

BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY

Question Bank (K - Scheme)

Name of subject: EMERGING TRENDS IN ELECTRONICS

Subject code: 316337

Semester: VI

Unit Test :II

Course : EJ

- 1 TTL in a MPLS label is
 - A. Transistor Transistor Logic
 - B. Time To Live
 - C. Technology Transfer Layer
 - D. Not from above

- 2 In FTTH, telemedicine is service.
 - A. Symmetric
 - B. Balanced
 - C. Asymmetric
 - D. Unbalanced

- 3 In what type of network architecture does an OLT play a critical role?
 - A. A local area network (LAN).
 - B. A wide area network (WAN).
 - C. A passive optical network (PON).
 - D. A cellular communication network.

- 4 The protection Scheme in an OTN network is defined by:
 - A. G 709
 - B. G 873.1
 - C. G 798
 - D. G 872

- 5 Synchronous Digital Hierarchy provides the feature like:
 - A. Performance Monitoring.
 - B. Network Management
 - C. Protection facility
 - D. WDM Multiplexing.

- 6 Select the appropriate layer in the IoT 3-layer architecture that handles data transmission.
 - A. Application Layer
 - B. Network Layer
 - C. Perception Layer
 - D. Business Layer

- 7 Identify an incorrect function of Cyber-Physical Systems
 - A. Sensing
 - B. Actuation
 - C. Data Analysis
 - D. Photosynthesis

- 8 The cloud service specialized for IoT data visualization is-
 - A. AWS
 - B. Microsoft Azure
 - C. ThingSpeak
 - D. Google Cloud

- 9 Industry 5.0 focuses mainly on:
 - A. Mass production
 - B. Human-robot collaboration
 - C. Automation only
 - D. Steam power

- 10 The communication protocol commonly used for IoT devices-
 - A. SMTP
 - B. MQTT
 - C. POP3
 - D. FTP

- 11 The following is an immersive technology that overlays digital info on the real world -
 - A. VR
 - B. AR
 - C. MR
 - D. XR

- 12 Select one which is NOT an IoT application in agriculture.
 - A. Precision farming
 - B. Livestock monitoring
 - C. Weather prediction
 - D. Text editing

- 13 The Industry revolution introduced automation and computers-
 - A. Industry 1.0
 - B. Industry 2.0
 - C. Industry 3.0
 - D. Industry 4.0

- 14 The cloud provider that is strongest in AI and data analytics -
 - A. AWS
 - B. Microsoft Azure
 - C. Google Cloud
 - D. ThingSpeak

- 15 Extended Reality (XR) includes:
- A. Only AR
 - B. AR + VR
 - C. AR + VR + MR
 - D. Only VR
- 16 Industrial IoT (IIoT) primarily refers to:
- A. Using the internet for social networking
 - B. Connecting machines, sensors, and computers for data-driven insights and automation
 - C. Replacing all human workers with robots
 - D. Creating video streaming platforms
- 17 The key feature that distinguishes Industry 5.0 from Industry 4.0 is-
- A. Exclusive focus on cloud computing
 - B. Introduction of steam power
 - C. Emphasis on human-robot collaboration and personalization
 - D. Use of assembly line production
- 18 The main purpose of Spatial Mapping is-
- A. Identify surfaces and distances
 - B. Increase sound
 - C. Save power
 - D. Boost network
- 19 IoT improves efficiency in manufacturing by:
- A. Industry 1.0
 - B. Industry 2.0
 - C. Industry 3.0
 - D. Industry 4.0
- 20 Identify technological concept that is unrelated to Industry 4.0
- A. Cyber-physical systems
 - B. IoT and big data
 - C. Water-powered looms
 - D. Cloud computing
- 21 In a 5-layer IoT architecture, the middleware layer mainly handles:
- A. Database and cloud computing
 - B. Data filtering and storage
 - C. Data sensing
 - D. User feedback
- 22 The main goal of Industry 5.0 compared to Industry 4.0 is-
- A. Faster automation
 - B. Personalization and sustainability
 - C. Mass production
 - D. Pure data connectivity

- 23 In the Industry 5.0 architecture, the layer at the core where humans and cobots work together is-
- A. Smart sensors and actuators
 - B. Edge computing
 - C. Human-robot collaboration layer
 - D. Cloud and AI platforms
- 24 Select the following that is excluded from the benefits of Industry 5.0
- A. Predictive and proactive maintenance
 - B. Greater resilience
 - C. Increased manual labor
 - D. Improved employee well-being
- 25 A company uses Google Cloud IoT for predictive maintenance. This is mainly due to:
- A. Machine learning and AI integration
 - B. Low bandwidth usage
 - C. Free hardware support
 - D. No need for APIs
- 26 Select an appropriate type of drone to hover precisely over a small area for photography with its prioritized over flight duration.
- A. Multi-rotor
 - B. Single-rotor
 - C. Fixed-wing
 - D. Hybrid
- 27 Identify the component where the motor speed must be regulated to maintain smooth motion.
- A. Global positioning System
 - B. Electronic Speed Controller
 - C. Gimbal
 - D. Power Distribution Board
- 28 Select sensor that collect altitude and orientation data in drone operations.
- A. Gyroscope
 - B. Accelerometer
 - C. Barometer
 - D. Magnetometer
- 29 Identify the system responsible for UAV's camera to maintain stable flight to avoid shaky footage
- A. Electronic Speed Controller
 - B. Flight Controller
 - C. Gimbal
 - D. Power Distribution Board
- 30 The DGCA categorizes airspace into different zones for drone operations identify the zone where can't fly in highly sensitive areas :
- A. Green zone
 - B. Red zone
 - C. Inner yellow zone

D. Outer yellow zone

- 31 The authority that regulates drone licensing and safety in India is:
A. ISRO
B. DGCA
C. DRDO
D. ICAO
- 32 All drones except the Nano category must be registered on which platform to obtain a UIN (Unique Identification Number)?
A. Digital Sky
B. DroneSky
C. AeroIndia
D. UIN Portal
- 33 The component that distributes electrical power from the battery to ESCs and other electronics is:
A. Gimbal
B. Flight Controller
C. Power Distribution Board
D. Landing Gear
- 34 Select the appropriate drone for mapping farm for several hours with minimal stops
A. Multi-rotor
B. Fixed-wing
C. Single-rotor
D. Hybrid
- 35 Select the most suitable drone to deliver heavy payloads to remote areas.
A. Multi-rotor
B. Fixed-wing
C. Single-rotor
D. Hybrid
- 36 Identify the appropriate application to deliver vaccines to villages using drones.
A. Agriculture
B. Disaster management
C. Logistics and Medical
D. Photography
- 37 Identify the appropriate drone application for flood rescue operation to locate stranded people.
A. Search and Rescue
B. Logistics
C. Aerial Mapping
D. Wedding Photography
- 38 Select the appropriate drone application for monitoring crop health and spraying pesticides.

- A. Defence
- B. Agriculture
- C. Surveillance
- D. Logistics

39 During a pre-flight inspection, a drone shows slight vibration in flight and reduced lift. The maintenance action needed is:

- A. Replace or balance propellers
- B. Recharge the battery
- C. Calibrate GPS
- D. Update flight controller firmware

40 A drone uses a 2200 mAh (2.2 Ah) Li-Po battery with a 25C rating. Estimate its maximum theoretical runtime in minutes.

- A. 1.2 minutes
- B. 2.4 minutes
- C. 5.0 minutes
- D. 6.0 minutes

41 A team of researchers plans to monitor a dense forest for wildlife tracking. The drone must hover at specific points for extended durations while carrying a lightweight camera and GPS tracker. The drone will operate in Green Zones and occasionally Inner Yellow Zones. Considering the mission requirements, identify the drone configuration that would be most suitable.

- A. Multi-rotor
- B. Fixed-wing
- C. Single-rotor
- D. Hybrid VTOL

42 A logistics company plans to deliver emergency medical supplies to remote villages in hilly terrain. The drone must take off vertically, navigate up to 12 km, and return safely, handling moderate wind gusts. Considering the mission requirements, identify the most suitable drone configuration.

- A. Multi-rotor
- B. Fixed-wing
- C. Hybrid VTOL
- D. Single-rotor

43 A drone is required for aerial surveillance near a critical infrastructure site. The operations are restricted to:

- Inner Yellow Zone (2–5 km from Red Zone)
- Maximum height 120 m
- Must maintain line-of-sight

From the diagrams below, select the drone type and configuration that is legal and safe for this operation.



- 44 During payload transport, the drone's motors need precise speed regulation to maintain stable flight. Which component is responsible for this?
- A. Electronic Speed Controller
 - B. Flight Controller
 - C. Gimbal
 - D. Landing Gear
- 45 A student plans to operate a drone in an open rural area up to 120 m without prior permissions. Which flight zone is permitted for this operation?
- A. Green zone
 - B. Red zone
 - C. Inner yellow zone
 - D. Outer yellow zone