Question Bank (K-scheme)

Name of subject: Industrial Engg. & Quality Control **Unit Test: II**
Subject code: 316362
Course: ME6I
Semester: VI

Chapter 3: Quality control & Inspection CO3

2 marks questions

1. **List down various Q-C tools. (Any4)**
2. **List any two applications of Q-C tools**
3. **Draw cause-and-effect diagram with suitable example**
4. **Draw pareto chart with suitable example**
5. **Define QFD. Write any two advantages**
6. **State the need of inspection**
7. **Define Inspection.**
8. **State the objectives of Inspection.**
9. **State raw material inspection.**
10. **State in process inspection**

4 marks questions

1. **Explain any two QC tools with neat sketch.**
2. **Draw cause-and-effect diagram & scatter diagram with suitable example**
3. **Explain with neat sketch pareto chart and scatter diagram**
4. **Explain with neat sketch check sheet, histogram, pareto chart and scatter diagram**
5. **Explain Quality Function Deployment methodology**
6. **Why 100% inspection is generally not preferred in the industry for mass production**
7. **Define Inspection & explain its stages**
8. **Explain In-Process Inspection.**
9. **Differentiate between Inspection and quality control**
10. **Compare between In-Process inspection, Final inspection and Raw material inspection.**
11. **Explain role of quality control inspector /supervisor**

Chapter 4: Statistical Quality Control CO4

2 marks questions

1. **Define Statistical Quality Control and state its objectives.**
2. **State the benefits of statistical Quality Control.**
3. **Define assignable and chance causes.**
4. **State different SQC tools (Any 4)**
5. **Define Central tendency and Dispersion.**
6. **Define Median, mode, range.**
7. **Define Dispersion and Variance.**
8. **Define control charts.**
9. **Classify control charts.**

10. **State the application of 'P' chart & 'C' chart**
11. **Define defect and defective**
12. **Process capability of machine**
13. **Define acceptance sampling**
14. **Draw Single sampling plan**
15. **Enlist the types of sampling plan.**

4 marks questions

1. **Classify Quality control charts.**
2. **Differentiate between Attribute Inspection and Variable Inspection.**
3. **Differentiate between Attribute chart and Variable chart.**
4. **Differentiate between assignable and chance causes.**
5. **Draw normal distribution curve & State its characteristics**
6. **Explain procedure to draw X-bar and R chart.**
7. **Explain procedure for plotting P-chart**
8. **Explain Following trends of X bar control chart a. Extreme Variation b. Shift c. Erratic Fluctuation d. Indication of trend**
9. **Differentiate between P chart and nP chart.**
10. **State the various types of sampling methods (Any 4)**
11. **Compare Single sampling and Double sampling plan.**
12. **State advantages of sampling inspection over 100% Inspection.**
13. **Compare acceptance sampling with 100% Inspection.**
14. **Explain Double sampling plan**
15. **Differentiate between AQL and IQL in O. C curve.**
16. **Draw a neat sketch of an actual O.C curve.**
17. **Explain producer risk and consumer risk with neat sketch**
18. **Explain producer risk and consumer risk with suitable example.**
19. **Eight Samples of size 5 each have been collected with following observations, Given A2 = 0.577, D3 = 0, d2= 2.326and D4 = 2.114. Draw proper control chart & conclude.**

Sr. No	$\bar{X}$	R
1	2.008	0.027
2	1.998	0.011
3	1.995	0.017
4	2.001	0.009
5	2.003	0.014
6	1.997	0.017
7	2.002	0.023
8	1.997	0.021
9	2.003	0.015
10	2.011	0.026

20. Number of defect found in a inspection of 10 assemblies are 2, 3, 2, 5, 2, 3, 5, 3, 0, 1 respectively. Draw appropriate control chart and conclude.

21. Following are inspection result of magnets for 5 observations. Draw proper control chart and conclude.

Week no.	1	2	3	4	5
No. of magnet inspected	724	728	724	720	730
Defectives found	48	83	70	80	58

22. In the lot of 50 pieces. Each sub-group is of 5 pieces and for 10 sub-groups X-bar and R values for the length of pieces are as under. By the using general formulae, prepare the X-bar and R chart and write the interpretation of chart.

Sr. No	$\bar{X}$	R
1	2.12	0.03
2	1.99	0.01
3	1.80	0.02
4	2.00	0.04
5	1.99	0.02
6	2.45	0.01
7	1.85	0.05
8	1.70	0.04
9	1.98	0.06
10	2.30	0.03

23. The following table gives number of errors in alignment observed at the final inspection of a certain model of an aero plane. Prepare a C- chart and comment on it

Aero plane no.	1	2	3	4	5	6	7	8	9	10	11	12
No. of alignment defect	7	6	6	7	4	7	8	12	9	9	8	5

13	14	15	16	17	18	19	20	21	22	23	24	25
5	9	8	15	6	4	13	7	8	15	6	6	10

24. Following are the inspection result of soldered PCB boards for 6 days. Draw proper control chart and conclude.

Day	1	2	3	4	5	6
No. of PCB checked	20	25	22	20	25	24
Defects found	4	3	2	3	4	2

25. The following are $\bar{X}$ and R values of 10 samples of items 5 each.

Sr. No.	1	2	3	4	5	6	7	8	9	10
$\bar{X}$	57.80	58.80	58.80	59.80	59.90	60.00	60.30	60.40	60.90	61.80
R	1.50	1.75	2.00	2.25	2.25	2.00	1.00	1.50	2.00	1.75

The specification limits for the components are 59 $\pm$ 3.5. Establish the control limits for $\bar{X}$ and R chart. Will the process be able to meet its specifications? Given A2 = 0.577, D3 = 0, D3= 0and D4 = 2.11.

26. Determine the control limits for $\bar{X}$ and R chart, if $\sum \bar{X} = 357.50$ and $\sum R = 9.90$. Number of subgroups=20. It is given that, A2 =0.18, D4=1.59 and d2=3.735. Also, find the process capability

Chapter 5: Computer-aided Process Planning and Quality Control CO5

2 marks questions

1. **Define Computer-Aided Process Planning (CAPP)**
2. **State objectives of Computer-Aided Process Planning (CAPP)**
3. **State various types of Computer-Aided Process Planning (CAPP)**
4. **List any four applications of Computer-Aided Process Planning (CAPP)**
5. **Define Computer-Aided Quality Control (CAQC)**
6. **State objectives of Computer-Aided Quality Control (CAQC)**
7. **State various types of Computer-Aided Quality Control (CAQC)**
8. **List any four applications of Computer-Aided Quality Control (CAQC)**
9. **List advantages & disadvantages of variant CAQC**
10. **Define Computer-Aided Inspection (CAI)**
11. **State objectives of Computer-Aided Inspection (CAI)**
12. **State advantages & disadvantages of Computer-Aided Inspection (CAI)**
13. **List any four applications of Computer-Aided Inspection (CAI)**

4 marks questions

1. **Explain process planning**
2. **Explain variant CAPP system with its stages**
3. **Explain stages in variant CAPP system**
4. **List advantages & disadvantages of Generative CAPP**
5. **Explain Generative CAPP system with its stages**
6. **Explain stages in Generative CAPP system**
7. **List advantages & disadvantages of variant CAPP**
8. **Differentiate between traditional process planning and CAPP**
9. **Draw Flow of variant CAPP**
10. **Explain Contact Inspection Method**
11. **Explain Non-Contact Inspection Method**
12. **Compare between Contact Inspection & Non-Contact Inspection**
13. **Differentiate between traditional QC and CAQC**
14. **Differentiate between traditional process planning and CAI**
15. **Differentiate between Inspection and Quality control (QC)**