22573

22223

3 Hours / 70 Marks   Seat No.

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

(7) 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:**   **10**

a) Define the term 'Time Study'.

b) Enlist types of allowances in work study.

c) Define 'production planning' in PPC.

d) State significance of "p-chart" and "np-chart".

e) Compare AON with AOA.

f) Define the term 'maintenance'.

g) Identify type of maintenance for-

    i)   Serving m/c motor

    ii)   Pressing equipment

Marks

2.   Attempt any THREE of the following: **12**

a) Prepare a material type flow process chart for cuff making in formal shirt.

b) State the objectives of PPC.

c) Explain 3 time estimates in PERT.

d) Analyse various direct costs in formal shirt (full sleeve) manufacturing.

3.   Attempt any THREE of the following: **12**

a) Outline any two applications of principles of motion economy in garment industry.

b) Give formulae to calculate UCL and LCL for R-chart, P-chart, np-chart and c-chart for-

Case I - when mean and standard deviation is known.

Case II - When mean and standard deviation is not known.

c) Explain graphical analysis of BEP.

d) Analyse various costs associated with maintenance with one example each in garment industry.

4.   Attempt any THREE of the following: **12**

a) Calculate standard time for given data-

Elements	Cycles (min.)		
	1	2	3
A	2.1	8.6	14.9
B	2.9	9.5	15.8
C	6.5	13.0	19.9

i)   Assume PR as 90% except element C is m/c element.

ii) Assume contingency allowance 15% and relaxation allowance 2%.

b) Explain forward pass and backward pass computation rules in network analysis.

Marks

  c) Calculate BEP quantity for garment unit if-

    i) Land and Building cost = Rs. 7 lakh.

    ii) Sales revenue = Rs. 20,000/- for 100 shirts.

    iii) Variable costs = Rs. 6,000/- for 100 shirts.

  d) State objectives and assumption of BEP.

  e) Give formulae to calculate-

    i) Manpower efficiency

    ii) Maintenance cost index

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

  a) Explain physical and cognitive domains of ergonomics with examples from garment industry.

  b) Analyse 'scheduling, dispatching and expediting' functions of PPC.

  c) Find critical path for following data-

Activity	Predecessors	Time (weeks)
A	-	4
B	-	3
C	-	2
D	A	5
E	B	3
F	B, C	4
G	D, E	3
H	F, G	3

Marks

6. Attempt any <u>TWO</u> of the following: **12**

   a) For a small project, following time estimates (weeks) are given

Activity	Time in weeks		
	T_o	T_m	T_p
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

      i) Construct a network and find critical path.

      ii) Calculate standard normal variate (z) value if project due date is 20 weeks.

   b) Explain various cost components in computing total manufacturing cost of a product.

   c) Describe objectives of maintenance in garment industry.

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