

22657

23124

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: 10**
 - a) State the need of inspection.
 - b) Define fatigue.
 - c) Define method study. State its objectives.
 - d) Define process planning.
 - e) Name various control charts in SQC.
 - f) State any two symbols used in process chart.
 - g) Enlist various QC tools.

- 2. Attempt any THREE of the following: 12**
 - a) Explain the concept of line balancing. State its objectives.
 - b) Explain man-machine relationship in terms of ergonomics.
 - c) Differentiate between inspection and quality control.
 - d) State merits and demerits of acceptance sampling.

P.T.O.

3. Attempt any THREE of the following: 12

- a) Why allowances are considered while calculating standard time?
- b) Explain the producer's risk and consumer's risk.
- c) Explain cost of quality.
- d) Apply principles of ergonomics for design of lever for hand press machine.

4. Attempt any THREE of the following: 12

- a) State the principles of TQM.
- b) Construct two handed process chart for an activity of replacing the old battery of mobile handset.
- c) Write advantages and limitations of ISO 9000 (four each).
- d) Compare variable measurement and attribute measurement.
- e) Prepare operation process sheet and sequence of operation for step turning operation on lathe machine.

5. Attempt any TWO of the following: 12

- a) Explain the types of displays and draw sketch of any two.
- b) Explain the concept of supply chain management and state it's functions.
- c) In a manufacturing process following observations are recorded. Draw appropriate control chart and conclude.

Sample No.	Defective found out of 50
1	3
2	2
3	0
4	3
5	5
6	1

6. Attempt any TWO of the following:**12**

- a) Outline an appropriate process chart for the activity “replace old battery of car”.
- b) Draw and explain Histogram, Pareto chart and Scatter diagram.
- c) 10 samples of size 5 have been collected with following observations.

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

Given : $A_2 = 0.577$, $D_3 = 0$, $D_4 = 2.114$

Draw the appropriate control chart and state whether the process is in statistical control or not.
