

INTERMEDIATE EXAMINATION

June 2026

P-9(O MSM)
Syllabus 2022

OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.

All sections are compulsory. Each Section contains instructions regarding the number of questions to be answered within the section.

All working notes must form part of the answer.

Whenever necessary, candidates may make appropriate assumptions and clearly state them in the respective answer.

Section – A

This section contains *Question No. 1*. All parts of this question are compulsory.

1. Choose the correct answer from the given four alternatives (You may write only the Roman Numeral and the Alphabet chosen for your Answer) : 2×15=30

- (i) Let's consider an example of TASVA Ltd., a product manufacturing company who is aware that it needs to produce the products. One of the important aspects involved in the operational planning which is related to the question, "Are our machines able to provide desired results?" is known as -
- (A) Maintenance Management
 - (B) Quality Management
 - (C) Inventory Management
 - (D) Aggregate Planning
- (ii) The ISO Model associated with the "Quality Assurance in Final Inspection Test" is _____.
- (A) ISO 9001 Model
 - (B) ISO 9003 Model
 - (C) ISO 9004 Model
 - (D) ISO 9002 Model
- (iii) There are two industries A and B manufacturing hose couplings. The standard time per piece is 15 minutes. The output of two small scale industries is 30 and 20 respectively per shift of 8 hours. Find the productivity of each per shift of 8 hours.
- (A) 92.50 %, 60.25 %
 - (B) 93.75 %, 62.50 %
 - (C) 94.25 %, 65.25 %
 - (D) None of the above

- (iv) At which stage of the product life cycle, organisations get engaged in aggressive promotional and pricing programs?
- (A) Introduction Phase
 - (B) Growth Phase
 - (C) Maturity Phase
 - (D) Decline Phase
- (v) A temporary and one-time endeavour undertaken to create a unique product or service, which brings about beneficial change or added value is defined as _____.
- (A) product
 - (B) process
 - (C) procedure
 - (D) project
- (vi) Which one of the following phases of Project Management Life Cycle is where the bulk of the project happens?
- (A) Project Quality Management
 - (B) Planning Phase
 - (C) Execution Phase
 - (D) Project Closure
- (vii) Which one of the following is not the limitation of Gantt Charts?
- (A) The Scheduler can't easily incorporate changes in timing, machine loads and current status.
 - (B) This chart is static and has to be updated periodically.
 - (C) This does not give a clear indication of the inter-relationship between separate activities.
 - (D) This does not clearly indicate the details regarding progress of activities.

(viii) The Slack times of Tail and Head events of activity Z of a Project ZB are 10 days and 4 days respectively. If the Free float of the activity Z is 12 days then total float would be _____.

- (A) 8 days
- (B) 16 days
- (C) 20 days
- (D) None of the above

(ix) The main Shaft of an equipment of **GEAR TECH (I) Ltd.**, has a very high reliability of 0.90. The equipment comes from Russia and has a high downtime cost associated with the failure of this Shaft. This is estimated at ₹ 2.00 crore as the Costs of Sales lost and other relevant costs. What would be the expected cost of down time?

- (A) ₹ 20 lakh
- (B) ₹ 25 lakh
- (C) ₹ 10 lakh
- (D) None of the above

(x) **AUTOBIOLD Ltd.**, a large computer installation contains 2650 components of identical nature which are subject to failure as per probability distribution that follows :

Month End	1	2	3	4
% Failure to date	15 %	25 %	40 %	20 %

The components which fail have to be replaced for efficient functioning of the system. What would be the average number of replacements per month?

- (A) 1000
- (B) 800
- (C) 1200
- (D) 900

- (xi) The Blue Ocean Strategy includes :
- (A) Create and Capture new demand
 - (B) Beat the competition
 - (C) Make the value-cost trade-off
 - (D) Exploit existing demand
- (xii) “Specific”, “Understandable”, “Measurable”, “Attainable”, “Relevant” and “Time-Bound”, are certain desirable characteristics which are possessed by which one of the following?
- (A) Goals
 - (B) Objective
 - (C) Mission
 - (D) Vision
- (xiii) In the “FAST” framework, the letter “S” represents
- (A) Strategy
 - (B) Specific
 - (C) Skills
 - (D) Structure
- (xiv) _____ are the growth rate of the economy, interest rates, currency exchange rates, and inflation (or deflation) rates.
- (A) Macro-economic Forces
 - (B) Technological Forces
 - (C) Demographic Forces
 - (D) Political Forces
- (xv) A _____ is based on the primary activities that have to be undertaken by an organization.
- (A) Functional Structure
 - (B) Matrix Structure
 - (C) Project based Structure
 - (D) Transnational Structure

Section – B

Answer any Five Questions from Question No. 2 to Question No. 8

Each question carries 14 Marks.

14×5=70

2. (a) Analyze and summarize the various factors affecting the facility location Selection Decision. 7
- (b) “The Hasso Plattner Institute of Design at Stanford describes design thinking as a five-stage process”. – **In this context, align** the said five stages of Design Thinking. 7
3. (a) **GREEN FLOW LTD.** is using a pneumatic hammer which was purchased at a price of ₹ 300000. The installation of the machine required ₹ 50000. The resale value of the hammer at the end of various years as well as the maintenance cost in various years are as shown below. The management is considering 8-year span to determine the most cost-effective replacement year of the hammer.

YEAR	1	2	3	4	5	6	7	8
Maintenance Cost (₹)	4000	6800	11000	15800	23000	28000	57000	69000
Resale Value (₹)	35000	30000	25000	19000	15000	11000	9500	9000

(Assume that Cost of Money is Zero)

Required :

- (i) **Analyse** Average Annual Cost of replacement of the hammer for each year.
- (ii) **Assess** and **identify** after how many years Green Flow Ltd. should replace the hammer on economic considerations. 7
- (b) As an **Analyst of Yonk Ltd.**, MS BHUMI is interested in studying whether some relationship does exist between the Expenditure on Advertising and the Annual Sales. Accordingly the data of Expenditure on Advertising and Sales are collected for past 5 years as follows :

YEAR	2021	2022	2023	2024	2025
Expenditure on Advertising (X) ₹ in lakhs	1	3	4	5	7
Annual Sales (Y) (₹ in crore)	5	6	8	9	10

Required :

- (i) Fit a linear regression of Y on X.

- (ii) **Analyze** and assess the Sales for Advertisement Expenditure of ₹ 8 lakh.
 (iii) **Analyze** the Advertisement Expenditure for achieving a Sales of ₹ 7 crore and ₹ 13 crore. 7

4. (a) **A Project TB of ZONT LTD.**, consists of four (4) major jobs, for which four (4) contractors have submitted tenders. The tender amounts in thousands of Rupees, are given below :

Contractors	JOBS			
	A	B	C	D
1	110	90	70	80
2	70	80	100	60
3	100	130	110	90
4	80	80	70	80

(Each contractor has to be assigned one job)

Required :

- (i) **Analyze** and **assign** the appropriate job to each contractor to minimize the total cost of the project.
 (ii) **Assess** what is the minimum total cost to finish the jobs of the project. 7
- (b) **RKG & Co.**, a retailer places an order for 40 units of product VT. The estimated sales for each day are expected to follow probability distribution :

Demand (in units)	10	20	30	40	50	60
Probability	0.06	0.10	0.15	0.40	0.16	0.13

Unit Cost of VT ₹ 100, are sold for ₹ 150 each and each stock out causes a loss of ₹ 30. As no proper storage facilities exists, unsold units are to be thrown.

The following two digit random numbers are to be used to simulate the demand and Profit & Loss for 10 days.

Random No.	93	53	81	93	88	22	32	96	79	06
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Required :

- (i) Using the given two digit random numbers in sequence, simulate and **assess** the 10 days demand of the product VT.
 (ii) **Analyze** and **assess** the resulting Total Profit / (Loss). 7

5. (a) **ZOYN Ltd.**, a office furniture manufacturing firm, provides the following information regarding resource consumption and availability and profit.

Resources	Usage per Unit			Daily Availability
	Tables	Chairs	Book Cases	
Timber (Cu. Ft.)	8	4	3	640
Assembly Department (Man-hours)	4	6	2	540
Finishing Department (Man-hours)	1	1	1	100
Minimum Production Requirements	0	50	0	---
Profit (₹)	30	20	12	---

Required :

Design and **develop** a mathematical formulation of Linear Programming Problem (LPP) to determine how much furnitures should be produced to maximize the profit. (Not required to Solve LPP). 7

- (b) **SYSTEL TECH LTD.**, a construction company, is bidding on a contract to install a line of microwave towers. It has identified the following activities along with their expected duration (in days) under 3 scenarios.

Activity and Identification		Duration in days		
		Optimistic	Most Likely	Pessimistic
A	1 – 2	4	4	10
B	1 – 3	4	7	10
C	1 – 4	5	5	11
D	2 – 5	4	4	4
E	3 – 5	5	8	17
F	4 – 6	5	8	11
G	5 – 6	6	9	18

Required :

- (i) **Analyze** the expected duration (in days) of the activities.
- (ii) **Design** and **develop** the PERT Network diagram and indicate all path through it.
- (iii) **Identify** the critical path and its duration (in days).
- (iv) **Analyze** and indicate the total float available in each activity. 7

6. (a) "Strategic Management refers to a set of management decisions and actions that determines the long term performance of an organization" – **In this context, analyze** the four basic elements of Strategic Management. 7
- (b) "Artificial Intelligence (AI) is intelligence exhibited by Machines and System" – **In this context, identify** the levels of Artificial Intelligence (AI) and analyze the role of Artificial Intelligence in digital and social marketing strategies. 7
7. (a) The value chain describes the categories of activities within and around an organization which create a product or service". – **In this context, align** the various activities incorporated in the PORTER's Value Chain. 7
- (b) "The BCG Matrix has several advantages, however, there are at least three potential problems with the BCG Matrix." – **In this context, append** the said three potential problems of BCG Matrix. 7
8. (a) "The Human Resources Strategy plays a vital role in the business environment. The management of human resources involves a lot of issues called 'harder' issues and 'softer' issues". **With reference to these statements, analyse and align** the softer issues (people and behavior). 7
- (b) "The achievement of goal congruence is essential in order to increase the profitability of the organisation and to achieve its goals." **With reference to this statement, analyze and align** some of the areas that have the ability to create goal congruence. 7
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