

INTERMEDIATE EXAMINATION

June 2025

P-9(OMSM)
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.

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

Section-A

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

1. Choose the correct answer from the given alternatives (You may write only the Roman numeral and the Alphabet chosen for your answer): $2 \times 15 = 30$

- (i) With reference to the operations of a manufacturing company, one of the important decisions is "Are we producing right things"? Which one of the following is related to this?
- (A) Quality Management
 - (B) Inventory Management
 - (C) Maintenance Management
 - (D) Delivery Planning
- (ii) Which one of the following is associated with the question "Where should each centre be located"?
- (A) Process layout
 - (B) Facility layout
 - (C) Product Layout
 - (D) Plant Layout
- (iii) Application of technology or process to the raw material to add use value is known as:
- (A) Product
 - (B) Production
 - (C) Application of Technology
 - (D) Combination of Technology and Process

- (iv) A steel plant has a design capacity of 50000 tons of steel per day, effective capacity of 40000 tons of steel per day and actual output of 36000 tons of steel per day. Compute the efficiency of the plant.

(A) 90 %

(B) 72 %

(C) 80 %

(D) 110 %

- (v) The following item is being managed using a fixed time period model with safety stock:

Weekly demand (D)	50 units
Review Cycle (T)	3 Weeks
Safety Stock (SS)	30 units

What is the average inventory turn(s) for the item? (1 year = 52 weeks)

(A) 84.20 turns per year

(B) 24.76 turns per year

(C) 80.50 turns per year

(D) None of the above

- (vi) The Quality Circles and use of work teams or quality improvement teams are the examples of

(A) Time Reduction

(B) Lean Production

(C) Worker Involvement

(D) Re-Engineering

- (vii) The over capacity is preferred when

(A) the cost of creating the capacity is prohibitively high.

(B) fixed cost of the capacity is not very high.

(C) shortage of products does not affect the company.

(D) the technology changes fast.

- (viii) _____ is about how people may be motivated to work together in more effective ways.

(A) Organisational behavior

(B) Strategic Leadership

(C) Emotional Intelligence

(D) Organisational Change

- (ix) A _____ is a business unit in a growing market, but not yet with high market share.
- (A) Cash Cow
 - (B) Dog
 - (C) Question Mark
 - (D) Star
- (x) _____ is a form of paid advertising that allows marketing teams to essentially purchase traffic to their website.
- (A) Influencer Marketing
 - (B) Affiliate Marketing
 - (C) Pay-per-click
 - (D) Content Marketing
- (xi) In which one of the following stages of Design Thinking, the aim is “to identify the best possible solution for each problem found”?
- (A) Prototype
 - (B) Define
 - (C) Test
 - (D) Ideate
- (xii) In the scheduling function, if the Critical Ratio for a job is greater than 1, it implies that
- (A) the job is behind the schedule.
 - (B) the job is ahead of schedule.
 - (C) the job is not started yet.
 - (D) the job is exactly on schedule.
- (xiii) The ISO Standard associated with the “Quality Assurance in Production and Installation” is
- (A) ISO 9001
 - (B) ISO 9002
 - (C) ISO 9003
 - (D) ISO 9004
- (xiv) Which one of the following cannot be called a valid “Type” of Big Data?
- (A) Structured Data
 - (B) Unstructured Data
 - (C) Meta Data
 - (D) Semi-Structured Data

- (xv) The _____ refers to a set of managerial decisions and actions that determines the long-term performance of an organization.
- (A) Organisational culture
 - (B) Strategic management
 - (C) Vision
 - (D) Mission

SECTION - B

Answer any five questions from Question No. 2 to Question No. 8.

Each question carries 14 marks.

14×5=70

2. (a) **Align** the major important decision areas under production and operations management. 7
- (b) **Analyze** the three important tools which are used for increasing productivity in industry. 7
3. (a) "Production planning and Control is a very important aspect of Production Management"— In this context, **append** the basic six types of production control. 7
- (b) RONP Ltd. manufactures two colour televisions "Model 2M3" and "Model 3SP4" in a variety of sizes, colours and component combinations. Identical colour TVs are produced in lots of 100. The projected demand, lot size and time standard are shown in the following table :

Particular	Model 2M3	Model 3SP4
Demand forecast (D)	6000 Units / year	12000 Units / year
Lot Size (Q)	100 Units	100 Units
Standard Processing time (P)	20 Hours / Unit	40 Hours / Unit
Standard Setup time (s)	2 Hours / LOT	3 Hours / LOT

The factory currently works 3 shifts, 8 hours a day, 5 days a week, 50 weeks a year. It operates 100 workstations, each producing one colour TV in the time shown in the above Table. The factory maintains a 19% Capacity cushion (C).
(ignore use of overtime works).

Required :

- (i) **Analyze** and **Assess** how many workstations will be required next year to meet the expected demand without decreasing the Company's current capacity cushion.
- (ii) **Assess** the number of additional workstations to be required to meet expected demand.

[Present calculation (NOs) upto nearest integer]

7

4. (a) TOXIN Ltd., a manufacturing company has five jobs (D, E, F, G and H) and four machines (M_1 , M_2 , M_3 and M_4).

These jobs can be processed on any four machines. Resulting times (hours) vary with assignment. The required time (in hours) for each job on machine are given in following table :

Job \ Machine:	M_1	M_2	M_3	M_4
D	8	4	7	4
E	4	7	10	9
F	9	10	8	11
G	8	4	5	6
H	11	5	10	11

The manager (Production) of the company would like to assign the jobs so that total time is minimized.

Required :

Develop the optimal assignment of jobs to machines and assess the corresponding total time (in hours). 7

- (b) MR. RATUN, a bakery shopkeeper sells confectionary items. Past data of demand per week in hundred kilograms with frequency is given as below :

Demand / Week	0	5	10	15	20	25
Frequency	8	16	4	15	5	2

The following two digit random numbers are to be used to generate the demand for 10 weeks.

Random Numbers	27	63	79	35	86	58
	38	67	95	52		-

Required :

- (i) Using the given two digit random numbers, **simulate** the 10 weeks demand of confectionary items.
- (ii) **Analyze** the average demand per week. 7

5. (a) GOPA BANDHU AUDITORIUM has been decorated with 1000 coloured light bulbs. The mortality rates of this type of bulbs have been observed pursuant to a systematic study as follows:

Month	1	2	3	4
Percent Bulbs failing by month end	15	15	40	30

It costs ₹ 100 to replace a fused bulb. However, if all bulbs are replaced together, it would cost ₹ 40 per bulb. The auditorium management is thinking to replace all bulbs at fixed interval, whether or not the bulbs are fused and also to continue replacing fused bulbs as when they get fused.

Required :

- (i) **Analyze** the number of light bulbs to be replaced every month.
- (ii) **Assess** the average monthly cost for individual replacement.
- (iii) **Analyze** and identify at what periodicity the Management of Gopa Bandhu Auditorium should replace all the light bulbs.
- (iv) **Recommend** which policy of the replacement would be economical. 7

- (b) A Research and Development department of ZOBEX Ltd. is developing a power supply for console television set. The department has listed down the activities with its time in the project as under :

Activity and Identification	Preceding activity	Normal Time (Days)	
A	(1 - 2)	-	16
B	(1 - 3)	-	20
C	(2 - 3)	A	8
D	(2 - 4)	A	10
E	(3 - 4)	B, C	6
F	(4 - 5)	D, E	12

Required :

- (i) **Design** a PERT Network Diagram and indicate all paths through it.
 - (ii) **Analyze** the critical path of the project.
 - (iii) **Assess** the Minimum time (in days) for completion of the project.
 - (iv) **Analyze** and assess the Total Float, Free Float and Independent float available on each activity. 7
6. (a) "Strategic Management was associated with increasing focus on competition as the central characteristic of the business environment"— **In this context, append** the basic elements of Strategic Management. 7

- (b) “Artificial Intelligence (AI) is intelligence exhibited by machines and systems”— **In this context, enumerate** the three levels of Artificial Intelligence (AI) and **analyze** the various contemporary concepts, namely, Machine Learning (ML), Deep Learning & Blockchain. 7
7. (a) “Porter’ value chain describes the categories of activities within and around an organization”.— With reference to this statement **align** the activities involved in value chain of an Organization. 7
- (b) “Rockart has identified four major sources of Critical Success Factors”— **In this context examine**, the said four sources of critical success factors citing **examples**. 7
8. (a) **Analyze** the differences between Strategy formulation and Strategy implementation according to David (2005). 7
- (b) **Align** the guidelines, a strategic manager should keep in mind while implementing proper strategic control. 7
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