



**JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA**  
**PGDM (Gen/M/SM)**  
**SECOND TRIMESTER (Batch 2021-22)**  
**END TERM EXAMINATIONS, January – 2022**

<b>Course Name</b>	<b>Operations Management</b>	<b>Course Code</b>	<b>OM-20502</b>	<b>Type of Question paper</b>
<b>Max. Time</b>	<b>2 Hour</b>	<b>Max. Marks</b>	<b>40 Marks</b>	<b>Main Exam</b>

**INSTRUCTIONS:**

**Exam Duration: 2 Hours**

- **This is a Closed Book examination.**
- **Attempt all four questions.**
- **Mode of Submission:**
  - ✓ Answer sheet to be submitted/ uploaded on Moodle as a single word file (MS Word)
  - ✓ **Answer to Q 1c, Q2a, Q3a & Q4a to be done with pen and paper. Name and Roll Nos. of the student MUST be written on the paper.** The photo or scanned copy of the answers to these questions to be pasted in main the MS word file.
- **Permitted % of Plagiarism in Answer sheets:** 18%. Penalty in case the permitted plagiarism limit is breached: 1 mark for every 1 % beyond maximum limit.
- Answers should be rich in content, pointwise and precise. Avoid unnecessary long answers.

**1) Case: The Culture of Quality at Arnold Palmer Hospital (APH):**

Founded in 1989, Arnold Palmer Hospital is one of the largest Hospital for women and children in the US with 431 beds in two facilities totaling 676000 square feet. Located in downtown Orlando, Florida, the hospital with more than 2000 employees serves county areas in central Florida and is the only trauma centre for children in that region.

The Arnold Palmer Hospital provides broad range of medical services including neonatal and pediatric intensive care, pediatric oncology and cardiology.

*The issue of Assessing Quality Healthcare:*

Quality Health care is goal of all hospitals, but Arnold Palmer Hospital has actually developed comprehensive and scientific means of asking customers to judge the quality of care they receive. Executive Director Kathy Swanson states “Hospitals in this area will be distinguished largely on the basis of their customer satisfaction. We must have accurate information about how our patients and their families judge the quality of our care, so I follow the questionnaire results daily. The in-depth survey helps me and others on my team to gain quick knowledge from patient feedback”. Further, Arnold Palmer Hospital employees are empowered to provide gifts in value up to \$200 to patients who find reason to complain about their hospital service such as food, courtesy, responsiveness or cleanliness.

Director Kathy Swanson doesn’t just focus on the customer surveys, which are mailed to patients one week after discharge, but also a variety of internal measures. These measures usually start at grassroots level where staff sees a problem and develops ways to monitor & improve performance.

Some of the metrics Swanson carefully monitors for continuous improvements are morbidity, infection rates, readmission rates, costs per case, length of stays and number of complaints etc. The tools she and her team uses include Pareto charts, Process Flow Charts, Process Charts, Fish-bone diagrams (Cause & Effect Diagrams) etc. In addition, the hospital benchmarks itself against hospitals both nationally and internationally.

The result of all these efforts has been a culture of Total Quality Management at Arnold Palmer Hospital which manifested in its high ranking in patient satisfaction and one of the highest survival rates for critically ill infants & children.

*(Source: Adapted from “Case – The Culture of Quality at Arnold Palmer Hospital; Operations Management – Jay Heizer, Barry Render, Ninth Edition, Pearson)*

Answer the following:

- a) Although patient’s generally do not have medical expertise to judge the health care & treatment they receive, but it is very important for APH to get the patient’s assessment of health care quality? Evaluate the reasons?
- b) Analyse the Costs of Poor Quality and Costs of Good Quality at Arnold Palmer Hospital.
- c) Develop a Fish-bone diagram illustrating the potential causes for a patient who just gave birth to an infant at Arnold Palmer Hospital and is dissatisfied with the overall experience.  
*(Part c to be done with pen and paper, Photo or scanned copy of the same to be pasted on the MS-Word file).*

**(4 +4+4 =12 Marks)**

- 2) Raj biscuits has their manufacturing plants in Ghaziabad, Aligarh, Meerut, Gurgaon, Palwal, Mathura, and Agra for which the map coordinates and shipping loads are given in the following table. The company wants to connect these manufacturing plants with a central hub. Following details are provided:

City	Map Coordinate (x,y)	Shipping Load
Ghaziabad	(5, 10)	5
Aligarh	(6, 8)	10
Meerut	(4, 9)	15
Gurgaon	(9, 5)	5
Palwal	(7, 9)	15
Mathura	(3, 2)	10
Agra	(2, 6)	5

- a) Near which map coordinates should the hub be located? *(This part to be done with pen and paper, Photo or scanned copy of the same to be pasted on the MS-Word file).*
- b) Examine key qualitative factors which Manager of Raj Biscuits must take into account while deciding the location of hub?

**(5+3 = 8 Marks)**

- 3) Nilkamal Furniture, Inc., produces all types of office furniture. The “Executive Secretary” is a chair that has been designed using ergonomics to provide comfort during long work hours. The chair sells for \$130. There are 480 minutes available during the day, and the average daily demand has been 50 chairs. There are eight task which are given in the following table.

Task	Performance Time (Min)	Immediate Predecessors
A	4	-----
B	7	-----
C	6	A, B
D	5	C
E	6	D
F	7	E
G	8	E
H	6	F, G

- a) Construct a precedence diagram for this operation and determine the cycle time for this operation. Also estimate the theoretical minimum number of workstations and assign tasks to actual number of workstations? *(This part to be done with pen and paper, Photo or scanned copy of the same to be pasted on the MS-Word file).*
- b) Critically analyze and explain “5S”

**(7+3= 10 Marks)**

- 4) Thomas Kratzer is the purchasing manager for the headquarters of a large insurance company chain with a central inventory operation. Thomas’s fastest-moving inventory item has a demand of 6,000 units per year. The cost of each unit is \$100, and the inventory carrying cost is \$10 per unit per year. The average ordering cost is \$30 per order. It takes about 5 days for an order to arrive, and the demand for 1 week is 120 units. (This is a corporate operation, and there are 250 working days per year.)

- a) Determine the order quantity at which total inventory costs for ordering and holding is minimum? Evaluate total annual ordering and holding costs and gap between two consecutive orders. *(This part to be done with pen and paper, Photo or scanned copy of the same to be pasted on the MS-Word file).*
- b) Critically analyze and explain Order Winners & Order Qualifiers

**(7+3=10 Marks)**