Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

DEPARTMENT OF MECHATRONICS ENGINEERING

VII SEMESTER B.TECH. (MECHATRONICS ENGINEERING)

END SEMESTER EXAMINATIONS, DECEMBER 2021

SUBJECT: PRODUCTION AND OPERATIONS MANAGEMENT [MTE 4080]

(22.12.2021)

Time: 45 + 5 MINUTES **MAX. MARKS: 30 ×1 = 30**

Q. No	QUESTIONS	M	CO	PO	LO	BL
1	Fixing the flow lines of materials in production is knows as, a) Scheduling b) Loading c) Planning d) Routing	1	1	1, 3, 5	1, 2, 3, 4, 5, 11, 13	3
2	The act of releasing the production documents to the production department is known as, a) Planning b) Scheduling c) Dispatching d) Releasing	1	1	1, 3, 5	1, 2, 3, 4, 5, 11, 13	3
3	In Job production system, we need : a) General purpose machines with moderately skilled labour is sufficient b) Special machine tools and highly skilled labour c) General purpose machines with highly skilled labour d) Special machine tools and moderately skilled labour	1	1	1, 3, 5	1, 2, 3, 4, 5, 11, 13	3
4	One of the product example for continuous production layout is, a) Cement b) Repair workshop c) Welding shop d) Combat vehicles	1	1	1, 3, 5	1, 2, 3, 4, 5, 11, 13	3
5	The material handling cost per unit of product in continuous production is: a) Highest compared to other systems b) Lower than other systems c) Cannot say d) Abnormal	1	1	1, 3, 5	1, 2, 3, 4, 5, 11, 13	3

6	Routing and scheduling becomes relatively complicated in, a) Job production b) Mass Production c) Batch production d) Continuous production	**1**	**1**	**1, 3, 5**	**1, 2, 3, 4, 5, 11, 13**	**3**
7	Select the next year forecast for the demand of 1250, 1400 and 1150 units on 4^{th}, 5^{th} and 6^{th} year respectively. Use weighted moving average by considering 0.6, 0.3 and 0.1 as the weightages. a) 1285 b) 1235 c) 429 d) 412	**1**	**1**	**1, 3, 5**	**1, 2, 3, 4, 5, 11, 13**	**3**
8	Absolute percent error for the demand of 465 units and the forecast made was 485 units. a) 4.82 b) 4.44 c) 5.60 d) 4.30	**1**	**1**	**1, 3, 5**	**1, 2, 3, 4, 5, 11, 13**	**3**
9	A method in which a trend line drawn in such a way that the sum of the squares of deviation of the actual points above and below the trend line is at the minimum is known as: a) Squared trend method b) Equal square method c) Adjusted square method d) Least square method	**1**	**1**	**1, 3, 5**	**1, 2, 3, 4, 5, 11, 13**	**3**
10	At break-even point the organization will have, a) Maximum profit b) No loss and no gain c) Optimum loss d) Moderate profit	**1**	**2**	**1, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**4**
11	If you have two plans either to continue in existing layout or to start new production line to meet the demand, given the fixed cost, variable cost and demand quantity which of the following strategy you use to finalize the most beneficial options, a) Total revenue of plan 1 = Total revenue of plan 2 b) Total cost of plan 1 = Total cost of plan 2 c) Break-even quantity of plan 1 = Break-even quantity of plan 2 d) Break-even quantity = Break-even price	**1**	**2**	**1, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**4**
12	Average contribution margin is, a) Total revenue – Variable cost per unit b) Fixed cost – Total revenue c) Total cost – Total revenue d) Selling price – Variable cost per unit	**1**	**2**	**1, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**4**

13	If the production achieved is 300000 units for the available resources of 5 machines each capable of producing 250000 units, the percentage capacity utilization is, a) 24 b) 41 c) 4.16 d) 2.40	**1**	**2**	**1, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**4**
14	Aggregate planning is a responsibility of, a) Top executives b) Operations managers c) Production managers d) Adhoc interns	**1**	**2**	**1, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**4**
15	Most preferable option of meeting maximum demand for the current period will be, a) Regular production followed by overtime b) Regular production and using beginning inventory c) Subcontracting and using beginning inventory d) Regular production and subcontracting	**1**	**2**	**1, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**4**
16	Identify the factor which is not a part of job scheduling and control a) Arrival pattern b) Variety of machines c) Job sequencing d) Routing	**1**	**3**	**1, 2, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**5**
17	Average number of jobs in a system is, a) Sum of total flow / number of jobs b) Total delays / number of jobs c) Total flow time / Total processing time d) Total processing time / Sum of total flow	**1**	**3**	**1, 2, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**5**
18	Condition to reduce 3 machines system to 2 machines system a) min Ai $\geq$ max Bi or min Ci $\geq$ max Bi b) max Ai $\geq$ min Bi or max Ci $\geq$ min Bi c) min Ai $\leq$ max Bi or min Ci $\leq$ max Bi d) max Ai $\leq$ min Bi or max Ci $\leq$ min Bi	**1**	**3**	**1, 2, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**5**
19	ZERO inventory means a) When and how many to order b) When and how many to deliver c) Both a and b d) No inventory in the system	**1**	**3**	**1, 2, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**5**
20	What demand models reveal, a) How much to order and how often to order b) How much to sell and how often to sell c) How much to produce and how often to produce d) All of the above	**1**	**3**	**1, 2, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**5**
21	Inventory cost is, a) Total units × Holding cost b) Average units × Holding cost c) Average units × Ordering cost	**1**	**3**	**1, 2, 3, 4, 11**	**1, 2, 3, 4, 5, 11, 13**	**5**

	d) Total units × Ordering cost					
22	One of the input to generate Material requirement plan is a) Job schedules b) Equipment costs c) Master production schedule d) Production types	**1**	**4**	**1, 2, 3, 4, 11**	**1, 2, 3, 5, 13**	**5**
23	Benefits of material requirement plan is a) Optimizes equipment costs b) Updates the dependent demand and replenishment schedules c) Keeps buffer inventory d) All of the above	**1**	**4**	**1, 2, 3, 4, 11**	**1, 2, 3, 5, 13**	**5**
24	Material requirement plan is, a) Determining quantity of parent items b) Determining timely acquisition of parent items c) Determining timely acquisition of raw materials d) Determining quantity of dependent demands	**1**	**4**	**1, 2, 3, 4, 11**	**1, 2, 3, 5, 13**	**5**
25	In solving line of balance problems, the number of workstations required are, a) Cycle time / Total time b) Cycle time / Element time c) Total time / Element time d) Total time / Cycle time	**1**	**4**	**1, 2, 3, 4, 11**	**1, 2, 3, 5, 13**	**5**
26	The station time in Line of Balance problems must be, a) > than the smallest time element b) < than highest time element given c) Should not be > than cycle time d) > The cycle time	**1**	**4**	**1, 2, 3, 4, 11**	**1, 2, 3, 5, 13**	**5**
27	Select the approach in which the qualitative and quantitative factors are merged together by assigning a weights. a) Break even method b) Preference matrix method c) Load-distance method d) Centre of gravity method	**1**	**5**	**1, 3, 4, 11, 12**	**1, 2, 3, 5, 13**	**6**
28	Qualitative factor among the following example can be considered during location selection, a) Living cost b) Community behavior c) Life expectancy d) Average pay scale	**1**	**5**	**1, 3, 4, 11, 12**	**1, 2, 3, 5, 13**	**6**
29	Locations are evaluated by proximity factors in a) Break even method b) Preference matrix method c) Load-distance method d) Centre of gravity method	**1**	**5**	**1, 3, 4, 11, 12**	**1, 2, 3, 5, 13**	**6**
30	Select the wrong statement a) Location found by using center of gravity will always have low break even volume.	**1**	**5**	**1, 3, 4, 11, 12**	**1, 2, 3, 5, 13**	**6**

	b) Organization always prefers to have a low break-even volume c) Break even analysis is more suitable for screening the better location options rather than for selecting the best one d) Different locations can have a different break even volume					