17577

14115

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any <u>FIVE</u> of the following: **20**

a) State requirements of good maintenance.

b) Write any five advantages of SQC.

c) What is accounting? Explain journal and ledger with one example of each.

d) Define 'production'. State its types and explain any one of them.

e) Define method study. State its objectives.

f) Differentiate between PERT and CPM.

g) Explain AOA and AON with suitable examples.

Marks

2. Attempt any <u>TWO</u> of the following: **16**

a) In a lot of 50 pieces, each subgroup is of 5 pieces and for 10 subgroups.

X – bar and R values for the "Length of pieces" is as under–

Sr. No.	X - bar	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

(Given data $\rightarrow$ $A_2 = 0.577$, $D_3 = 0$, $D_4 = 2.11$, $d_2 = 2.362$)

By using general formulae, prepare X - bar and R - chart and write the interpretation of chart.

b) What is preventive maintenance? Explain its procedure, need and benefits.

c) Define cost accounting. Explain its methods and advantages and applications.

Marks

3. Attempt any <u>TWO</u> of the following: **16**

a) The observed times and the performance ratings for the five elements are given below. Compute the standard time assuming rest and personal allowance as 15% and contingency allowance as 2% of the basic time.

Element	1	2	3	4	5
Observed time (min)	0.2	0.08	0.5	0.12	0.10
Performanc e rating	85	80	90	85	80

b) Define quality. Explain mean, mode, median, range and dispersion related with it.

c) State advantages of break even analysis. A PQR Ltd. Company has been offered a chance to buy between machine A and machine B. You are required to compute-

(i) BEP of each machine.

(ii) The level of sales at which both machines earn equal profits.

The following data is given.

	Machine A	**Machine B**
Annual output (units)	10,000	10,000
Fixed costs	30,000	16,000
Profit at above level	30,000	24,000

The market price of the product is expected to be Rs.10/- per unit. (Hint.– Variable cost for 'A' is 40,000 and for 'B' is 60,000)

Marks

4. Attempt any <u>TWO</u> of the following: **16**

a) Explain in brief:

(i) Economics of using maintenance

(ii) New developments in maintenance.

b) The activities involved in small project are given below along with relevant information. Construct the network and find the critical path.

Activity	1 – 2	2 – 3	1 – 3	2 – 4	3 – 4	4 – 5
Duration	20	10	25	12	6	10

Calculate floats for each activity.

c) State objectives of PPC. Explain Routing and scheduling procedure with giving proper examples.

5. Attempt any <u>TWO</u> of the following: **16**

a) Explain capacity planning procedure and machine requirements planning for a garment factory.

b) Explain in brief-

(i) Ergonomics and its importance.

(ii) SIMO chart with example.

c) Explain Fulkerson's rule for network diagram. Define- Event, Float, EST, Dummy activity.

Marks

6. Attempt any TWO of the following: **16**

a) Explain three time estimates and its importance in PERT.

b) The PERT time estimates of the project are given. Construct the network. Find the critical path and variance of each event. Find the project duration at 95% probability.

Activity	Optimistic Time	Most expected time	Pessimistic time
1 – 2	1	1.5	5
2 – 3	1	2	3
2 – 4	1	3	5
3 – 5	3	4	5
4 – 5	2	3	4
4 – 6	3	5	7
5 – 7	4	5	6
6 – 7	6	7	8
7 – 8	2	4	6
7 – 9	5	6	8
8 – 10	1	2	3
9 – 10	3	3	7

c) Explain the following:

(i) Therbligs

(ii) Dispatching procedure.