating is
a. 3.50 c) 3.99
b. 4.00 d) **4.50**
48. Bureau of Energy Efficiency was founded on .....
a)1 March 2001 c) **1 March 2002**
b)4 March 2001 d) 4 March 2002
49. Higher the number of stars, lower will be the Efficiency.
a)True b) **False**
50. Labeling is mandatory on ..... product
a)Frost Free Refrigerator c) Colour TV
b)Room Air-conditioners d) **All of the above**
51. Manufacturers claim up to ..... savings on inverter tech AC
a)50% c) 55%
b)60% d) 65%
52. Which of the following food item has been exempted from labeling?
a)On the spot food like bakery items c)Ready to eat food
b) Food served on plane/ vending machine d)**All of the mentioned**
53. Generally the '% Daily Value' is based on a 2000 – 2500 cal diet.
a)**True** b**)**False
54. According to CODEX standards, which of the following food item is hypersensitive?
a) Cereals. c) Milk Products
b) Nuts. d) **All of the above**
55. Nutrition claim means _____
a) A food has certain nutritional properties including but not limited to the energy value
b) A food has certain limitations
c) All of the mentioned
d) None of the mentioned
56. Which among the following claims is prohibited?
a) **Substantiated Claims.** c) All of the above
b) Claims of Veg/non- veg. d) none of the above
57. Freon group of refrigerants are
a) Inflammable. c) Non-inflammable and toxic
b) Toxic. d**) Nontoxic and non-inflammable**
58. The boiling point of ammonia is

a) -10.5°C. c) **-33.3°C**

b) -30°C. d) -77.7°C

59. For obtaining high COP, the pressure range of compressor should be

a) High. c) Optimum

b) **Low**. d) Any value

60. Which of the given reasons, is NOT a valid reason for packaging of food items?

a) Security and portion control. c)Marketing and convenience

b) Protection and information transmission. d) **None of the mentioned**

61. Which of the following is a must in food labeling?

a) **All of the mentioned.** c) Standard Specification

b) Place of Origin. d) Name

62. Which of the following need not be in the same vision of field?

a) Product name. c) **Place of Origin**

b) Date mark. d) Quantity

63. Food Authenticity means _____

a) **The food should match the description.** b) The food should taste good

c) It should be cheap. d) None of the mentioned

64. Which of the following is a form of mis-description?

a) Incorrect Origin. c) **All of the mentioned**

b) Extending the food. d) Incorrect Quantitative Description

65. Indian S&L Programme launched on which day .

a)18th May 2016. c) 16 May 2016

b)26th March 2005. d) 25th August 2006

66. Which of the following are NOT key constraints of the food processing industry?

a) Inadequate quality control. c) High packaging cost

b) **Low demand**. d) Poor infrastructure as in no cold storage

67. Which of the following comes under grain processing in India?

a) Oil seed processing . c) Wheat processing

b) **Oil seed & Wheat processing**. d) None of the mentioned

68. Which year energy conservation act enacted.

c. **2001.** C) 2010

d. 2005 d) 2005

69. Full form of HVCA.....

e. Hazard Vulnerability Capacity Assessment

f. Human Vulnerability Capacity Assessment

g. Hazard Vulnerability Capacity Agreement

h. Human Vulnerability capacity Agreement

70. BEE is under the provision of ..... Act.

i. EC Act , 2000. C) EC Act , 2002

j. **EC Act ,2001.** D) None of the above

71. BEE scheme was launched in.....

i. May , 2004. **C) May ,2006**

ii. April ,2006. D) April , 2004

72. Product on which labelling is mandatory.....

iii. Electric Geysers. B) LPG Stoves

iv. Ballast. **D) Colour TV**

73. Product of which labelling is voluntary ....

v. Frost Free Refrigerator. C) Colour TV

vi. Ceiling Fans D) Distribution Transformer

74. EER in BTU/HR/W=.....

vii. 3.432 * ERR in KW/W. **C) 3.413 * ERR in W/W**

viii. 3.134 * ERR in KW / W. D) 3.413. * ERR in KW/ W

75. According to star rating ,the 5 star gives minimum ERR....

ix. 4.20 C) 3.90

x. 4.70 **D) 4.50**

76. Product with small label....

xi. Refrigerator c) Geyser

xii. Computer D) Air – conditioner

77. "The inspection, survey and analysis of energy flow for energy conservation in a building, process or system to reduce the amount of energy input into the system without negatively affecting the output(s)". Is the definition of?

a. Energy conservation b. Energy management

c. Energy policy d. **Energy Audit**

78. The Objective of Energy Management includes

a. Minimising Energy Costs b. Minimising Environmental Degradation

c. Minimissing waste d. **All of the above**

79.One unit of electricity is equivalent to ___ kcal heat units.

a) 800 **b) 860**

c) 400 d) 680

80. The benchmarking parameter for air conditioning equipment is

a) kW/Ton of Refrigeration b) kW/ kg of refrigerant handled

c) kcal/m3 of chilled water d) Differential temperature across chiller

81. Which instrument is used to monitor O2, CO in flue gas? (EA)

a) Combustion analyser b) Power analyser

c) Pyrometer **d) Fyrite**

82. Energy manger should be well versed with

a) Manufacturing and processing skills **b) Managerial and technical skills**

c) Technical and marketing skills d) Managerial and commercial skills

83. The tool used for performance assessment and logical evaluation of avenues for improvement in Energy management and audit is

a) Fuel substitution b) Monitoring and verification

c) Energy pricing d**) Bench marking**

84. The various types of the instruments, which requires during audit need to be

a) Easy to carry b) Easy to operate

c) Inexpensive **d) All (a) to (c)**

85. For a cement plant the parameter, "kWh/MT of clinker "indicates

a) Energy Index parameter b) Utility factor

c) Production factor d) Load factor

86. Energy consumption per unit of GDP is called as:

a) Energy Ratio b) Energy intensity

c) Per capita consumption d) None

87. A _____ is an inspection, survey and analysis of energy flows for energy conservation in a building, process and system.

a) Energy audit.

b) Wave audit.

c) Bank audit.

d) None of the above.

88._____ are portable devices capable of estimating the combusting efficiency of furnaces, boilers, or other fossil fuel burning machines.

a) Sound analyzer.
b) Light analyzer.
c) Combustion analyzer.
d) Temperature analyzer.

89._____ is the measure of whether a plant is now using more or less energy to manufacture its product than it did in the past.

a) Total Dissolved Solids (TDS)
b) Plant Energy Performance (PEP)
c) Revolutions Per Minute (RPM)
d) Option (a) and (b)

90. Types of Energy Audit to be performed depends on:

a) Function and type of industry.
b) Depth to which final audit is needed.
c) Potential and magnitude of cost reduction desired.
d) All of the above.

91. The _____ is the simplest and quickest type of audit.

a) Detailed audit.
b) Energy audit.
c) Preliminary audit.
d) None of the above.

92. Energy audit can be classified as.

a) Preliminary audit.
b) Detailed audit.
c) Both (a) and (b).
d) Only option (a).

93. The most basic measuring device needed is the _____.

a) Thermometer.
b) Voltmeter.
c) Wattmeter.
d) Tape measures.

94. A portable hand-held _____ and _____ is very handy for determining the power consumption and power factor of individual motors and other inductive devices.

a) Voltmeter and wattmeter.
b) Wattmeter and power factor meter.
c) Light meter and flash meter.
d) Thermometer and humidity meter.

95._____ measures oxygen and temperature of the flue gas.

a) Fuel efficiency monitor.
b) Combustion analyzer.
c) Contact thermometer.
d) Infrared thermometer.

96._____ is a non-contact type measurement which when directed at a heat source directly gives the temperature read out.

a) Thermocouples.
b) Contact thermometers.
c) Humidity.
d) Infrared thermometers.

97) An energy audit is an_____

a) inspection. c) analysis of energy.
b) survey. **d) All of the above.**
98) Energy audit is the first step towards_____for consevation of energy.
a) systematic effort. c) process.
b) building. d) only b.
99) Energy audit involves_____and_____of energy related data on regular basis and in a methodological manner.
a) collection. **c) Both a&b.**
b) Analysis. d) Only a.
100)_____ are portable devices capable of estimating the combusting efficiency of furnaces, boilers, or other fossil fuel burning machines.
a) Sound analyzer. **c) Combustion analyzer.**
b) Light analyzer. d)Temperature analyzer.
101)_____ is the measure of whether a plant is now using more or less energy to manufacture its product than it did in the past.
a) Total Dissolved Solids (TDS). **c) Plant Energy Performance (PEP)**
b) Revolutions Per Minute (RPM) d) Option (a) and (b)
102) In any industry,the three top operating expenses are often Found to be energy
a) electrical & thermal. c) none
b) labour and materials. **d) option a & b**
103) A _____ is an inspection, survey and analysis of energy flows for energy conservation in a building, process and system.
a) Energy audit. c) Wave audit
b) Bank audit. d) None of the above.
104)_____ is a non-contact type measurement which when directed at a heat source directly gives the temperature read out.
a) Thermocouples. c) Contact thermometers.
b) Humidity. **d) Infrared thermometers.**
105) Energy audit can be classified as.
a) Preliminary audit. c) Detailed audit.
b) Both (a) and (b). d) Only option (a).
106) The most basic measuring device needed is the _____.
a) Thermometer. c) Voltmeter.
b) Wattmeter. **d) Tape measures.**
107.____ is the key to a systematic approach for decision making in the area of energy management.
a) Energy Audit c) Energy management
b) Efficiency d) None of the above
108. The Bureau of Energy Efficiency launched
a) 2005 **c) 2006**
b) 2010 d) 2007
109."To minimize energy cost " is an objective of which of the following
a) Bureau of energy efficiency (BEE)
b) Standard and labelling standard (HVAC)
c) Energy Management
d) None of the above
110.____is type of Label allows consumers to compare the energy consumption of similar products.
a) Comparative label b) Endorsement label
c) Both a & b d) None of the above
111. Which of the following products on which labelling is not mandatory
a) Frost free **c) LPG stoves**
b) AC d) Laptops
112. On which Following products is labelling not Voluntary
a) Colour TV c) Ceiling fans

b) Ballast d) Induction motors

113. The prime importance of these _____ is to educate and inform consumers about how energy efficient each product is ?

a) Efficiency chart c) Both a & b

b) Star Rating d) None of the above

114. The following is not an element of M & T system

a) Recording b) Analyzing

c) Controlling **d) Complaining**

115. The M & T system stand for

a) Market and Trading system

b) Monitoring and Targeting system

c) Market and Targeting System

d) None of the above

116. Which one of the major inputs for the economical developement of any country.

A) management. **B) Energy.** C) Power. D) planning.

117. Energy is one of the major inputs for the _ _ _ of any country.

A) Environmental developement. B) political development.

C) Economical development. D) None of the above.

118. The fundamental goal of energy management is to produce goods and provide services with_ _ _

A) least cost and least environmental effect. B) high cost and least environmental effect.

C) least cost and least environmental effect. D) none of the above.

119. The fundamental goal of energy management is to produce_ _ _ .

A) least cost and least environmental effect. B) economical management.

C) goods and services. D) none of the above.

120. Definition of energy management given by _ _ _ .

A) Cape hart B) Turner

C) Kennedy. **D) All of the above.**

121. _ _ _ is the key to a systematic approach for decision making in the area of energy management.

A) Energy audit. B) Energy management.

C) Management. D) Planning.

122. Energy audit is the key to a systematic approach for decision making in the area of_ _ _

A) Energy audit. **B) Energy management.**

C) Management. D) All of the above.

123. Energy is one of the_ _ _ for the economic development of any country.

A) minor input. B) **major input.**

C) none of the above. D) all of the above.

124. Energy is one of the major input for the economic development of any country.

A) true B) false

125. Fundamental goal of_ _ _ is to produce goals and provide services.

A) Energy audit. B) Management.

C) Energy management. D) None of the above.

4.4 Home Energy Audit

1. The amount of heating energy needed by the home during the heating season is the sum of:

A. Heat transmission through the floor

B. Exterior walls

C. Ceiling

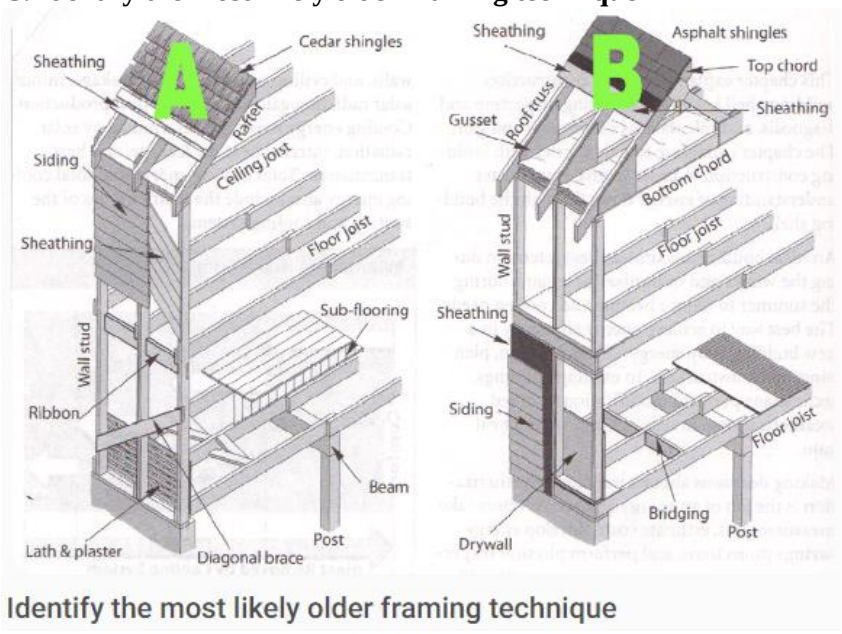
D. All above

2. Total heating energy and total cooling energy does not include the inefficiencies of the heating & cooling system.

A. True

B. False

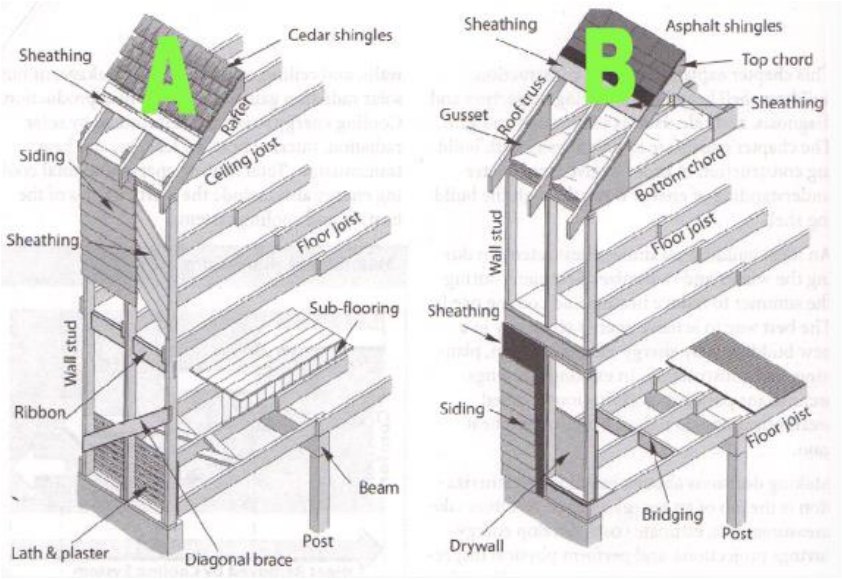
3. Identify the most likely older framing technique –



A. A is characteristic of older homes.

B. B is characteristic of older homes.

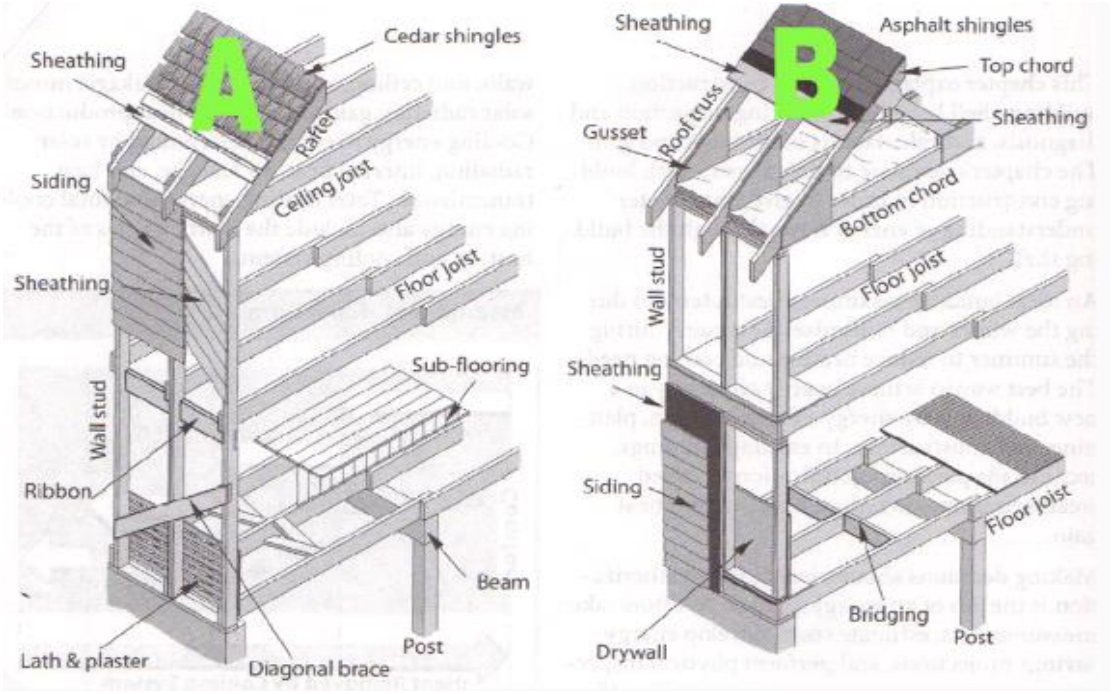
4. Choose the correct statements:



a. A is a drawing of platform framing
b. A is a drawing of balloon framing
c. B is a drawing of platform framing
d B is a drawing of balloon framing

A. a & b **B. b & c** C. a & c D. a & d

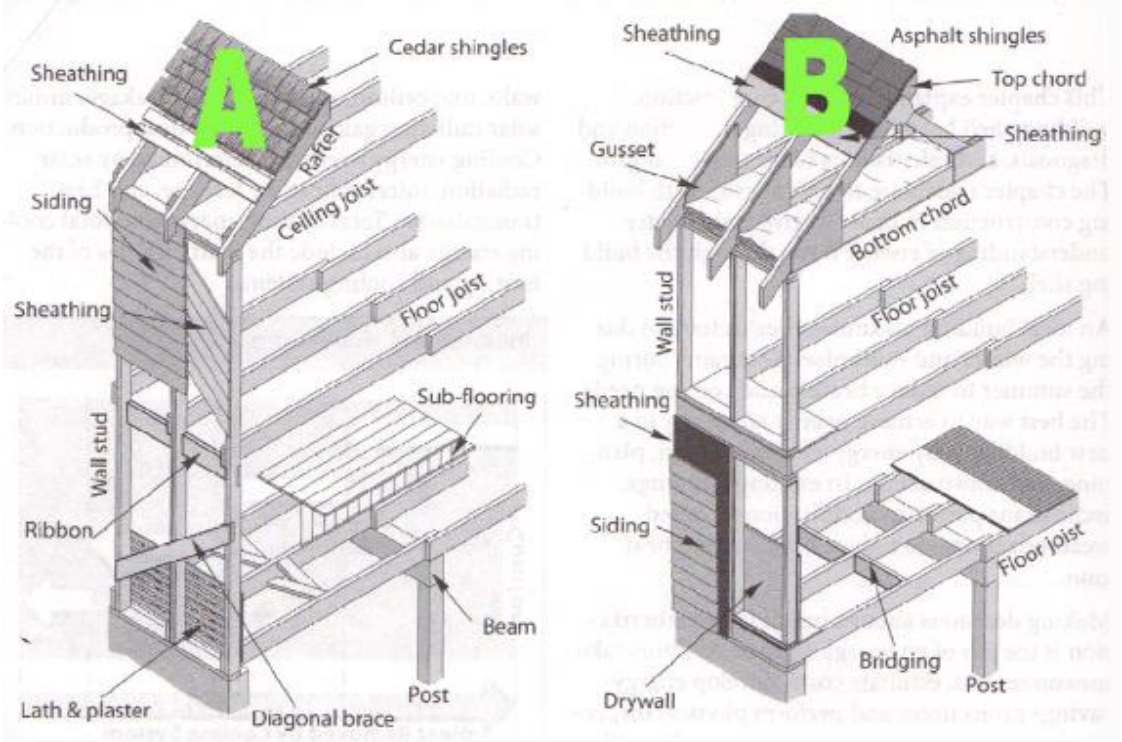
5. In which one of the two drawings will the wall cavities most likely be connected to the to the attic and the basement?



A. A

B.B

6. In which one of the two drawings will you find pre-build roof trusses, platform framing and 4'x8' - sheets of plywood or OSB sheating material for walls, floors and ceiling? –



A. A. **B. B.**

7. A plane defined by insulation and an air barrier is known as an _____ _____

A. Thermal boundary

B. Roof boundary

C. Radial boundary

D. Peripheral boundary

8. In hot climates energy efficient homes:

A. Block solar radiation with exterior shade such as trees

B. Non reflective surfaces
C. Metal window
D. Have large cooling systems installed

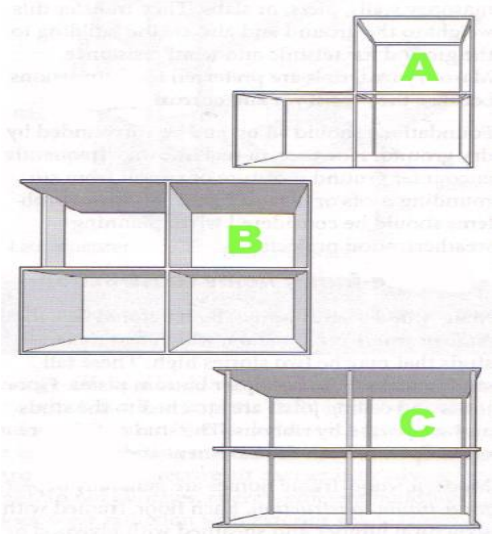
9. Balloon framed construction are often found in homes build before _____.

A. 1980
B. 1960
C. 1940
D. 1900

10. It is possible that you may find aspects of both platform frame construction and balloon frame construction in the same home.

A. True
B. False

11. When considering building structural types, which of the following statements are true? -



A. A = Planer structure, B = Planer structure & C =Skeletal/Planer Combination
B. A = Skeletal structure, B = Planer structure & C = Skeletal/Planer Combination
C. B = Skeletal structure, C =Skeletal/Planer Combination & A = Skeletal structure
D. B = Planer structure, C =Skeletal/Planer Combination & A = Planer structure
E. C = Skeletal/Planer Combination, B = Planer structure & A = Planer structure

12. The internal audit function is generally considered independent when it can carry out its work freely and _____.

a) Efficiently
b) Effectively
c) Objectively
d) All of the above.

13. Building portrusions and indentations lead to an increased number of seams and surface area.

A. True
B. False

14. Which of the following are known as points of weakness in a building structure?

A. Indented doorways & windows
B. Roof overhangs
C. Shafts containing chimneys and pipes
D. All above

15. Outdoor air and indoor air can mingle

A. When wall cavities are partially or completely devoid of insulation.
B. When suspended ceilings are installed between floors.
C. Through attics and roof cavities
D. All above.

16. Mobile home point of weakness are:

A. Plumbing penetrations

B. Torn or missing belly paper

C. Joints between the halves of double-section homes

D. All above

17. Indicate which of the following portrutions , indentations, and penetratios are weakenesses found in multi family buildings?

A. Thermal bridging from steel and aluminum coponents.

B. Rooftop protrusions and penetrations, such as rooftop elevator shacks and air handlers

C. Protruding or recessed balconies, eaves, canopies and windows

D. All above

18. Which of the following are common conduits for air leakage that allow indoor air and outdoor air to mix in multi family buildings?

A. Suspended ceilings, supply ducts in floor and ceiling cavities, building cavities used as return ducts

B. Elevator shafts, plumbing shafts

C. Chimneys, stairwells

D. All above.

19. The rate of heat transmission depends on _____ and _____.

A. Location & Relative humidity

B. Relative humidity & Thermal resistance

C. Thermal resistance & Surface area

D. Surface area & Air leakage

20. Air leakage in cubic feet of air per minute (CFM) depends on the _____ and the _____

a. **Indoor and outdoor pressure differences** c. Indoor pressure differences

b. Surface area of the shell d. **Surface area of the holes of the shell.**

A. a & b B. b & c C. a & c **D. a & d**

21. Windows are a bigger concern than doors because:

A. Significant surface area

B. Low thermal resistance

C. Door have a relative small combined service area

D. All above

22. During summer the main heat driving force is _____.

A. Solar radiation

B. Outdoor and indoor temperature differences.

C. Gas Burner

D. Candle

23. Heating technicians and engineers, modify heating and cooling calculations regularly in various ways to make them more accurate. Without this, the calculations would be consistently off by 10% or 20% .

a) True b)False

24. When we say that insulation resists heat transmission, we mean it resists:

A. Convection

B. Radiation

C. Conduction

D. All of above

25. In the case of an uninsulated wall cavity,_____ and _____ dominate heat transmission.

A. Radiation & Convection

B. Convection & Conduction

C. Radiation **&** Conduction

D. None of the above

Chapter 5 : Agriculture equipment and Post- harvest Technology

1) Mechanized agriculture is the process of using agricultural machinery to…..

a) **Mechanize the work of agriculture**
b) Automate the work of agriculture
c) Develop the work of agriculture
d) none of the above

2) In modern times,…… has replaced many farm jobs formally carried out by man.
a) Trucks
b) Powered machinery
c) Electric cars
d) None of the above.

3) Need of farm mechanization is…….
a) to increase the productivity
b) to reduce human effort in the farm
c) Both A and B are correct
d) none of the above

4) Mechanization in Indian agriculture started with…….
a) Land reclamation
b) Development
c) Central tractor organization
d) none of the above

5) The production of irrigation pumps and diesel engines started during…….
a) 1950s
b) 1930s
c) 1940s
d) 2000s

6) The production of tractors and power tillers started in …….
a) 1950
b) 1940
c) 1960
d) 2001

7) The following is not a farm machinery
a) Combine harvester
b) Power tiller
c) Fresher
d) **Dumper trucks**

8) Farm mechanization has helped in…….. of agriculture from conventional to commercial crops
a) Transformation
b) Diversification
c) Transport
d) None of the above

9) ..... there has been a rising trend in production and sale of farm machinery.
a) From 1986 to 2000
b) From 1920 to 2005
c) From 1935 to 2000
d) None of the above

10) The leading manufacturer of farm equipment or agriculture equipment it in India are
a) Mahindra and Mahindra
b) Sonalika
c) Force
d) All of the above

11. It is quite true that the farmers with low earnings per capita because of low per hectare they get from holdings are.....

a) **Indian farmers** b) American farmers
c) Australian farmers d) all of the above

12. Mechanisation in india at various levels can be done in following ways…

a) by introducing the improved agricultural implements on small scale holding to be operated by bullocks.

b) by using small tractors, tractor drawn machines and power tillers on medium holdings to supplement source.
c) by using large scale tractor and machines on remaining holding to supplement animal power source.
d) **All of the above**

13. The step towards development of an appropriate agricultural technique in india is working towards the motto of saving.....
a) **labour** b) cost
c) surplus labour d) all of the above

14. Indian agriculture is undergoing a graduals shift from dependence on human power and animal power to.....
a) **mechanical power** b) solar power
c) thermal power d) all of the above

15. The machinery which enables the farmers to raise a second crop or multi crop attractive and way of life by becoming a commercial subsistence is….
a) **efficient machinery** b) agriculture machinery
c) affective machinery d) all of the above

16. At present the farm power availability as per hectare is….
a) **1.84KW/ HA** c) 1.85KW/HA
b) 2.04KW/ HA d) 2.06KW/ HA

17. Benefits of mechanization of agriculture is…..
a) it increases production c) low cost of work
b) it increases efficiency d) **all of the above**

18. Need of farm mechanisation is to...
a) for timely operations of agriculture activities
b) to increase the production and productivity of food grains.
c) efficient utilisation of inputs, water and other natural resources.
d) **all of the above**

19. Advantages of mechanisation is.....
a) substitute for labour. c) amenity reasons
b) attract or retain farm staff d) **all of the above**

20. Agriculture machinery can be divided into following groups they are....
a) farm machinery c) drain engineering
b) irrigation engineering d) **all of the above**

21. Agricultural in India is _____ characteristics.
A) Important. **C) unique**
B) Base. D) None of the above.

22. The extant of area under the command of draught animals is about _____.
A) 51% C) 50%
B) 49% **D) 57%**

23. The production of tractor is commenced during 1961-62 ,turning out _____them
A) 880. C) 540
B) 860. D) 800

24. Mechanical and Electrical sources increased from _____-
A) 40 to 83 % C) 30 to 93 %
B) 35 to 87 % D) None of the above.

25. The traditional processing equipment used by Farmers include _____.
A) Supa. C) Chalni
B) Chakiya. **D) All of the above.**

26. Cocking need of villages are mostly met by the burning of _____.
A) Biomass. C) Hydroelectric
B) Crude oil. D) Neutral gas.

27. Solar photovoltaic devices encouraged their use for water _____.
A) Pumping. C) Lighting
B) Both A & C. D) None of the above.

28. Biomass is obtained For mixture of _____gas.
A) Corban monoxide. C) Hydrogen.
B) Both A & C. D) None of the above.

29. Farmers also adopted sprinkaler system for _____ purpose.
    A) Commercial. C) Domestic
    B) Industrial. D) All of the above.
30. A general-purpose or row-crop tractor is _____ machines
    A. Single use C. Both A & B
    B. **Universal** D. None of Above
31. The most common use of the term "tractor" is for the vehicles used on _____
    A. Farm C. Medicinal Purpose
    B. Production Industry D. None of above
32. A _____ is a track-type tractor with a blade attached in the front
    A. Car C. Bulldozer
    B. Truck D. Buses
33. A compact utility tractor (CUT) is a _____ version of an agricultural tractor
    A. Smaller C. Medium
    B. Larger D. Extreme
34. The earliest tractors were called "_____" tractors
    A. Basic C. Common
    B. **Standard** D. Moderate
35. Space technology has been incorporated into agriculture in the form of _____ devices
    A. ISP C. GST
    B. **GPS** D. None of above
36. Bulldozers are very powerful tractors and have excellent ground-hold
    A. Design C. **Ground Hold capacity**
    B. Rate D. Carrying capacity
37. One example is that loader tractors were created by _____- the blade
    A. **Removing** C. Both A &B
    B. Adding D. None of Above
38. The most common variation of the classic farm **tractor** is the **_____**
    A. **HOE** C. TOE
    B. BOE D. None of Above
39. Farm **tractor hoe** is also called as a **_____**
    A. Hoe remover C. Hoe weight loader
    B. **Hoe Loader** D. Hoe Weight remover
40. The most common type of equipment used in farms include balers, plows, mowers and _____
    A. **Tractor.** C. Car
    B. Cycle. D. All of above
41. The primary benefit of the three-point hitch system is to transfer the _____ and resistance
    A. Arm. C. Volume
    B. Body D. **Weight**
42. One of the most common tasks on the farm is _____
    A. Hitching C. Both A & B
    B. Non hitching. D. None A & B
43. **_____** position in tractor is allows you to rest the bucket on the ground without down pressure or lift
    A. Boat. C. Draft control
    B. Float. D. None of the above
44. Power tiller is also known as the hand tractor or _____
    A. Standing C. Clearing
    B. Walking type D. Running type
45. History indicates that the process of mechanization is dynamic with no ultimate ____
    A. **Goal** C. obtain
    B. Design D. Sign
46. Each manufactures must improve his _____ to maintain a profitable position
    A. Reputation C. Control
    B. Product D. Customer
47. A tractor is an engineering vehicle specifically designed to deliver a high torque at_____ speeds

A. High C. **Slow**
B. Extreme High D. Medium

48. The word tractor was taken from _____
A. French B. Sanskrit
B. **Latin** D. Japanese

49. Tractors can be generally classified by number of _____ or wheels
A. **Axles** C. Single Wheel
B. Double wheel D. None of above

50. Tillage is normally classified as …….tillage.
A. Primary. C) **Primary or secondary**
B. Secondary. D) Tertiary

51. …… purpose of the tillage is to restrict water movement from the surface layers.
A. **Primary**. C) Secondary
B. Primary or secondary. D) Tertiary.

52. Primary purpose is to restrict ……. movement from the surface layers.
A. Air. C) Sunlight.
B. **Water**. D) Dust.

53. Primary tillage is the ……. soil tillage after the last harvest.
A. **First**. C) Second
B. Third. D) Fourth

54. When there is sufficient power available some soil types are ploughed ……
A. Wet. C) **Dry**
B. Moisture. D) Non of the above.

55. In clay soils, the fields often have to be fully saturated ……tillage can be undertaken.
A. **Before**. C) After
B. Beginning. D) Middle.

56. In lighter texture soils such as ……, tillage can be undertaken at moisture levels below field capacity.
A. Loam. C) **Loam or sand**
B. Sand. D) Non of the above

57. The disc is usually the preferred system as it takes ……. and can handle obstacles much easier.
A. **Less power**. C) More power
B. Moderate power. D) None of the above.

58. …… plows are preferable in the upland systems but as yet not widely available in Asia.
A. Disk. C) Chisel
B. **Tined**. D) Sub soiling

59. ……. plows are rows of concave steel discs that revolve as they are pulled.
A. **Disk**. C) Chisel
B. Tined. D) Sub soiling

60. _____is the following is not a secondary tillage tool
A. Disc plough **C. Mould board**
B. Disc harrow D. None of the above

61. Power tillers operate most satisfactory with?
A. **Rotary tillage** C. Plough
B. Transport carts D. Reapers

62. Vertical section of plough influences
A. Pulverization C. Width of cut
B. Depth of cut D. Direction of pull

63. Following is not a hand tool
A. Mould board C. Shovel
B. Spade **D. Momaunty**

64. _____plough is used to break through and shatter compacted or otherwise impermeable soil layers.
A. Disc plough **C. Chisel plough**
B. Sub-soil plough D. None of the above

65. Finner operation performed for seedbed preparation is :-

A. Primary tillage C. Strip tillage
B. **Secondary tillage** D. Rotary tillage

66. _____ are the primary tillage implements.
A. **Chisel plough and sub soiler** C. Disc plough and disc harrow
B. Chisel plough and disc harrow D. Leveler and clad crusher

67. Ploughing is done to :-
A. Improve soil aeration C. Increase water holding capacity
B. Destroy weeds **D. All are correct**

68. Jointer and coulter are the parts of :-
A. Disc plough C. Indigenous plough
B. Harrow plough **D. MB plough**

69. Standard disc plough diameter size is _____
A. 40 to 60 cm **C. 70 to 90 cm**
B. 60 to 90 cm D. 50 to 70 cm

70. The power tillage is most suitable for:
a) Stationary operation c) Deep ploughing
b) **Rotary operation** d) All are correct

71. A Vertical disc plough is also termed as:
a) Wheat plough c) Harrow plough
b) **Both (a) & (b)** d) None of these

72. In disc harrow, the penetration of disc improves by:
a) Increasing disc angle c) Lowering hitch point
b) Regulating optimum speed d) **All are correct**

73. The gang angle of disc harrow is adjusted in the range of:
a) **0-30** c) 30-60
b) 60-90 d) Above 90

74. _____ is not a tractor drawn tillage tool:
a) Cultivator c) Augar plough
b) Harrow d) **Plank**

75. _____ farming is a replacement of human and animal power by mechanical power for different farm operation:
a) **Mechanized farming** c) Mixed farming
b) Both of these b) None of these

76. An implement that pulled and guided by single hitch point of a tractor is:
a) **Trailed implement** c) Mounted implement
b) Semi mounted implements d) All are correct

77. The plough bottom as combined unit consist of:
a) None of these c) Coulter , jointer and frog
b) Beam , handle and MB d) **Share, landside , frog and MB**

78. The draft requirement in MB plough compared to disc plough for same depth of ploughing is:
a) Less c) **More**
b) Equal d) None of these

79. The hitching of plough is done by placing the plough:
a) **Few centimeter below ground level** c) Few centimeter above ground level
b) On the ground level d) None of these

80. The seed rate required in broadcasting method in comparison to drilling is:
A. **More** B. Less
C. Equal D. All are correct

81. The dibbling is mostly used for sowing:
A. Cereal grains B. **Vegetables**
C. Plantation crop D. All are correct

82. The dropping of seeds in furrow lines in continuous flow is:
A. **Drilling** B. Planting
C. Dibbling D. Hill dropping

83. Dibbler is a:

A. Seed drill B. **Planter**
C. Trans planter D. None of these

84. The equipment used for dropping seeds in a continuous stream and the spacing between plant to plant in a row is not constant is:
A. **Seed drill** B. Planter
C. Trans planter D. All are correct

85. The method of planting in which row-to-row as well as plant-to-plant distance is uniform is:
A. Drilling B. Hill dropping
C. **Check row planting** D. All are correct

86. The precision planter is:
A. Seed drill B. Broadcaster
C. **Dibbler** D. Dofaan

87. Seed drill is used for sowing:
A. **Small seeds** B. Bolder seeds
C. Seedlings D. Plants

88. Planters are used for sowing:
A. Small seeds B. **Bolder seeds**
C. Seedlings D. Plants

89. The dibbling method of sowing reduces seed rate by:
A. 1/2nd B. **1/3rd**
C. 1/5th D. 2/3rd

90._____different types of crops are grown in India.
a) 230 b) 260
c) 250 d) 220

91. In 1951 there were _____no of tractors present in India.
a) 8635 b) 8000
c) 5000 d) 200

92._____has highest average farm power intensity.
a) Karnataka b) Maharashtra
c) Haryana **d) Punjab**

93. India receives_____ amount of solar energy
a) 5x1015 kwh/year b)5x1000 kwh/year
c) 5x1012 kwh/year d) none of the above

94. Solar energy in India can be used for _____number of days.
a) 365 **b) 200**
c) 100 d) 150

95. Production of tractors, motor, engines and process equipment is domain of organised
a) Unorganised sector **b) Organised sector**
c) Both of the above d) None of above

96. The extent of area under the command of draught animals is about
a) 55% b) 54%
c) 57% d) 60%

97. _____gas is the mixture mainly consisting of carbon monoxide and hydrogen in specially designed apparatus.
a) CNG b) LPG
c) Biomass d) None of the above

98. Anaerobic fermentation of animal excreta leads to generation of _____
a) Petrol b) Diesel
c) Natural gas **d) Methane**

99. cooking needs of the village are mostly met by the burning of _____
a) Biomass b) Petrol
c) Diesel d) None of the above

100. Mechanization helps in_____
a) Dairying b) Fisheries
c) Animal husbandry **d) All of the above**

101. The level of farm mechanization in _____is 90%
a) US b) China
c) Brazil d) Japan
102. The level of farm mechanization in _____is 75%
a) US b) China
c) **Brazil** d) Japan
103. The level of farm mechanization in _____is 57%
a) US **b) China**
c) Brazil d) Japan
104. Use of improved implements has potential to increase productivity up to_____
a)10% **b) 30%**
c) 20% d) 15%
105. Use of improved implements has potential to reduce the cost of cultivation up to_____
a)10% b) 30%
c) 20% d) 15%
106. _____seeding and planting operation are mechanized in India
a) 40% b) 60%
c) 37% **d)29%**
107._____ operation are mechanized in India
a) seeding and planting b) soil working
c) irrigation d) plant protection
108._____ seed bed preparation are mechanized in India
a) 40% b) 60%
c) 37% d) 29%
109. _____plant protection operation are mechanized in India
a) 40% b) **34%**
c) 37% d) 29%
110. Tractor is an important machine used for .....mechanization.
A) Factory **B) Farm**
C) Industrial D) Commercial
111. Practice population has increased from..... to about 1.04 million during last 40 years
A) 1000 B) 5000
C) 9000 D) 7000
112 .....models of tractor are being produce in India in different HP ranges.
A) 39 B) 40
C) 50 D) 45
113. More than_____farmers depend upon animal drawn implements.
A) 50% B) 60%
C) 45% **D) 80%**
114. Use of improved implements has potential to _____productivity up to 30% and reduce the cost of cultivation up to 20%
A) Increase B) Decrease
C) Improve D) Up
115. Though agriculture contribute only 17.4 % to the country's gross value added for the year....
A) 15.4% **B) 17.4%**
C) 18.4% D) 20.4
116. History indicates that the process of mechanization is .....with no ultimate goal in sight.
A) Dynamic B) Motion
C) Statics D) None of the above
117._____ is a self-propelled power unit having wheels for tracks for operating agriculture implements and machines including trailers.
A) Car **B) Tractor**
C) Motorcycle D) Truck
118. Post harvest Technology deserve special attention.
A) True B) False

119. Most grain and seed crops are harvested with combined harvest threshers, commonly known as.....
A) Combines B) Different
C) Crops D) None of above
120. India is the largest producer of tractors in the world.
A) True B) False
121. Safety, comfort and _____ fir the operator will continue the great deal of attention.
A. Inconvenience C. Difficulties
B. Convenience. D. None of the above
122. Mechanical harvest of fruits and vegetables are difficult because_____
A. Different characteristics. C. Machinery
B. Operator D. All of the above
123. Tractor is a _____ power unit.
A. Self-propelled. C. Propelled
B. Impelled D. None of the above
124. Tractor engine is used as____
A. General purpose C. Special purpose
B. Prime mover. D. None of the above
125._____tractor us used for major operation such as ploughing, harrowing, sowing, harvesting and transporting work.
A. Row crop Tractor C. Special purpose tractor
B. Crawler tractor **D. General purpose tractor**.
126. Four wheel tractors are most _____ everywhere.
A. Popular. C. Non popular
B. Best D. Worst
127. How many HP for tractor is suitable suitable for 20 hectares farm?
A. 10-15 **C. 20-25**.
B. 30-35 D. 40-45
128. A tractor with fewer wheels Base, higher ground clearance may work successful in which soil
A. Heavier C. Black cotton soil
B. Wet soil D. **Lighter soil**
129. Tractors with less specific fuel consumption should be preferred because.....
A. High efficiency C. Good output
B. Good for field **D. Less cost**.
130. Air cooled engine is preferred in which condition?
A. Cool condition C. Humid condition
B. Hot zone. D. None of the above
131. _____ is the prime mover in which the direction of travel and its control for field operation is performed by the operator walking behind it.
A. Power tiller C. Tillage
B. Disc plough D. Rotary tiller
132. The concept of power tillage came in the world in the year _____.
A. 1910 **C. 1920**
B. 1945 D. 1932
133. _____ is the first country to use power tiller on large scale.
A. India C. China.
C. Japan D. Nepal.
134. Power tiller was first introduced in India in the year _____.
A. 1963 C. 1953
B. 1950 D. 1945
135. Power miller may be called a _____ walking type tractor.
A. Double axle **C. Single axle**
B. Triple axle D. None of the above
136. _____ is pulled and guided from single hitch point but its weight is not supported by the tractor.
A. Trailed type implement C. Semi mounted type implemented
B. Mounted type implemented D. Automatic implemented

137. For operation of power tiller, the power is obtained from the _____.

A. Batteries **C. IC engine**

B. SI engine D. All of the above

138. _____ is the mechanical manipulation of soil to provide favorable condition for crop production.

A. Power tiller C. Rotary tiller

B. Tillage D. Disc plough

139. Production of power tiller rapidly increased during the year _____.

A. 1950-1970 C. 1970-1980

B. 1960-1975 **D. 1950-1965**

140. _____ is used to transmit power from the engine to the main clutch.

A. V-Belt C. open belt drive

B. cross belt D. flat belt

141._____part is attached to the shoe which helps to penetrate into soil

a) **shoe**
b) beam
c) saddle
d) hammer

142._____ connects the main body to the plough to the Yoke

a) **beam**
b) saddle
c) stool
d) hammer

143. The size of the plough is represented by the _____ of the body

a) **width**
b) breath
c) length
d) height

144._____ tillage are proper for seeding and planting operations a secondary

a) **Primary**
b) Basic
c) Medium
d) None of these

145. The following tillage is not a type of a tillage

a) **maximum**
b) minimum
c) strip
d) rotary

146._____ tillage utilizes two or more different types of tools to simplify fields

a) **combined**
b) basic
c) strip
d) rotary

147._____ is a individual working element such as a disk or shovel

a) **tool**
b) machine
c) stripped
d) rotary

148. The following operation is not carried out by an plough

a) **sowing seeds**
b) breaking the clods
c) crushing the soil
d) hammering the soil

149._____ operation is used to cut and mix the soil

e) **rotary**
f) mlutch

g) strip
h) none of these

150. The steel mainly contains how much percentage of carbon
a) **0.70 to 0.80%**
b) to 0.3 %
c) 0.5 to 0.1 %

151._____ is the function of mold board plough.
a) Cutting the furrow slice
b) Lifting the soil
c) Pulverizing the soil
d) All of the above

152.____ is the component of mold board plough.
a) Land side
b) Soil
c) Both a & b
d) None

153._____ component is penetrates into soil and make a horizontal cut below the soil surface.
a) Frog
b) Land side
c) Share
d) None

154. Share is a_____ components.
a) Sharp
b) Polished
c) Pointed
d) All of above

155. Shares are make of _____
a) Chilled cast iron
b) Steel
c) Both
d) None

156.___ to ____ manganese besides other minor elements.
a) 0.10 to 0.50%
b) 0.20 to 0.60%
c) 0.40 to 0.80%
d) 0.50 to 0.80%

157._____ are the types of moldboards.
a) General purpose
b) Stubble
c) Slat
d) All of above

158._____is the general purpose lying.
a) Between stubble and sod
b) Between soil and mud
c) Between man and machine
d) None

159._____ turns the furrow slice used in stubble soils.
a) Stubble type
b) Slat type
c) Share
d) Jointer

160._____ is used in tough soil of grasses.
a) Soil
b) Sod & Breaker type
c) Slat type

d) Plough

161._____have gaps between the slats.

a) Share
b) Soil
c) Slat type
d) None

162. There are a few accessories necessary for plough are _____.

a) Jointer
b) Coulter
c) Land wheel
d) All of above

163._____ is the wheel of the plough, which runs on the plough land.

a) Gauge wheel
b) Land wheel
c) Furrow wheel
d) None

164. Disc plough is more useful for_____

a) Shallow ploughing
b) Fast ploughing
c) Deep ploughing
d) Slow ploughing

165. Disc plough works in loose soil also without much clogging.

a) True
b) False

166.Standard disc plough contains steel disc of _____ diameter.

a) 10-30cm
c) 60-90cm
b) 30-60cm
d) 90-120cm

167. The components of disc plough are _____.

a) Frame extension
c) Furrow wheel
b) Top link connection
d) All of the above

168. The disc is made from _____ of 5mm-10mm thickness.

a) Heat treated steel
c) Stainless steel
b) Case hardened steel
d) High speed steel

169. It can be used in _____ soil without much danger of breakage.

a) Soft
c) Stumpy and Stony
b) Dry
d) Wet

170. The disc angle of a good plough varies between_____.

a) 25°-30°
c) 18°-24°
b) 10°-15°
d) 42°-45°

171. The function of scraper is to_____.

a) Remove soil stuck to the disc
c) Used for holding plough
b) Provide support to the disc
d) None of the above

172. The number of tynes varies from_____.

a) 3-4
c) 79-90
b) 18-23
d) 28-54

173. Blade that works well in trashy conditions_____.

a) Twisted blade
c) L type
b) Straight blade
d) None of the above

174. Ploughs used to break through shatter compacted or imperable soil layers.

a) Disc plough
b) Mold board plough
c) Chisel plough
d) Country plough

175. The hp required to operate subsoil plough _____.

a) 10-20hp
b) 20-30hp
c) 60-100hp
d) 140-200hp

176. Secondary tillage consists of conditioning the ____to meet the different tillage objectives of the farm

A) Weather. C) Atmosphere
B) **Soil.** D)All of the above

177. Lighter and final operations performed on the soil after _____ tillage operations.

A) Primary. C) Tertiary
B) Secondary D) None

178. Secondary tillage implements are _____and _____.

A) Hammer and screwdriver. **C) Tractor and bullock**
B) Lathe and drilling machines. D) All of the above

179. Harrow is secondary tillage implement used to cut soil to shallow depth for _____ and _____

A) smoothening. C) none of the above
B) pulverizing. **D) both**

180.____ harrow consist of two gangs placed end to end.

A) Single action disc harrow
B) Double action disc harrow
C) Triple action disc harrow
D) None above

181. Types of double action disc harrow

A) Tandem disc harrow. C) None
B) Off-set disc harrow. **D) Both A and B**

182. Each set of disc mounted on common shaft is called as ____

A) Arbor bolts. **C) Gang**
B) Spool. D)
Bearing

183. ____ operates gang mechanisms.

A) Gang. C) Spool
B) Gang bolt D) **Gang control lever**

184. The lateral movement of disc on shaft is called as _____

A) Spool**.** C) **Gang**
B) Bearing D) Gear

185._____ is essential to counter act the end thrust of gang due to soil thrust..

A) Spool. C) Gang
B) **Bearing.** D) Gang bolt

186. _____ it is a harrow with peg shaped teeth of diamond cross section to a Rectangular frame.

A) **Spike tooth harrow** C Spring tooth harrow
B) Acme harrow D Triangular harrow.

187._____ it is made of wooden plank used for smoothing the soil and crushing the Weeds .

A) Triangular harrow C Blade harrow
B) **Patela** D Guntaka

188._____ is used for making bunds or ridges by collecting the soil .

A) Ridger C leveller
B) puddler **D Bund former**

189. The ridger generally has _____ shaped shares fitted to the frog .

A **V shaped** C U shaped
B Both A and C D None of the these

190._____ harrow which consist of one or more blades attached to the beam

Or frame, used for shallow working of the soil.

A Spike tooth harrow C Spring tooth harrow

B Acme harrow **D Blade harrow**

191. The weight of the puddler is _____.

A 10-20 kg C 20-30 kg

B **30-40 kg** D 45-55 kg

192. Puddling is done in standing water of _____ depth.

A. 10-15 cm C 20-25 cm

B. **5-10 cm** D 15-20 cm

193. _____ is known as ridging plough and double mould board plough.

A. Bund former. C Puddler

B. Leveller. **D Ridger**

194. _____ it's consists of former board , beam and handle.

A. Ridger. C Cultivator

B. Puddler. **D Bund former**

195. _____ it is a Cultivator with tines or blades mounted on a power driven horizontal shaft.

A. Disc cultivator. **C Rotary cultivator**

B. Tine cultivator. D Trailed type cultivator

196._____is not a tractor drawn tillage tool

A. Cultivator B. Augar plough

C. Narrow D. **Plank**

197._____ is not a secondary tillage.

A. Disc plough B. Plough

C. **Mould board** D. None of these

198._____is not a hand tool.

A. **Mould board.** B. Shovel

C. Spade D. Mamounty

199. Power tillage operate most satisfactory with_____

A. **Rotary tillage** B. Plough

C. Transport carts D. Reapers

200.Vertical section of plough influence_____

A. Pulverisation B. **Depth of cut**

C. Width of cut. D. Direction of pull

201. Dead furrow is made by_____

A. **One way MB plough.** B. 2 way MB plough

C. Ridger. D. Disc harrow

202. The mowers are designed to cut_____

A. Wheat B. Poddy

C. Mustard. D. **Grasses**

203. The thresher caused Mon seed damage if_____

A. **Speed is increases** B. Clearance is increase

C. Feed rate is reduced. D. Speed is reduced

204. The two primary tillage equipment's are_____

A. **MB and disc harrow** B. Disc plough and disc harrow

C. Disc harrow and cultivator. D. MB and. Subscriber

205. weight transfer in a tractor in a tractor implement system is caused by_____

A. **Application of Paul.** B. Tractor force

C. Tractor slip. D. Weight of operator

206. The power tiller harrow is a _____ mounted reciprocating comb type.

A. **Rear**. C. Right

B. Front. D. None of the above

207. It has Staggered pegs in two rows at ___ Spacing.

A. 100 mm. C. 400 mm

B. **200 mm** D. 50 mm

208. The frequency of operation is ___ per minute

A. 600 cycles C. **400 cycles**

B. 100 cycles. D. 200 cycles

209. Bund former is used fir making bunds or ridges by collecting ___

A. Mud C. Water

B. **Soil**. D. All of the above

210.____ are used to hold water in the soil.

A. **Bunds.** C. Harrow

B. Ridger. D. None of the above

211. The **_____** is also used for forming field or channels.

A. Bunds. C. **Ridger**

B. Harrow. D. None of the above.

212. The ridger has—- Shaped or —— shaped share fitted to the frog

A. **V, Wedge.** C. U, wedge

B. None of the above D. Both A and C

213. —— is important for churning of the soil with water

A. Levelers. C. Bunds

B. Ridger. D. **Puddler**

214. Puddling is done in standing water of ——- depth

A. **5-10 cm.** C. 1-10 cm

B. 0-5 cm. D. 10-15 cm

215. The weight of the puddler is ——

A. 150-200 kg. C. 100-150 kg

B. **30-40 kg** D. 200-250 kg

216. _____ consists of preparing seedlings in nursery and then planting these seeds in the prepared field.

a) Hill dropping

b) Transplanting

c) Seed dropping behind the plough

d) Check row planting

217. Name the method which is not a sowing method

a) Broadcasting

b) Hill dropping

c) Dibbling

d) Hitching

218. _____ is useful for uprooting and burying weeds between standing rows of rice crops in wetlands

a) Sweep

b) Engine operated weeder

c) Cono weeder for paddy

d) Dry land weeder

219. Below is not a function of seed drill

a) To meter the seeds

b) To carry the seeds

c) To remove the seeds

d) To place the seeds in furrow

220._____ is a component of seed drill

a) Transport wheel

b) Storage box

c) Cultivator

d) Driller

221. Weeds can compete with productive crops or pasture or convert productive land to unusable scrub

a) True **b)** False

222._____ weeder is useful for weeding crops like tapioca ,cotton ,sugarcane, tomato and pulses

a) Engine operated weeder
b) Sweep
c) Cono weeder for paddy
d) Junior hoe

223.____ has a long handled tool and a 120 mm diameter star wheel
a) Engine operated weeder
b) Cono weeder for paddy
c) Dry land weeder
d) Sweep

224. Junior hoe consist of _____ and _____ attached to the framework with hinge arrangement
a) Reversible showers, nozzle body
b) Reversible shovels, curved tyres
c) Reversible shovels, curved tyres
d) Pressure regulator, spray lance

225. In junior hoe the coverage is _____ ha per day
a) 1.5
b) 2.5
c) 1.7
d) 3.0

226. Very common sowing methods used in villages.
a. Broadcasting
b. Dibbling
c. Drilling
d. Seed dropping behind the plough

227. Transplanting method is generally used in nursery.
a. True
b. False

228._____ method used for planting in row to row and plant to plant distance is uniform.
c. Transplanting
d. Hill dropping
e. Check row planting
f. Drilling

229. Functions of seed drill machine_____.
g. To carry the seeds
h. To open furrow to an uniform depth
i. To cover the seeds and compact the soil around the seed
j. All of the above

230. Components of seed drill.
a. Frame
b. Seed box
c. Transport wheels
d. All of the above

231. In dry land weeder coverage is __ha/day
a. 0.05
b. 0.07
c. 0.1
d. 0.18

232. The Sweep coverage is ___ to ___ ha/day.
a. 1.75 to 2.5
b. 1.95 to 3.5
c. 1.35 to 2.3

233. Basic components of sprayer.
a. Nozzle body
b. Nozzle boss
c. Filter

d. Spray gun
e. All of the above

234. Broadcasting is the process of random scattering of seed on the surface of seed beads.
a. True
b. False

235. _____ methods consists of dropping the seeds in furrow lines in a continuous flow and covering them with soil.
a. Dibbling
b. Transplanting
c. Drilling
d. Seed dropping behind the plough

236. _____equipment is used for wedding in between rows of standing crops.
a) Engine operated weeder b) Cono weeder for puddy
c) Junior how d) Dry land weeder

237. _____ is not the component of spare.
a) Swirl plate b) Filter
c) Cut-off value d**) Pump**

238. _____ machine is used for placing the seeds in continuous furrows at uniform rate.
a) Dry land weeder b) Junior home
c) **Seed drill** d) Engine operated weeder.

239. _____ is not the function of seed drill
a) To carry seeds **b) To increase size of seed**
c) To meter the seeds d) Two places in furrows in acceptable form.

240. _____ is not component of seed drill.
a) Pressure regulator b) Frame
c) Seed box d) Transport wheel

241. Which equipment is used for weeding in Row crops in rain fed.
a) Puddy cono weeder b) Engine operated weeder
c) Dry land weeder d) Seed drill

242. Paddy Kana weeder is useful for.
a) Weeding between rows of crops like cotton for sugarcane.
b) For uprooting and burying weeds in between standing rows of rice crops in in wetland.
c) For weeding in raw crops in rain fed.
d) For placing seed in continuous flow.

243. _____ is the type of seed metering mechanism.
a) Fluted feed type b) Cup feed type
c) Brush feed mechanism **d) All of above**

244. Which component of seed drill is used for transmit power to operate seed dropping mechanism.
a) Frame **b) Transport wheel**
c) Seed box d) Covering device

245. _____ is the application of sprayer.
a) To break the liquid droplet of effective size
b) To distribute them uniformly event plants
c) To regulate amount of liquid to avoid excessive application.
d) **All above them**

246. _____ the capacity of ultra-low volume spray
a) less than 5 litres/hector
b) more than 5 litres/ hector
c) 5 to 400 litres/hector
d) More than 400 litres/hector

247. Knapsack hand compression sprayer develops pressure between
a) 2 to 3.5 kg/cm
b) 3 to 12 kg/cm

c) 12 to 35 kg/cm
d) None of the above

248. _____ sprayer do not require a separate tank
a) Hand compression sprayer
b) Knapsack hand compression sprayer
c) Rocker sprayer
d) Power sprayer

249. _____ is the types of nozzle used in sprayers
a) Hollow cone type of nozzle
b) Solid cone type nozzle
c) Fan type nozzle
d) All of the above

250. _____ is not a type of spray
a) High volume spray
b) Medium volume spray
c) Low volume spray
d) Ultra low volume spray

251. _____ are the application of pedal sprayer
a) Row crops
b) Vegetables
c) Nursery stocks
d) Tall crops

252. Harvesting can be done by
a) Manully operated tools
b) Animal drawn machines
c) Mechanically operated machines
d) All of the above

253. _____ is the minimum pressure required for operating a nozzle in desirable condition
a) 1 kg/cm
b) 1.5kg/cm
c) 2 kg/cm
d) 2.5kg/cm

254. Nozzle consists of _____components
a) Washer
b) Vortex plate
c) Strainer
d) All of the above

255. The power developed in prime mover of power operated sprayer is_____
a) 1 to 5 HP
b) 5 to 10 HP
c) 10 to 20 HP
d) None of the above

256. Junior hoe cover …… ha per day.
a. 2.5. c. 3.5
b. **1.5.** d. 1.0

257. Application of Herbicides to remove ……
a. **Weeds** c . Disease
b. Pest. d. Plant

258. Application of insecticides to control ……..
a. Weeds c. Disease
b. **Insect Pest** d. Plant

259. ……Component to remove suspended matter large than a predetermined size from fluid.
a. Relief valve. c. **Filter**

b. Spray gun. d. Nozzle

260. …… Device to control the pressure of fluid and gases within range of settings.
   a. Relief valve. c. Filter
   b. Spray gun. d. **Pressure regulator**

261. Fan type nozzle capacity is …….. to …….. litres.
   a. **0.5 to 3.5.** c. 0.6 to 3.5
   b. 0.6 to 4. d. 0.8 to 6

262. Motorized knapsack sprayer blade rotation at about ……. To …….. rev/min.
   a. 200 to 300. c. **100 to 120**
   b. 120 to 400. d. 150 to 300

263. In battery operated sprayer fit …….. Volta rechargeable battery.
   a. 3 c. 4
   b. 5. d. **6**

264. Foot or pedal sprayer developed ……. Kg/cm^3 Pressure.
   a. **17-21**. c. 18-25
   b. 17- 28. d. 20-25

265. Nozzle diameter of hand atomizer is between …… to ……
   a. 0.7 – 1.5. c. 1.1- 1.5
   b. **0.6 – 1.6.** d. 0.8 to 1.8

266. Equipment used primary for wedding is _____
   a) Spray Lance
   b) Nozzle cap
   c) Intercultural
   d) Nozzle tip

267. A _____ and _____are fixed to the framework for guiding.
   a) Nozeel cap , disc
   b) Handle, beam
   c) Spray boom, filter
   d) Shovel can, framework

268. Basic components of sprayer is
   a) Nozzle body
   b) Spray boom
   c) Nozzle cap
   d) All of the above

269. _____ nozzle which forms narrow elliptical spray pattern.
   a) Hollow cone nozzle
   b) Hard cone nozzle
   c) Solid cone nozzle
   d) Fan nozzle

270. Han optimizer sprayer has container of_____to_____ litres capacity.
   a) 0.5 to 4.5
   b) 0.1 to 3.4
   c) **0.5 to 3.5**
   d) None of the above

271. _____Sprayer are versatile and simple power operated machines.
   a) Foot pedal sprayer
   b) Motorized knapsack sprayer
   c) Hand optimizer
   d) All of the above

272. Motorized knapsack sprayer are powered by____-____ HP petrol engine.
   a) 1.2 to 3.2
   b) 2.2 to 3.4
   c) 0.2 to 3.2
   d) 1.2 to 3.0

273. A Power sprayer essentially consists of:-
   a) Tank
   a) Agitator
   b) Pressure Gauge
   c) All of the above

274. Motoried knapsack duster is commonly in_____
   a) America
   b) India
   c) France
   d) None of the above

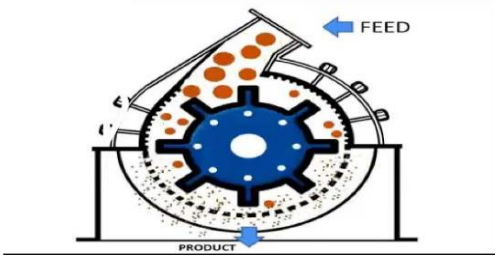
275. _____ is a machine to cut herbage crops and leave the them in swath.
   a) Wind rower
   b) Sickle mower
   c) Fail mower
   d) Gang mower

276. It consists of beats mounted on a shaft which rotates inside a closed casing and concave.
   a) Dummy type c) Spike-tooth type
   c) Hummer type d) Axial flow type

277. It consists of spike tooth cylinder, woven- wire mesh concave and upper casing provided with helical concave.
   a) Dummy type c) Spike-tooth type
   b) Hummer type d) **Axial flow type**

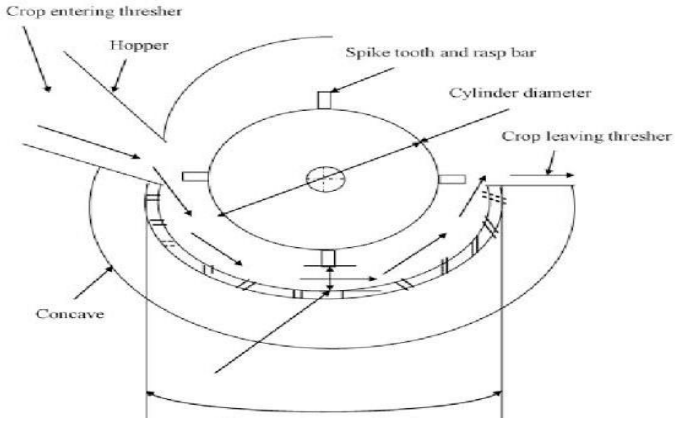
278. _____are mounted on the Periphery of a cylinder that rotates inside a closed casing and concave.
   a) Dummy type c) **spike-tooth type**
   b) Hummer type d) Axial flow type

279. Identify the picture.



   a) **Hummer mill type** b) Spike-tooth type
   c) Dummy type d) Axial flow type

280. Identify the picture.



   a) Concave clearance b) Sieve clearance

c) Concave units d) Grain sieve

281. Machine factors which affecting thresher preformation.
a) Variety of crop, Moisture in crop material **b) Feeding chute angle, cylinder type**
c) Cylinder speed, feed rate d) Cylinder type ,feed rate

282. Operational factors which affecting thresher preformation.
a) Variety of crop, Moisture in crop material b) Feeding chute angle, cylinder type
c) Cylinder speed, feed rate d) Cylinder type ,feed rate

283. Crop factors which affecting thresher preformation.
a) Variety of crop, Moisture in crop material b) Feeding chute angle, cylinder types
c) Cylinder speed, feed rate d) Cylinder type, feed rate

284. _____machine designed for harvesting, threshing , cleaning and collecting grains while moving through standing crops.
a) Combine b) Self operated VCR
c) Power roller thresher d) Post harvesting technology

285. The _____ takes place between the cylinder and concave units of the combine.
a) Threshing b) Feeding drum
c) Straw spreader d) Separating

286. _____ is an assembly comparing of fingers, knife guides on wearing plates and shoe.
a) Cutter bar b) Knife section
c) Pitman d) Shoe

287. ____ are the applications of cutting bar.
a) Cutting metal sheets. b) Cutting glass type materials.
c) Cutting grasses and forage. d) None of these.

288. Knife clips are placed with wearing plates spaced __to__ apart
a) 20 to 30 b) 45 to 60
c) 20 to 35 d) 30 to 40

289. _____ type of connecting rod which is pinned to the crankshaft with the help of a pin, which helps to transmit the cut material.
a) Pitman b) Cutter bat
c) Shoe d) Wearing plate

290. _____ is a common troubles in the operation of Mower.
a) Knives get twisted. b) Knives get melted.
c) Knives gets rusted. **d) Knives gets break**.

291. At what degree does the cutter bar is set for achieving the object ?
a) 96 **b) 88**
c) 69 and half. d) 105

292. ___is the length of cutter bar which is recommended as per the standard of design of it.
a) 4cm b) 6cm
c) 2cm d) 3cm

293. Cutter bar is made up of which material_____
a) High grade steel. b) Low carbon alloy steel.
c) Platinum. d) High speed tool steel.

294. How much of lead degree is given if the cutter is set at 88 degree?
a) 2-degree b) 4 degree
c) 3-degree d) 5 degree

295. _____ are the labelling of cutter bar.
a) Shoe, ledger plate, wearing plate, knife, knife section, etc.
b) Star wheel, engine, cage wheel, etc.
c) both A & B
d) Conveyor belt, cutter bar, rivers, etc.

296. In vertical conveyor reaper, the crop to be harvested are guided by

a) Star wheel b) Reel
c) Row divider d) Cutter bar

297. In reaper, a flat plate with reo chatting edited is know as:
a) Cutter bar **b) Knife section**
c) Knife d) All are correct

298. The length of cutter bar of tractor front mounted reaper is
a) 1.8-2.0 m **b) 1.9-2.1 m**
c) 2-2.5 m d) 2.25-2.5 m

299. The main function of potato digger elevator is
a) Digging of potatoes b) Windrowing of potatoes
b) **Both (A) & (B)** c) None of these

300. Self-propelled combine harvester is provide with
a) Powering engine b) Petrol engine
c) Diesel engine d) Kerosene engine

301. The dummy type thresher is also termed as
a) Rasp bar type thresher b) **Hammer mill type thresher**
c) Spike tooth type thresher d) Syndicator tooth type thresher

302. A multi type thresher is equipped with
a) Spike tooth cylinder b) Rasp bar cylinder
c) Hammer mill cylinder **d) All of the above**

303. The threshing efficiency of thresher depends on
a) Cylinder peripheral speed b) Cylinder concave clearance
c) Feed rate, moisture content and type of crop **d) All are correct**

304. The spacing between two adjacent discs in Olpad thresher is
a) 5 cm b) 10 cm
c) 15 cm d) 20 cm

305. The Japanese type rotary thresher is used for threshing
a) Paddy b) Wheat
c) Sunflower d) Safflower

306. Manual production using …… manned cell operating indepently.
(a) **Single** (c) Double
(b) Both (d) None

307. The single stations are automated to ….. labor and …… rate.
(a) Different, high (c) High, different
(b) **Reduce, increase** (d) Increase, reduce

308. Machine can operate even under extreme ___
(a) Pressure (c) **Temperature**
(b) Atmosphere (d) All above this

309. The main Merits of automation are:-
(a) High initial cost (c) High production rate
(b) **Increased consistency of output** (d) None of above

310. The main Demerits of Automation are:-
(a) Increased throughput or productivity
(b) Reduce some work related injuries
(c) Displaces workers due to job replacement
(d) All above this

311. Type of Automation….
(a) Fixed (c) Flexible
(b) **Both** (d) None

312. Relatively inflexible in accommodating product change in which automation?
(a) **Fixed** (c) Programmable
(b) Flexible (d) All of them

313. Most suitable for batch productions are in which automation depends?
(a) Fixed (c) **Programmable**
(b) Flexible (d) All

314. Flexibility to deal with product design variation depend in which automation
(a) Fixed (c) Programmable
(b) **Flexible** (d) Both B & C

315. Performs tasks that are beyond human____
(a) Size (c) Weight
(b) Speed (d) **All**

316. Post harvest Technology opyimum in___
(a) Losses in handling (c) Cost reduction
(b) Losses in packaging (d) **All**

317. Post harvest technology has potential to create ____
(a) **Rural industries** (c) Urban industries
(b) Small scale ind. (d) Large scale ind.

318. In India,___ people live in village and____ of them depend on agriculture
(a) 50%,50% (c) 60%,805
(b) **80%,70%** (d) 70%,705

319. In which process, Purification of raw materials by removing foreign matter
(a) Harvesting (c) **Primary**
(b) Secondary (d) Tertiary

320. In which process, processing of primary processing raw material into product
(a) Harvesting (c) **Secondary**
(b) Tertiary (d) None

321. RTC means ____ in consumer preferences in food processing sector.
(a) **Ready to cook** (c) Ready to creat
(b) Ready to cut (d) none

322. India is the world 2nd largest producer of ___ & _____
(a) Car, bike (c) Education, industries
(b) Both a & c (d) **Fruit, vegetable**

323. ____ production has traditionally been rural level cottage industrial activity
(a) Pickles (c) Rice
(b) **Both a & d** (d) Chutneys

324. Important vegetable exported are___
(a) Carrot (c) **Onions**
(b) Root (d) Other

325. The main purpose of agricultural processing_____
(a) Increase production (c) Reduce labour
(b) Increase speed of working (d) **None**

326. Knife clips are placed with wearing plates spaced from_____cm apart.
A) 10-20cm
B) 60-90cm
C) 15-25cm
D) 30-30cm

327. Play in bearings and worn knife head holders caused due to _____ in cutter bar.
A) Pitman
B) **Breaking of knives.**
C) Knife head.
D) Grass board.

328. Capacity of vertical conveyor reaper is
A) 0.1-0.9 ha/h
B) 10-20 ha/h
C) 0.4-0.6 ha/h
D) 1-2 ha/h

329._____ is not well register, there is unbalance load, uneven harvesting and exclusive clogging of crops on the knife
A) Vertical conveyor reaper

B) MOVER
C) Reaper binder
D) Potato digger elevator.
330. Different parts of Thresher are
A) Feeding device
B) Threshing cylinder
C) Concave
D) All of the above.
331. Major type of Thresher commercially available
A) Dummy
B) Raspbar
C) Concave
D) Elevator Canvas
332. To separate grains from the harvested crop and provide clean grain without much loss and damage which called as_____
A) Potato digger elevator
B) Groundnut digger shaker
C) Reaper binder
D) Threshing
333. Post harvest technology has to develop in consonance with the needs of each society to
A) Self-propelled type
B) Improve nutrition
C) PTO driven type
D) Conveyors
334. In threshers what are mounted on the periphery of the cylinder
A) Spike tooth type
B) Raspbar type
C) Syndicator type
D) Wire loob type.
335. Is hammer mill is similar to dummy type, but it is provided with aspirator for cleaning grains.
A) True
B) False
336. ____is part of the Cutter bar is shaped in Triangular shape with two cutting edges
a) Knife head
b) Knife back
c) Grass board
d) Knife Section
337. Cutter Bar made of ____
a) Copper
b) High Grade Steel
c) Cast iron
d) None of the above
338. The conventional type of Mower consists of which of the following
a) Wearing Plate
b) Nozzle
c) Air Chamber
d) None of the above
339. Steel Tank in the power sprayer is used to avoid
a) Moisturisation
b) Corrosion
c) Leakages
d) Stability
340. The reaper in a tractor can be raised or lowered by
a) Mechanically
b) Pneumatic system

c) Hydraulic system
d) Electric system

341. _____ is the range of capacity of Vertical Conveyer reaper
a) 0.1- 0.5 ha/h
b) 0.4-0.6 ha/h
c) 10-15 ha/h
d) None of the above

342. A potato digger elevator can be mounted to a tractor with _____ hp.
a) 10-15 hp
b) 20-25 hp
c) 50-70 hp
d) None of the above

343. ___ is the limit percentage for grain loss in India.
a) 1.5 % b) 15%
c) 5 % c) 7.26 %

344. ____machine is used for "Threshing , Harvesting , Separating , Cleaning and Collecting grains "
a) Lathe b) Milling
c) Combine d) Forklift

345. By which dimensional cut is the COMBINE indicated
a) Length **b) Width**
c) Diameter d) Diagonal

345. A tractor of 20-25hp is suitable for ..... hectares farm.

a. a) 15 c**) 20**
b. b) 25 d) 30

346. V-Belt has .... efficiency and its works as a Shock absorber.
a. Low c) High
b. Very low d) **Very High**

347. General purpose tractor is used for
a. **Major farm operations** c) Definite jobs
b. Crop cultivation d) All of the above

348. The first successful model of power tiller was designed in the year?
a. 1920 c) 1963
b. 1947 d) 1950

349. Special purpose tractor is used for
a. Major purpose operations c) **Definite jobs**
b. Crop cultivation d) None of the above

350. A tractor of 30-35hp is suitable for ..... hectare farm
a. 20 c) 30
b. 25 d) 35

351. ..... tractors are almost used in the current generation.
a. Petrol c) Electric
b. CNG d) **Diesel**

352. Walking Type Tractor is also called as
a. Wheel tractor c) Crawler tractor
b. Power tiller d) Both a and b

353. Tractor having three of four pneumatic wheels are called as .....
a. Wheel tractor c) Walking tractor
b. Crawler tractor d) Power tiller

354. Production of power tiller rapidly increased during ..... year
a. 1920 to 1930 c) **1950 to 1965**
b. 1935 to 1945 d) 1960 to 1975

355. It is a……. of soil to provide favorable condition for crop production.
a. Chemical manipulation. c) Mechanical & chemical manipulation
b. **Mechanical manipulation** d) none of the above

356. Objectives of Tillage
   - **a.** To destroy the prevent weeds. **c) both A & B**
   - b. To reduce soil and erosion d) increase the output of work per unit time

357. Types of Tillage
   - a. **Minimum Tillage.** c) secondary Tillage
   - b. Primary Tillage. d) All of the above

358. Components of mold board plough
   - a. Share. c) forg
   - b. Mould board. d**) All of the above**

359. Find the odd mean out
   - a. Share. c) body
   - b. Shoe. d) **Landside**

360. Functions of mold board plough
   - a. **Cutting the furrow slice**. c) body to yoke
   - b. Increase the depth of operation. d) length of the beam

361. The following types of blades are used with the rotor in rotary tiller
   - a. 'L' type blade c) **both A & B**
   - b. Twisted blade d) chisel plough

362. Standerd disc plough consist of steel dics of… to……. CM diameter.
   - a. **60,90** c) 60,80
   - b. 70,100. d) 70,90

363. It is employed on mulchers designed mainly for secondary Tillage
   - a. 'L' type blade c) **straight blade**
   - b. Twisted blade d) dics blade

364. The tilt angle varies form…° to….. °. For a good plough
   - a. 20°,30°. c) 15°,30°
   - **b.** 10°,30°. d) **15°,25°**

365. Normal ploughing up to a depth of about ____ CM.
   - i. 20 c) **15**
   - ii. 14 d) 24

366. Singal acting disk harrow throw the soil in ____ direction.
   - i. **Opposite**. c) left
   - ii. Backward d) right

367. ___ plate used for cutting a inverting the soil.
   - i. Cooper. c) iron
   - ii. Aluminium. d) **steel**

368. Each set of discs that are mounted on a common shaft is called as ___
   - i. Spool. c) Bearing
   - ii. **Gang.** d) Gang control

369. A set of discs are mounted on the _____
   - **i.** Gang bolt c) **Both a) and b)**
   - ii. Arbor bolt. d) Non of the above

370. The spacing between the discs in the gang bolt ranges ___ cm for lighy duty and ___ cm heavy -duty harrows
   - i. **15-25 and 25-30** c) 40-45 and 45-50
   - ii. 20-30 and 30-40. d) 15-25 and 32-36

371. A lever, which operates the gang mechanism of the disk harrow, is called the ____
   - i. Spanners lever. c) spacer lever
   - **ii. Gang control lever.** d) Bearing lever

372. ___ prevents disc from clogging.
   - i. **Scraper.** c) slide disc
   - ii. Spikal tooth. d) spring tooth

373. ___ harrow having curved knives.
   - i. Spring tooth harrow. c) **Acme harrow**
   - ii. Spikal tooth d) Spike tooth harrow

374. Blade harrow is also named as ___
   i. Guntaka. c) Ridger
   ii. **Bakhar.** d) Bund
375. Which of the following is not the type of Tillage?
   a) Minimum Tillage c) **Machine Tillage**
   b) Mulch Tillage d) Strip Tillage
376. Select the types of Disc Plough?
   a) Standard disc Plough. c) **Both a And b**
   b) Vertical disc Plough. d) None of above
377. _____is a Tillage system in which only isolated bands of soil are tilled?
   a) **Strip Tillage.** c) Mulch Tillage
   b) Rotary Tillage. d) Combined Tillage
378. ____is a combination of rigid or resistant Bodies having definite motion and capable of performing useful work
   a) Tool. c) Implement
   b) **Machine**. d) None of the above
379. Select the function of Moldboard plough.
   a) Lifting the soil. c) Pulverizing the soil
   b) Cutting the furrow slice d) **All of the above**
380. _____is not component of M.B. Plough
   a) Share. c) Land side
   b) **Shoe**. d) Tail piece
381. Moldboard consists of following types :
   a) General purpose. c) Sod or breaker
   b) Stubble. d) **All of the above**
382. Standard disc Plough consists of steel disc of _____ diameter
   a) 20 to 40 cm. c) **60 to 90 cm**
   b) 30 to 60 cm. d) 70 to 100 cm
383. Following is not type of blades ?
   a) 'L' type blade. c) Twisted blade
   b) **'M' type blade.** d) Straight blade
384. ____ it is a device to remove soil that tends to stick to the working surface of a disc
   a) Disc c) **Scraper**
   b) Concavity. d) Til
385. Selection of tractor depends upon……
   a) Land holding c) Cropping pattern
   b) Repairing facilities **d) All of the above**
386. A power tiller consist of the following main components
   a) Engine c) Transmission gear
   b) Clutch **d) All of the above**
387. Tractor is not a self-propelled power unit.
   a) True
   b) False
388. Power tiller is also called.....
   a) Hand tractor c) Walking tractor
   b) **Both a and b** d) None of the above
389. The concept of power tiller came in the world in the year……
   a) 1920 c) 1954
   b) 1985 d) 1990
390..... is the first country to use power tiller on large scale
   a) Korea c) India
   b) America **d) Japan**
391. Power tiller was first introduced in India in the year……
   a) 1940 c) 1988
   b) 1963 d) 1990

392. Row crop tractor used for.....
a) Crop c) Major farm operations
b) Definite jobs d) None of the above

393. Following is the type of tractor
a) General purpose tractor c) Row crop tractor
b) Simple operation tractor **d) both a and b**

394. Crawler tractor is also called as.....
a) Hand tractor c) Walking type tractor
b) Track type tractor d) Row crop tractor

395. India is unique in its characteristics,where over ..... different crops are cultivated in region
a) 400. c) 350
b)250 d) 300

396. In 2000-2001 the quantum of power has rose to .....
a)45.29 million kW c) **170 million kW**
b) 85 million kW. d) 145 million kW

397. The power intensity of Indian farms increase from ..... to ..... kW/hectare on basis of net-cropped area.
a)0.2 to 1.30. c) 1.0 to 2.5
b) 0.5 to 1.60. d) 1.3 to 2.8

398. In 2000-2001 the use of mechanical & electrical increased from
a)20% to 45%. c) 45% to 75%
b) 45 to below 83% **d)43% to over 83 %**

399. India receives .....amount of solar energy each year
a. 5×1010 kWh/year. **c) 5×1015 kWh/year**
b. 4×1015 kWh/year. d) 5×1010 kWh/year

400. From the above options which can used to convert by bio chemical processes to alcohol and esters
a. **Cellulose waste and non- edible oil** c)fossil fuels
b. Animal waste d) none of the above

401. Find odd man out
a)Fanta c) mathani
b) chakiya. **d) tillers**

402. The extent of area under the command of draught animals is about .....
a. 45%. **c) 57%**
b. 75%. d) 64%

403. Punjab has farm power ok intensity of .....
a. 200 W/ hector. c) 150 kW/hector
b. 3.5 kW/hector d) 3.5 W/hector

404. In 1951,the number of tractors in India was...
a. 8635. c) 8563
b. 86350. d) 85630

405. Harrow is a ..... tillage implement that cuts the soil to shallow depth for smoothening and pulverizing the soil as well as to cut weeds and to mix the materials with the soil.
a. Primary. c. Tertiary
b. Secondary. d. None

406. Tandem disc Harrow is a disc Harrow comprising of four gangs in which each gang can be angle in……direction.
a. Angular c. Parallel
b. Opposite. d. Perpendicular

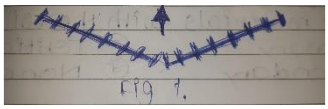
407. Normal ploughing is a ploughing up to depth of.....cm.
a. 10. **c.15**
b. 20. d.25

408. …….. is a method of ploughing in which the soil broken and turn along the contours.
a. Normal ploughing **c. Contour ploughing**

b. Sub soil plough. d. Disc plough

409. …….. is a harrow which perform harrow operation by means of set or a number of sets of rotating slat each set being mounted on common shaft.
a. Spike tooth harrow c. Triangular harrow
b. Acme harrow. **d. Disc harrow**

410. Identify the following figure-



a. Offset disc harrow. **c. Single action disc harrow**
b. Double action disc harrow d. Tandem disc harrow

411. Each set of disk that are mounted on the common shaft is called the……
a. Gang control lever c. Spool
b. Gang bolt. **d. Gang**

412. The flanked tube mounted on the gang bold between every two disc to prevent the lateral movement of the disc on the shaft is called.....
a. Bearing. c. Gang bolt
b. Gang. **d. Spool**

413. ..... is essential to counter act the and thrust of gang due to soil thrust.
a. Gang c. Spacer
b. Bearing. d. Gang bolt

414. ..... is a circular concave revolving steel plate using for cutting and inverting the soil.
a. Gang bolt. **c. Disc**
b. Bearing d. None

415._____ is the process of random scattering of seed on the surface of sead beds.
a) Broadcasting. b) Dibbling
c) Drilling. d) Transplanting

416._____ is the process of placing seeds in holes made in seedbed and covering them.
a) Broadcasting. **b) Dibbling**
c) Drilling. d) Transplanting

417._____ consists of dropping the seeds in furrow lines in a continuous flow and covering them.
a) Broadcasting. B) Dibbling
c) Drilling. D) Transplanting

418._____ is very common method used in villages.
a) Seed dropping behind the plough
b) Transplanting
c) Hill dropping
d) Check row planting

419._____ consists of preparing seedlings in nursery and then planting these seedlings in the prepared field.
a) Seed dropping behind the plough
b) Transplanting
c) Hill dropping
d) Check row planting

420. In _____ method, seeds are dropped at fixed spacing and not in a continuous stream.
a) Seed dropping behind the plough
b) Transplanting
c) Hill dropping
d) Check row planting

421. In _____ method, row to row and plant to plant distance is uniform.
a) Seed dropping behind the plough
b) Transplanting
c) Hill dropping

d) Check row planting

422._____ is a machine for placing the seeds in a continuous flow.

a) Seed drill
b) Transplanting
c) Hill dropping
d) Check row planting

423._____ is a device to refill a furrow after seed has been placed in it.

a) Seed box
b) Covering device
c) Transport wheel
d) Seed drill

424. The mechanism of a seed drill or fertilizer distributor which delivers seeds or fertilizers from the hopper at selected rates is called _____.

a) Seed drill
b) Seed box
c) Seed metering mechanism
d) Covering device

425. A metering mechanism that does not required cut-off device is:
A. Inclined plate B. Vertical plate
C. Horizontal plate **D. All are correct**

426. The metering mechanism used in potato planter is:
A. Fluted roller B. Brush feed type
C. Picker wheel type D. Cell feed type

427. In cup food metering device, the seed rate is controlled by:
A. Shaft rotation B. Speed of machine
C. Size of cups D. All are correct

428. The furrow opener used in black cotton soil is:
A. Disc type B. Shoe type
C. Reversible shovel type **D. Hoe type**

429. The shovel of seed drill is made up of:
A. Cast iron B. Mild steel
C. White metal **D. Carbon steel**

430. Blower is part of:
A. Planter. B. Zero till drill
C. Pneumatic seed drill D. Till plant machine

431. Pneumatic seed drills are suitable for sowing:
A. Small seeds B. Bolder seeds
C. Both (a) & (b) D. None of these

432. The fluted roller of seed drill is made of:
A. Aluminum B. Cast iron
C. Plastic **D. All are correct**

433. For sowing of wheat seed, a suitable metering mechanism is:
A. Cup feed B. Cell feed
C. Fluted roller D. Brush feed

434. A zero till seed-cum-fertilizer drill is designed for sowing:
A. Paddy B. Wheat
C. Potato. **D. Vegetable**

435. Bucket type sprayer consist of:
A. Single and double acting pump B. Centrifugal pump
C. Plunger type pump D. All are correct

436. The pump is mostly made of:
A. Aluminium B. Copper
C. Brass D. Plastic

437. A tank capacity of knapsack sprayer is about:
A. 5-10 litres B. 8-10 litres

C. **9-22.5 litres** D. 10-25.5 litres

438. Area that one man can spray in a day is:

A. 0.1 ha B. 0.2 ha

C. 0.3 ha. **D. 9.4 ha**

439. Amount of liquid that a man can spray in a day is:

A. 60 litres liquid B. 70 litres liquid

C. 80 litres liquid **D. 90 litres liquid**

440. Tank capacity of compression sprayer is:

A. 10 litresB. 12 litres

C. **14 litres** D. 20 litres

441. Hand atomizer is used for spraying in:

A. **Nursery** B. Orchard

C. Field crop D. None of these

442. The pump is used in power-operated sprayer is:

A. Plunger type B. Diaphragm type

C. **Gear type** D. Piston type

443. The pump used in airplane sprayers:

A. **Dentrifugal and gear pump** B. Gear and Diaphragm pump

C. Diaphragm and centrifugal pump D. Plunger and centrifugal pump

444. In power-operated sprayer, the pump works at a pressure of:

A. 2-5 Kg/cm2 **B. 3-8.5 Kg/cm2**

C. 4-12 Kg/cm2. D. 5-15 Kg/cm2

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455. ….. is an important machine used for farm machinisation.

a) **Tractor** c) truck.

b) Pump. d) Motor

456…. Increase the output of work per unit time

c) Automatic tool. c) **manual tool**

d) Implement tool. d) matching tool

457. More than …. Farmers depend upon animal drawn implements.

a. **80**%. c) 40%

b. 90%. d) 10%.

458. The productions of indigenous tractors started in india ….

a. **1961.** c) 1956

b. 1987. d) 1990

459. The penetration of powered machines in various farm activities is assede in the range of .. to ..

a. 40,30. c) 20,40

b. 50,10. d) **40,45**

460. Increase in human power in agriculture is quite …

a. **Slow**. c) medium

b. Fast. d) very slow

461. The extent area under the command of draught animals is about ….

a. **57**%. c) 67%

b. 78%. d) 89%

462. Unit power is available for crop production is about ….hp/ha

a. .**54.** c) .78

b. .89. d) .9

463. Agriculture contribute only .. to the country GVA.

a. **17.4%**. c) 18.9%

b. 13.9%. d) 89.4%

464. World Bank estimate half of indian population would be in …..

a. 2020. c) 2015

b. 2060. d**)2050**

465. Full form of NCCD is

A. **National center for cold chain development** **C.** National chain college department

B. National center of coal department D. None of the above

466. To recommend standards and protocols for cold chain infrastructure is the main objective of elements of cold chain?

A. True **B.** false

467. Which is correct order of cold chain

A. Farming, production, packing sales, warehousing, shopping mall, consumer.

B. Farming, packing sales, consumer, shopping mall, production, warehouses.

C. Farming, warehousing, shopping mall, consumer, production, packing sales.

D. All of the above.

468. Full form of NCAP is

A. National cooling action performance C. National coal academy

B. **National cooling action plan** D. None of the above.

469. In India cold chain is applied successfully in _____

A. Dairy products C. Various meats products

B. Frozen goods D. **All of the above**

470. _____ percent of food grain use modern storage facilities in India

A. 55% C. 10%

B. **25%** D. 90%

471. The atmosphere operational controlled stores in 2005 are located at

A. **Mumbai, Delhi, Bangalore** **C.** Mumbai Chennai

B. Mumbai, Pune D. Kolkata

472. VMI stands for

A. Vendor materials inventory C. Variable material inventory

B. **Vendors manage inventory** D**.** Valuable material inventory

473. Product layout is preferably used for

A. **Repetitive processes** **C.** Both a and b

B. Intermittent processing D. Neither a nor b

474. Inspection, scrap and repair are example of

A. Internal cost C. Cost of the dissatisfaction

B. **External cost** D**.** Societal cost

478. The production of irrigation pumps and diesel engines started during…….

e) 1950s

f) 1930s

g) 1940s

h) 2000s

479. The production of tractors and power tillers started in …….

a. 1950

b. 1940

c. 1960

d. 2001

480. The following is not a farm machinery

a. Combine harvester

b. Power tiller

c. Fresher

d. **Dumper trucks**

481. The leading manufacturer of farm equipment or agriculture equipment it in India are

a. Mahindra and Mahindra

b. Sonalika

c. Force

d. All of the abov

482. It is quite true that the farmers with low earnings per capita because of low per hectare they get from holdings are.....

a) I**ndian farmers** b) American farmers

c) Australian farmers d) all of the above

483. The step towards development of an appropriate agricultural technique in india is working towards the motto of saving.....

a) **labour** b) cost

c) surplus labour d) all of the above

484. The machinery which enables the farmers to raise a second crop or multi crop attractive and way of life. By becoming a commercial subsistence is….

a) **efficient machinery**

b) agriculture machinery

c) affective machinery

d) all of the above

485. At present the farm power availability as per hectare is….

a) **1.84KW/ HA** c)1.85KW/HA

b)2.04KW/ HA d)2.06KW/ HA

486. Advantages of mechanization is.....

a) substitute for labour.

b) attract or retain farm staff

c) amenity reasons

d) **all of the above**

487. A general-purpose or row-crop tractor is _____ machines

a) Single use c) Both A & B

b) **Universal** d) None of Above

488. For which reason post harvesting disciplinary Science and Technology for

a. Protection c. Processing

b. Conservation **d. All of the above**

489. Factors of post-harvest loss reduction technology encompasses with

a. Transportation and storage with Morden infra-structure

b. Processing and protection

c. Packaging and distribution

d. Distribution and marketing

490. Purpose for developing post harvesting technology is to improve inter-disciplinary and multi-dimensional approach

a. True

b. False

491. How many peoples are depends on agricultural of our villages population.

a. 80% **c. 70%**

b. 83% d. 65%

492. It is possible to evolve appropriate technologies which can be establish agricultural based ..... industry.

a. Small scale c. Urban

b. Rural d. Medium scale

493. Adoption of these techniques can make

a. High productivity b. Less wastage

c. Large quantity d. Large quantities

494. The process used for initial cultivation to loosen or turn the soil in preparation for sowing seed and planting is called as_____.

a) Kneading. b) Cropping.

c) Ploughing. d) None of the above.

495._____ is a secondary tillage that cuts the soil to a shallow depth for smoothening and pulverizing the soil as well as to cut the weeds and to mix the materials with the soil.

b) Normal ploughing. b) **Harrow.**

c) Contour ploughing d) None of the above.

496._____ harrow performs the harrowing operations by means of a set, or a number of sets of rotating flat disc, each set being mounted on a common shaft.

c) **Disc harrow.** b) Blade Harrow.

c) Acme harrow. d) Guntaka.

497. The two types of Disc Harrow are:

1) Single action disc harrow.
2) Double action disc harrow.

d) **True.** b) False.

498. The two types of Double action disc harrow are:

e) **Tandem & Off-set.** b) tandem & Master.

c) None of the above. d) both A & B.

499. _____ harrow is used to break the clod, stir the soil, uproot the weeds, level the ground, break the soil and cover the seeds.

a) Spring tooth harrow. b) Acme harrow.

c) **Spike tooth harrow.** d) None of the above.

500. _____ harrow is suitable to work in hard and stony soils consists of tough flexible teeth.

a) Patela. b) **Spring tooth harrow.**

c) Triangular harrow. d) None of the above.

501. _____ consists of one or more blades attached to the frame or beam which is used for shallow working of the soil with the minimum soil inversion.

a) **Guntaka.** b) Patella.

c) Ridger. d) Puddler.

502. The amplitude of vibration in a Reciprocating power harrow is 200mm.

a) **True.** b) False.

503. The frequency of operation in a reciprocating power harrow is_____.

a) 250 cycles per minute. b) **400 cycles per minute.**

c) 175 cycles per minute. d) None of the above

504. The process of loosening and turning the soil is called
A. Broadcasting
B. Irrigation
C. Ploughing
D. Levelling
505. The organic substance obtained from dead plants and animal wastes is
A. Manure
B. Fertilizer
C. Irrigation
D. Agriculture
506. The process of separating grain from chaff is called
A. Threshing
B. Weeding
C. Sowing
D. Winnowing
507. The conversion of nitrogen into nitrates is known as
A. Nitrogen fixation
B. Ammonification
C. Nitrate Assimilation
D. Nitrogen cycle
508. Raising of fish in inland waters and coastal waters are called
A. Fishery
B. Pisci culture
C. fish culture
D. harvesting
509. Most abundant water pollutant is
A. Detergents
B. Pesticide
C. Industrial wastes
D. Ammonia
510. Air pollution effects are usually found on
A. Flowers
B. Leaves
C. Stems
D. Roots
511. Green house effect is related to
A. Increased growth of green algae
B. Global warming
C. Cultivation of vegetables in housed
D. None of these
512. Examples of Corm include
A. Gloriosa
B. Canna
C. Lallang
D. Ginger
513. Animals like horse, donkey that carries load are called
A. Drought species
B. Load carrying Animals
C. Dairy Animals
D. Draught Animal
514._____ provided with the knife guard, on which the knife moves.

a) Wearing plate
c) grass board
b) Ledger plate
d) pitman

515. Knife clips are placed with wearing plates spaced _____ apart .

a) 10-15cm
c) 10-20cm

b) 5-10cm **d) 20-30 cm**

516._____ portion of knife is connected to pitman.

a) Knife section c) Knife back

b) Knife head d) Shoe

517._____is part defines a Pitman

a) Crank c) Slider

b) Connecting rod d) Piston

518._____is an Important cause for breaking the knife.

a) Power Transmission

b) Over load

c) Non- Alignment

d) None of the above

519. The cutter bar is set at ____ angle to the direction of the motion.

a) 95 **c) 88**

b) 78 d) 27

520._____ is not a part of the mechanical Thresher

a) Feeding device

b) Threshing cylinder

c) Concave (punched sheets / welded square bars)

d) Water Pump

521. _____ is not an operational Factor.

a) Cylinder speed

b) Feed rate

c) Depth of cut

d) Machine adjustment