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Code No. : 16505 N (D)

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**B.E. (Mech. Engg.: CBCS) VI-Semester Main Examinations, May-2019**

**Production and Operation Management**

(Elective-I)

Time: 3 hours

Max. Marks: 70

*Note: Answer ALL questions in Part-A and any FIVE from Part-B*

Q.No.	Stem of the question	M	L	CO	PO														
<b>Part-A (10 × 2 = 20 Marks)</b>																			
1.	What are the salient features of job shop production?	2	1	1	1														
2.	Define productivity with an example.	2	1	1	1														
3.	Compare simple and multiple regression.	2	2	2	1														
4.	List out various forecast errors.	2	1	2	1														
5.	What are the objectives of aggregate planning?	2	2	3	1														
6.	Define Materials Requirement Planning and list its basic inputs.	2	1	3	1														
7.	Distinguish between deterministic and probabilistic inventory models.	2	4	4	1														
8.	Identify the salient aspects of VED analysis.	2	3	4	1														
9.	Define the terms: Critical path and float.	2	1	5	11														
10.	Explain the concept of crashing the network.	2	2	5	11														
<b>Part-B (5 × 10 = 50 Marks)</b>																			
11. a)	List out and explain various types of layouts along with their merits and demerits	6	1	1	1														
b)	In time study analysis, it is observed that cycle time of a particular operation as 10 min and rating factor as 110%. Calculate standard time for the same operation by considering 15% allowances.	4	3	1	2														
12. a)	Define forecasting and mention its necessity in manufacturing industries.	4	1	2	1														
b)	The past actual demands of a product are as shown below	6	3	2	2														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Year</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> </tr> </thead> <tbody> <tr> <td>Demand</td> <td>40</td> <td>44</td> <td>52</td> <td>48</td> <td>54</td> <td>60</td> </tr> </tbody> </table>		Year	2013	2014	2015	2016	2017	2018	Demand	40	44	52	48	54	60				
Year	2013	2014	2015	2016	2017	2018													
Demand	40	44	52	48	54	60													
i. Calculate 4 years moving average forecast for the year 2019																			
ii. Calculate 3 year weighted moving average forecast for the year 2019 where the weights are highest for the latest year and in the order of 6, 5, 3 respectively.																			
13. a)	How do you arrive at the selling price of a product?	5	1	3	1														
b)	What are the strategies of aggregate planning and their associated costs?	5	1	3	1														

14. a)	Define EOQ and derive its formula.	4	1	4	1																								
b)	An organization requires 1250 units per month, inventory carrying cost is Rs.1.50 per unit per year. Ordering cost is Rs.40 per order. Determine EOQ, annual ordering cost, number of orders per year and time between two orders.	6	3	4	2																								
15. a)	Compare CPM and PERT along with their relevant examples.	3	2	5	11																								
b)	Draw network diagram and calculate critical path and duration of the project for the following data	7	3	5	11																								
<table border="1"> <tr> <td>Activity</td> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> <td>F</td> <td>G</td> </tr> <tr> <td>Immediate predecessor</td> <td>-</td> <td>-</td> <td>A</td> <td>A</td> <td>B,D</td> <td>C,E</td> <td>F</td> </tr> <tr> <td>Duration (days)</td> <td>4</td> <td>5</td> <td>3</td> <td>7</td> <td>5</td> <td>6</td> <td>4</td> </tr> </table>		Activity	A	B	C	D	E	F	G	Immediate predecessor	-	-	A	A	B,D	C,E	F	Duration (days)	4	5	3	7	5	6	4				
Activity	A	B	C	D	E	F	G																						
Immediate predecessor	-	-	A	A	B,D	C,E	F																						
Duration (days)	4	5	3	7	5	6	4																						
16. a)	What are the various types of business organization? Explain any one of them.	5	1	1	1																								
b)	Define exponential smoothing forecast and mention its salient features.	5	1	2	1																								
17.	Answer any <i>two</i> of the following:																												
a)	Elements of costs	5	1	3	1																								
b)	ABC analysis	5	1	4	1																								
c)	Rules for drawing network diagram	5	2	5	11																								

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	72
2	Knowledge on application and analysis (Level-3 & 4)	28
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	-

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