2006_SBM OPERATIONS MANAGEMENT Test 2

Time: 60 minutes Max marks: 25

1. What are the factors to consider while deciding on the location of a business / factory?

(3 marks)

2. At an electrical repair shop, the various pending jobs at 10:00hrs in the morning are as follows

Job	Time required (hrs)	Due Time (hrs)
Electric Iron	1:00	16:00
Pumpset motor	3:00	11:00
Ceiling Fan	2:00	15:00
Water heater	2:30	17:00
Main switch	0:30	18:00

Determine the order in which the jobs should be taken up according to SPT rule, EDD rule and Critical Ratio rule.

(4 marks)

3. Explain what do you mean by aggregate planning.

(3 marks)

4. The major activities and precedence relationships to organize an intercollegiate competition are as follows:

	Activity	Predecessor	Time (days)
A	Design brochure	-	5
B	Print brochure	A	7
C	Send brochure	B	5
D	Receive entries	C	15
E	Order stage	-	3
F	Identify judges	-	10
G	Time for judges to arrive	F	5
H	Build stage	E	1
I	Hold competition	D, F, H	1

Draw the network diagram and determine in how many days at the earliest that the competition can be held.

(5 marks)

5. A grocery shop expects the annual demand of rice to be 5000kg per year. It costs them Rs1000/- to process a single order. If the rice costs Rs 20/- per kg and the carrying interest rate is 20% per year, what will be the most economic quantity to purchase at a time?

(2 marks)

6. Raban makes spectacles which consists of a frame, two legs, two hinges, two nose pads and two screws. The latest MPS calls for 1500 Nos of spectacles in week 5 and 2500 Nos of spectacles in week 6 and the lead time for final assembly is one week. Determine the planned order release quantities and weeks **only for hinge**, if its FOQ=5000, beginning inventory 1500 Nos, Lead Time 2 weeks and there is an already scheduled receipt of 2000 in week 2.

(5 marks)

7. What are the benefits of a JIT system?

(2 marks)

8. Explain Taylor's experiments in coal shovelling.

(2 marks)

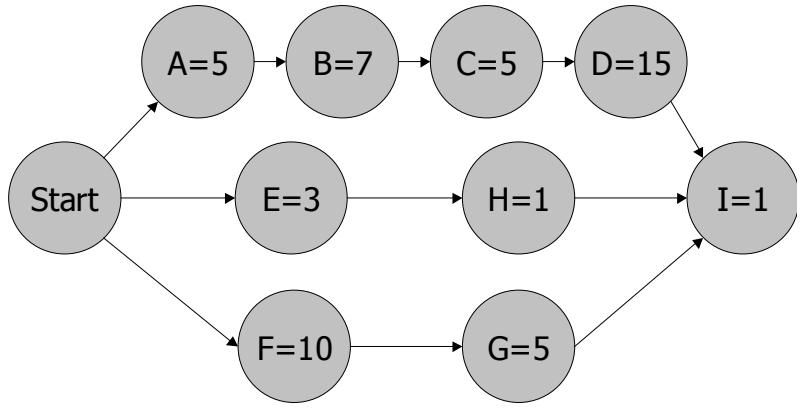
9. Explain some measures of flexibility in operations.

(2 marks)

SOLUTIONS TO PROBLEMS:

2. SPT: Main switch, Electric Iron, Ceiling Fan, Water Heater, Pumpset motor
   EDD: Pumpset motor, Ceiling Fan, Electric Iron, Water heater, Main switch
   CR: Pumpset motor, Ceiling Fan, Water heater, Electric Iron, Main switch

4.



33 days

5.

$$Q = \sqrt{\frac{2SD}{iC}} = \sqrt{\frac{2*1000*5000}{.2*20}} = 1581.13\text{kg}$$

6.

Item: Screw

Lot size: FOQ 5000
Lead Time: 2 weeks

	Week							
	1	2	3	4	5	6	7	8
Gross requirements				3000	5000			
Scheduled receipts		2000						
Projected on-hand inventory (Beg: 1500)	1500	3500	3500	500	500			
Planned receipts					5000			
Planned Order release			5000					