Registration No :

8th Semester Regular / Back Examination 2017-18
PRODUCTION AND OPERATION MANAGEMENT
BRANCH : CIVIL, EEE, ELECTRICAL, MECH, PLASTIC
Time : 3 Hours
Max Marks : 70
Q.CODE : C530
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Q1.	**Answer the following questions :**	**(2 x 10)**
a)	What are the implications of using small α in forecasting?	
b)	Write down the generalized methodology for locational break-even analysis.	
c)	Distinguish between standardization and simplification.	
d)	Write short note on Travel chart.	
e)	What is the purpose of doing aggregate planning?	
f)	Write short notes on (i) loading (ii) dispatching	
g)	What is the purpose of Motion Study? Give Example.	
h)	List the elements of the operational part of FMS.	
i)	What are the components of carrying cost?	
j)	What is "Bill of Materials"? What is its relevance in materials planning?	

Q2.	**a)**	Explain the step in Systematic Layout Design.	**(4)**
	b)	Following table shows the sales forecast of internet connections in a city for last nine years.	**(6)**

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Sales	8	10	13	25	35	39	45	50	60

Find the forecast for the year 2018 using appropriate method?
How do you justify the method adopted is correct?

Q3.	**a)**	Discuss the steps of Lean Manufacturing.	**(5)**
	b)	A Refrigerator manufacturing Company wants to determine how many and when to produce refrigerators to meet an anticipated demand of 6000 per year at the least total cost. The other details are given below: Production rate of refrigerators = 800 refrigerators per month Annual demand of refrigerators = 6000 units/year Lead time = 1 week Setup cost = Rs.1000 per production run Value of each refrigerator = Rs.250 Carrying rate, i = 0.24 per year	**(5)**

Q4.	**a)**	An 8 hours work measurement study in a plant revels the following: Unit's produced - 320 nos. , Idle time - 15%, Performance rating -120%, Allowances -12% of normal time. Determine the standard time per unit produced.	**(5)**
	b)	Briefly explain ABC analysis with a suitable example.	**(5)**

Q5. A manufacturing company produces a certain gearbox component and wants to develop an aggregate plan for 4 months. The following production information is available. **(10)**
Demand forecast

Month	1	2	3	4
Demand	1200	1100	1800	1500

Capacity in units

Month	Regular Time	Over Time	Subcontract
1	1200	150	800
2	900	200	800
3	1000	350	800
4	700	350	800

Production Details: Beginning inventory of 110 units, Desired final inventory of 140 units, Inventory cost is Rs. 15/unit/month, Cost of subcontracting is Rs. 145/unit, Regular time cost is Rs. 100/unit and Overtime cost is Rs. 125/unit. Formulate the problem as a transportation model to determine the optimum production levels and means of production.

Q6. a) Briefly explain different types of production system. **(5)**

b) There are eight market locations to which a manufacturer of wooden windows expects to ship its products. The shipment volumes, X and Y coordinates of the locations are shown in the following table. Using the gravity location method, (a) find the X_c and Y_c coordinates, and (b) suggest a possible warehouse location. **(5)**

Market Area	V_i (tonne)	X_i (km)	Y_i (km)
A	8	2.5	10
B	20	3	5
C	12	6.5	8
D	10	11	10
E	30	11	8
F	20	10	4
G	40	13	3.5
H	30	12	2

Q7. a) Explain the benefits of JIT with a schematic diagram. **(5)**

b) There are five jobs to be processed through three machines M1, M2 and M3. The processing time (in hours) required for each job is given below. **(5)**

Machine	M1	M2	M3
Job A	11	10	12
B	13	8	20
C	15	6	15
D	12	7	19
E	20	9	7

Determine the optimal sequence. Find total time elapsed to complete the jobs and idle time for each machine.

Q8. **Write short notes on any TWO :** **(5 x 2)**

    a) New Product Development
    b) Branch and Bound Technique in Scheduling
    c) Quality Circle
    d) Capacity Requirement Planning