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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022  
 B. Tech Degree Examinations, December – 2020  
 (Seventh Semester)  
**BMEPC 7010 - INDUSTRIAL ENGINEERING.**  
**(Mechanical Engineering)**

Time: 2 hrs

Maximum: 50 Marks

**The figures in the right hand margin indicate marks.**

**PART – A: (Multiple Choice Questions)****(1 x 10 = 10 Marks)**Q.1. Answer ALL questions

- a. What is the functional subsystem of Organizations?
  - (i) Marketing.
  - (ii) Productions.
  - (iii) Finance.
  - (iv) All the above.
- b. The expected qualities of a product are
  - (i) It satisfies the needs and expectations of the customer.
  - (ii) It has a pleasing appearance and handles well.
  - (iii) It has high reliability and functions safely over its intended life.
  - (iv) All of the mentioned.
- c. The work study is also Recognised as
  - (i) Time study.
  - (ii) Motion study.
  - (iii) both (i) and(ii)
  - (iv) None of the above.
- d. For ship vessel industry the following layout is best suited
  - (i) Fixed position layout.
  - (ii) Process layout.
  - (iii) Product layout.
  - (iv) Plant layout.
- e. In break-even analysis, total cost consists of
  - (i) Fixed cost + variable cost + overheads.
  - (ii) Fixed cost.
  - (iii) Variable cost.
  - (iv) Fixed cost + variable cost.
- f. Operations generated forecasts often not to do with
  - (i) Sales.
  - (ii) Time requirements.
  - (iii) Resource needs.
  - (iv) Inventory requirements.
- g. The average inventory in the purchase model of inventory without shortages is
  - (i) Order size divided by 4
  - (ii) Order size divided by 2
  - (iii) Order size divided by 3
  - (iv) Order size divided by 1.5
- h. The planning period of aggregate planning ranges from
  - (i) 1 year to 3 year.
  - (ii) 3 years and above.
  - (iii) 3 month to 1 year.
  - (iv) 2 years and above.
- i. The allocation of start and finish time to each particular order/job is
  - (i) Material control.
  - (ii) Scheduling.
  - (iii) Quality control..
  - (iv) None of the above.
- j. Which scheduling, routing data are to be given in addition to the processing times data
  - (i) Single machine
  - (ii) Flow shop
  - (iii) Job shop
  - (iv) None of the above.

**PART – B: (Short Answer Questions)****(2 x 5 = 10 Marks)**Q.2. Answer ALL questions

- a. What are the various aspects of product design and analysis?
- b. What are factors affecting plant location.

- c. Define forecasting.
- d. What are the types of model in inventory system?
- e. What is single machine scheduling

**PART – C: (Long Answer Questions)**

**(6 x 5 = 30 Marks)**

Answer ANY FIVE questions

Marks

- 3. Discuss different types of production systems with suitable examples. (6)
- 4. Discuss the steps in production planning. (6)
- 5. Discuss various types of layouts and also write merits and demerits of the layouts. (6)
- 6. A firm believes that its annual profit depends on its expenditures for research. The information for the preceding six years is given below. Estimate the profit when the expenditure is 6 units. (6)

Year	Expenditure for Research(X)	Annual profit(Y)
1	2	20
2	3	25
3	5	34
4	4	30
5	11	40
6	5	31
7	6	?

- 7. Alpha industries estimate that it will sell 12,000 units of its products for the following year. The ordering cost is Rs-100 per order and the carrying cost per unit per year is 20 per cent of the purchase price per unit. The purchase price per unit is Rs -50.find(i) Economic order quantity.(ii)No. of order per year, and (iii) Time between successive orders. (6)
- 8. List and explain the various pure strategies and mixed strategies. (6)
- 9. Briefly discuss different measure of performances in single machine scheduling problem with independent jobs. (6)
- 10. Consider the following two machines and six jobs flow shop scheduling problem. Using Johnson’s algorithm,obtain the optimal sequence which will minimize the make span (6)

Job i	Machine 1	Machine 2
1	5	4
2	2	3
3	13	14
4	10	1
5	8	9
6	12	11

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