



SE-7471

B. E. - IV (Sem. VIII) (Mech.) Examination

May / June - 2011

Production Management

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दर्शायेक निशानीवाणी विगतो उत्तरवडी पर अवश्य कपवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. - IV (Sem. VIII) (Mech.)

Name of the Subject :
Production Management

Subject Code No. : 7 4 7 1 Section No. (1, 2,.....): 1, 2

Seat No. :

Student's Signature

- (2) Attempt all the questions.
(3) Answers to the two sections must be written in the separate answer books.
(4) Assume the necessary data giving justification.
(5) Figures to the right indicate full marks.
(6) Use of the graph paper is allowed.
(7) Use of the scientific calculators without equation and/or matrix model/key is allowed.

SECTION - I

- 1 (a) Discuss manufacturing vs. service operations. 3
(b) Define break-even point. Discuss the uses of break-even point analysis. 3
(c) Discuss production subsystem in brief along with suitable example. 4
(d) Consider the following production line in which tasks A to H must be performed in alphabetical order : 10

Station	1	1	2	3	3	4	5	6
Task	A	B	C	D	E	F	G	H
Task time in minute	2	1.5	4	2	2	3	2.5	3

- (i) Identify the bottleneck operation.
(ii) What is the minimum cycle time ?

- (iii) Assuming 8 hrs per working day what is the maximum daily output ?
- (iv) If the line uses one employee per station, how many hrs of idle time are there daily ? How many hrs of productive time ?
- (v) Calculate the efficiency of the line.

2 Attempt any three.

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- (a) Define FCFS, SPT and critical ratio with reference to sequencing. Today is day 22 and 4 jobs are on order as shown in the table. Determine the critical ratio for each job and determine the priority ranks.

<i>Jobs</i>	<i>Due date</i>	<i>Work remaining</i>
<i>A</i>	28	8
<i>B</i>	26	2
<i>C</i>	24	2
<i>D</i>	30	12

- (b) The following mortality rates have been observed for a certain type of light bulbs.

<i>Week</i>	1	2	3	4	5
<i>% Failing by the end of the week</i>	10	25	50	80	100

There are 1000 bulbs in use and it costs Rs. 2 to replace an individual bulb that has burnt out. If all bulbs were replaced simultaneously it would cost Rs. 0.50 per bulb. It is proposed to replace all bulbs at fix intervals whether or not they have burnt out and to continue replacing burnt out bulbs as they fail. At what intervals should all bulbs be replaced ?

- (c) A project team leader has four tasks that must be completed by personnel having different skill levels for each task. Times data are given below. Use assignment linear programming to assign personnel to task so as to minimize the total time required.

Worker	Minutes to complete task (min)			
	1	2	3	4
A	2	7	3	11
B	5	9	12	4
C	8	10	6	7
D	4	6	5	8

- (d) There are five jobs, which requires being process on three different machines A,B and C in order ABC. The porcessing time of the jobs on all three machines are given below. Determine the sequence for the five jobs to minimize total elapsed time. Also find the idle time for the machines A, B and C.

<i>Job no.</i>	1	2	3	4	5
<i>A</i>	12	15	13	12	14
<i>B</i>	11	12	9	10	9
<i>C</i>	13	14	12	15	10

- 3** Write short notes (any **three**) **12**
- Scientific management.
 - Bills of Material.
 - Objectives of PPC.
 - Group replacement policy.

SECTION - II

- 4** Answer any **five**. **20**
- Enlist MRP Parameters and discuss any one with suitable example.
 - What is MPS ? Discuss the various types of MPS.
 - What is product structure ? Explain the low level coding in product structure.
 - Explain principles of material handling.
 - Explain different elements of TQM.
 - Explain KANBAN system.
 - Explain different types of plant layouts.

- 5 (a) A work centre operates 6 days per week on two shift per day (8 hrs/shift) and was having 4 machines with the same capacity. If machines are utilized 75% of time at the system efficiency of 90 %, what is rated output in standard hours available per week. 5
- (b) End item X is assembled from three major assemblies A, B and C. Subassembly A consists of two units of E and three units of H. Sub assembly C requires two units of J and one unit of F. Component B requires two units of J and one unit of K. Construct a product structure tree for item X.
- (c) Explain push v/s pull system. 5

OR

- (c) Explain American v/s Japanese management techniques.
- 6 Answer any **three**. 15
- (a) ISO 9000.
- (b) MRP v/s CRP.
- (c) What is production management ? How does it differ from operation management ?
- (d) Just in Time production system.