

**October 2018**

Time – Three hours  
(Maximum Marks: 75)

- (N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory.  
Answer any FOUR questions from the remaining in each PART – A  
and PART – B  
(2) Answer division (a) or division (b) of each question in PART – C.  
(3) Each question carries 2 marks in PART – A, 3 marks in Part – B  
and 10 marks in PART – C.  
(4) Standard curves and statistical tables are permitted]

PART – A

1. Name two quality Gurus.
2. List any two barriers to TQM implementation.
3. Illustrate the relationship between various 5S.
4. List out the seven most commonly used TQC tools for problem solving.
5. What do you mean by frequency distribution?
6. Differentiate defect and defective.
7. What is JIT philosophy?
8. For some distribution  $\bar{X} = 0.82$  and  $\sigma = 0.04$ , what are the two limits for  $\bar{X} \pm 2.5\sigma$ ?

PART – B

9. What are the characteristics of TQM?
10. Briefly explain the pillars of TQM.
11. Explain a simple input/output process model.
12. What is Ishikawa diagram? Explain.
13. Briefly explain the measures of central tendency.
14. Define process capability. How will you determine it?
15. State the benefits of benchmarking.

[Turn over.....

16. Given below are the marks obtained by a batch of 10 students in a certain class test in TQM and principles of management(PM). In which subject is the level of knowledge of the students higher?

Roll No. of Students	1	2	3	4	5	6	7	8	9	10
Marks in TQM	58	77	82	69	84	49	57	79	60	72
Marks in PM	62	68	80	72	81	57	63	59	61	69

PART – C

17. (a) (i) What is Quality Council?  
(ii) List the duties and responsibilities of the Quality Council.  
(Or)
- (b) Explain in detail the Deming philosophy fourteen points on route to quality.
18. (a) Explain Juran's ten step to quality improvement.  
(Or)
- (b) What are the steps to be followed to construct a pareto diagram? Explain with an example.
19. (a) Explain briefly the concept of six sigma and state the principles.  
(Or)
- (b) Five thermostatic controls are tested to determine the ON temperature. The measured values are 344°, 338°, 342°, 335° and 336°. These values constitute the first subgroup for control chart. Compute the mean, median, range, standard deviation and variance of this subgroup.
20. (a) In a production process, a lot of 250 products have been manufactured in a day. Five samples have been collected at random in that day as a SQC measure. Each sample size is 5.

Five samples A,B,C,D,E have been as shown in the table below for a particular dimension of the product.

Sample	1	2	3	4	5
A	43	42	42	44	43
B	45	40	39	39	46
C	40	40	41	42	43
D	43	42	40	40	46
E	40	41	43	46	43

Calculate the control limits and draw  $\bar{X}$  and R charts. Take for subgroup size 5,  $A_2=0.577$ ,  $D_3=0$  and  $D_4=2.11$  respectively.

(Or)

- (b) The following table shows the number of point defects on the surface of a bus body on March 2018.

Body number	No.of defectives	Body number	No.of defectives	Body number	No.of defectives
1	13	8	9	15	14
2	15	9	3	16	6
3	19	10	23	17	16
4	8	11	17	18	10
5	6	12	11	19	2
6	17	13	7	20	6
7	7	14	11		

- (i) Compute the value of  $\bar{C}$  and its control limits
- (ii) Draw C chart.
- (iii) If the process is not in control, compute the new value of  $\bar{C}$  and control limits for the future use.

21. (a) Explain briefly :

- (i) Inter relationship diagram
- (ii) Matrix diagram
- (iii) Process decision programme chart (PDPC).

(Or)

- (b) (i) What are the objectives of implementing TPM?
- (ii) Write the step by steps procedure to develop a TPM programme in an organisation.

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