G 1686 (Pages : 3) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Eighth Semester

Branch : Mechanical Engineering/Automobile Engineering

AU 010 802/ME 010 802—OPERATIONS MANAGEMENT (AU, ME)

(New Scheme—2010 Admission onwards)

[Regular/Supplementary]

Time : Three Hours Maximum : 100 Marks

Use of standard statistical table is permitted.
Assume missing data suitably if any.

Part A

Answer **all** *questions.*

Each question carries 3 *marks.*

1. What is the strategic perspective of operation and production management ?
2. State the purpose of master scheduling and how it is important for operation planning ?
3. How the job-shops are different from flow-shops ?
4. What is FMECA ?
5. Name any *two* ERP packages.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*

Each question carries 5 *marks.*

6. Explain any *two* important measures of forecast accuracy.
7. How the demand is met using level production strategy in Aggregate Planning ?
8. Explain the computational complexities involved in solving Job-shop scheduling problem.
9. State the important differences between Individual replacement policy and Group replacement policy.
10. Discuss the differences between push and pull system.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. Use the sales data given below to determine : (a) The least squares trend line ; and (b) The predicted value for 2015 sales.

Year		*Sales (Units)*
2008	...	100
2009	...	110
2010	...	122
2011	...	130
2012	...	139
2013	...	152
2014	...	164

Or

12. Exponential smoothing is used to forecast automobile battery sales. Two value of α are examined, $\alpha = 0.8$ and $\alpha = 0.5$. Evaluate the accuracy of each smoothing constant. Which is preferable ? (Assume the forecast for January was 22 batteries) Actual sales are given below :

Month		*Actual Battery Sales*
January	...	20
February	...	21
March	...	15
April	...	14
May	...	13
June	...	16

13. Explain with an illustration how transportation model is used to solve the Aggregate planning problem ?

Or

14. What is Lot sizing ? How lot sizing is carried out in MRP and MRP II ?

15. A company is faced with seven tasks that have to be processed through two work centers. Assume work center I works continuously. Data appear below in hours :

Task		*Work Centre* I	Work Centre II
A	...	2.58	3.47
B	...	1.66	5.84
C	...	2.71	2.41
D	...	5.52	1.99
E	...	3.38	7.62
F	...	5.22	1.73
G	...	2.89	1.11

Find the job sequence using Johnsons rule and also calculate time in hours to complete all the tasks in both work centers.

Or

16. Processing time (including setup times) and due date for six jobs waiting to be processed at a work center are given in the following table. Determine the sequence of jobs, and the average flow time (ACT) at the work center for FCFS (First Come First Served and EDD (Earliest Due Date) rules (assume jobs arrived in the order shown).

Job	...	A	B	C	D	E	F
Processing Time	...	2	8	4	10	5	12
Due Date	...	7	16	4	17	15	18

17. Explain the concept of product failure behavior using bath tub curve with suitable illustration and example.

Or

18. Briefly describe the eight pillars of Total Productive Maintenance (TPM) system.

19. Discuss the importance of JIT and indicate its application.

Or

20. Write notes on the basis of : (a) Lean Manufacturing ; (b) Flexible Manufacturing System (FMS) ; (c) Kanban System.

(5 × 12 = 60 marks)