

- (c) Compare the periodic and quantity reorder inventory system. List other inventory control systems.
- (d) Explain the procedure of double sampling. What are the benefits of sampling.
- (e) What is benchmarking? Explain the procedures of Benchmarking ?
- (f) Ten bolts of printed fabric have been carefully examined to determine the number of defects in each bolt. The number of defects found in each was 4,3,5,3,7,4,6,1 8 and 6 respectively. Careful attention was paid to see that the process was in control when these samples were taken. Establish the control limit that can be used to determine if the process remains in control.

5 Attempt any **four** parts : 5×4=20

- (a) Mention the steps of the process of Human Resouce Planning. Also discuss man power demand forecasting.
- (b) "Trade Unions play a negative role in Industrial development and overall growth of economy". Discuss the statement and give proper justification for or against it.
- (c) How line organisation is different from staff organization?
- (d) Explain :  
 (i) Job description and Job analysis  
 (ii) Job evaluation and Job simplification
- (e) What is meant by merit rating? What are its objectives, method and limitation?
- (f) What do you understand by "Wage Policy"? What are its objectives and principles?



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 4079

Roll No. 

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**B. Tech.**

**(SEM. IV) EXAMINATION, 2008-09  
 INDUSTRIAL ENGINEERING**

Time : 3 Hours]

[Total Marks : 100

- Note : (i) Attempt all questions.  
 (ii) Answer briefly.  
 (iii) Assume any data suitably with proper justification, if missing.

1 Attempt any **four** parts : 5×4=20

- (a) Explain the predetermined time approach to work measurement.
- (b) Contrast flow process chart and operations chart.
- (c) What do you mean by the term "Therblig" ? Name and discuss any four therbligs.
- (d) Mention the type of the production system through which benefits of Mass Production System can be obtained in Batch Production System. Explain how those benefits are achieved.
- (e) What is the difference between production and productivity? How latter helps in improving the former?
- (f) The data in the following table represents time study observation for wood working operation. Based on allowance factor of 0.15 and the data, determine the standard time :



Element	Performance Rating	Observation (min/cycle)					
		1	2	3	4	5	6
1	110%	1.2	1.17	1.16	1.22	1.24	1.15
2	115%	0.83	0.87	0.78	0.82	0.85	1.32*
3	105%	0.58	0.53	0.52	0.59	0.60	0.54

\*Unusual delay, disregard time.

- 2 Attempt any **four** parts: 5×4=20
- (a) Explain all the phases of product life cycle with the help of suitable example.
- (b) For the given set of data, evaluate
- (i) Three months moving average.
- (ii) The exponential smoothing forecast upto the month of August. Assume  $L=0.2$  and forecast for Feb. month is 23000 :

Months	Feb.	March	April	May	June
Actual sales	19,360	25,450	19,730	21,480	20,770

Months	July	Aug.	Sept.	Oct.
Actual sales	25,420	23,790	28,350	26,800

- (c) Contrast between backward scheduling and forward scheduling. If required, supplement your answers with suitable sketches.
- (d) What are the factors affecting selection of Plant location?
- (e) Explain the production control objectives and their usefulness.
- (f) What are the different types of layouts? Explain any one with examples, sketch and its merits and demerits.
- 3 Attempt any **four** parts: 5×4=20
- (a) An organization can make three products, details of which are given below :

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Product	Variable Cost per unit	Percent of Sales	Price
A	Rs. 40	30	Rs.70
B	Rs. 60	20	Rs.110
C	Rs. 120	50	Rs.210

Total fixed cost - Rs.1,00,000/-, sales Rs.2,75,000/-  
The organization has the following alternative :

Product	Variable Cost per unit	Percent of Sales	Price
X	Rs.40	44	Rs.70
Y	Rs.110	16	Rs.210
Z	Rs.180	40	Rs.216

Total fixed cost - Rs.1,00,000/-; Sales Rs. 2,95,000/-. Which alternative should be adopted by the Company and why?

- (b) What are the depreciation causes? Mention the different methods of accounting depreciation.
- (c) Explain, with suitable example, Direct costing and Marginal costing.
- (d) What do you mean by the following contribution, Internal Rate of Return, Machine Hour Rate, Overhead Recovery Rate.
- (e) What are the basic components of an operations management maintenance system. - Explain.
- (f) Define the work measurement technique. Explain how these can be usefully applied to maintenance department.
- 4 Attempt any **four** parts: 5×4=20
- (a) Derive the formula of EOQ and its associated total cost. Clearly mention the assumption made.
- (b) Explain briefly, with the help of neat diagram, a closed loop MRP and its functioning.

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