

2006 SBM OPERATIONS MANAGEMENT- TEST I

Time: 50 minutes

Marks: 2+3+2+5+5+5+3=25, Max 20

1. What do you mean by "Operations Transformation System"? Explain considering the case of a hospital.
2. Explain "product life cycle" giving examples of products at each stage.
3. Compare "make to stock" with "make to order" from the viewpoint of an operations manager.
4. The consumption of rice in a hostel is expected to depend on the number of students. From the following data, forecast the consumption if the number of students is 58.

No of students	60	50	55	70	65
Actual consumption of rice	24	18	19	29	30

5. The layout of a jobshop with five departments is given below.

A	C	E
B	D	

The number of trips between departments in a month was as follows:

	A	B	C	D	E
A	-	50	25	65	200
B		-	75	150	100
C			-	75	100
D				-	150
E					-

Determine the total cost of travel for the month if the cost per metre per trip between departments (in Rupees) is given below:

	A	B	C	D	E
A	-	600	400	600	500
B		-	700	200	400
C			-	300	300
D				-	200
E					-

The movement between shops is on a rectangular basis and the distance between adjacent shops is ten metres.

6. Dinger tractors is installing a line to produce a new model of tractors. Assign the following work elements to workstations, if the desired output is 16Nos in an 8 hour day.

Task	Description	Time (min)	Predecessor
A	Keep chassis in stand	5	-
B	Fix wheels	10	A
C	Fit engine	15	A
D	Fit gearbox	12	C
E	Fit clutches	8	D
F	Fit engine cover	4	E
G	Fit brakes	14	B
H	Fit steering	18	E
I	Fit instrument panel	14	F
J	Fit starting motor	7	C

7. Develop an imaginary process chart using the standard symbols for a customer who visits a bank and purchases a demand draft.

Solutions to numericals

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No of students x	Rice consumption y	xy	x ²
60	24	1440	3600
50	18	900	2500
55	19	1045	3025
70	29	2030	4900
65	30	1950	4225
300	120	7365	18250

Intercept -15.6
 Slope 0.66
 Forecast for x=58 22.68 kg

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	A	B	C	D	E
A	-	10	10	20	20
B		-	20	10	30
C			-	10	10
D				-	20
E					-

	A	B	C	D	E
A	-	300000	100000	780000	2000000
B		-	1050000	300000	1200000
C			-	225000	300000
D				-	600000
E					-

Total Cost 6855000 Rs/month

6 Required Cycle Time 30 min
 Total operation time 107 min
 Minimum no of station: 3.566667 Nos

Station	Candidate	Choice	Reqd time	Balance time
1	A	A	5	25
1	B, C	C	15	10
1	B, D, J	B	10	-
2	D, J, G	G	14	16
2	D, J	D	12	4
3	J, E	E	8	22
3	J, F, H	H	18	4
3	J, F	F	4	-
4	J, I	I	14	16
5	J	J	7	9