BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
First Semester 2022-23
Manufacturing Management
ME F316

Max. Marks: 50 **Duration: 90 minutes**

Date: 03-11-2022

Part - I

Q.1 Encircle/fill the most appropriate answer **(Mark your answer in the question paper only)**:

(i) The point of indifference is a measure of **[1]**
- a) Total cost
- b) Total revenue
- c) Number of units produced
- d) Profit

(ii). Mass production systems tend to employ **[1]**
- a) Specialized equipment and limited labor skills
- b) Specialized equipment and specialized labor skills
- c) General purpose equipment and limited labor skills
- d) General purpose equipment and specialized labor skills

(iii). The sequence, generally, followed in developing an HOQ is **[1]**
- a) Need, competitor evaluation, technical requirements, relationship matrix, target values
- b) Need, relationship matrix, competitor evaluation, target values, technical requirements
- c) Need, competitor evaluation, technical requirements, target values, relationship matrix
- d) Need, technical requirements, competitor evaluation, relationship matrix, target values
- e) Need, target values, competitor evaluation, technical requirements, relationship matrix
- f) Need, competitor evaluation, relationship matrix, target values, technical requirements

(iv). In location planning, environmental regulations, cost and availability of utilities, and taxes are **[1]**
- a) Global factors
- b) Country factors
- c) Regional/community factors
- d) Site-related factors
- e) None of the above

(v). What type of layout(s) would be appropriate for: (Answer correctly at least 2) **[1]**
- a) Electric scooter plan t-……..…….?
- b) Home construction -…….…….?
- c) A university -…….……?

(vi). Which of the followings is evaluated using balanced scorecard **[1]**
- a) Finances, customers, processes, learning
- b) Finances, product, processes, learning
- c) Finances, customers, processes, top management commitment
- d) Finances, customers, suppliers, learning

(vii). All of the following are responsibilities of operations managers except **[1]**
- a) Acquiring financial resources
- b) Managing inventories
- c) Planning production
- d) Scheduling production

(viii). All of the following are ways that companies can get ideas and products from competitors except **[1]**
- a) Benchmarking
- b) Reverse engineering
- c) Concurrent engineering
- d) Perceptual maps

Q2. Draw a process map for a hospital dealing with COVID-19 infected/suspected patients? **[6]**

Q3. Illustrate how the house of quality of a product satisfies all the shop floor operational requirements for its manufacturing? **[6]**

Q4. What are the types of demand behaviour explain graphically with suitable examples? **[5]**

Part- II

Q5. The company has had monthly sales for the past 24 months as follows:

Month	Demand	Month	Demand
1	8200	13	10300
2	7500	14	10500
3	8100	15	11700
4	9300	16	9800
5	9100	17	10800
6	9500	18	11300
7	10400	19	12600
8	9700	20	11500
9	10200	21	10800
10	10600	22	11700
11	8200	23	12500
12	9900	24	12800

(i) Develop forecasts using Linear trend line method, 3 month moving average, and adjusted exponential smoothing ($\alpha = 0.3$ & $\beta = 0.5$) **[4 + 2 + 4]**

(ii) Justify your selection using MAD. **[5]**

Q6. The precedence diagram and task times (in minutes) for assembling for a production system are shown here. Set up an assembly line to produce 125 units in a 40-hour week. Balance the line and calculate its efficiency. Also compare your answer with other possible alternatives and their efficiency **[10]**