INTERMEDIATE EXAMINATION

December 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 contain 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

(Answer *Question No.1* which is compulsory)

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

(i) With reference to the operations of RN Ltd. a manufacturing company, one of the important decisions is "How to reach the products to the Customers"? Which one of the following is related to this?

(A) Delivery planning

(B) Process Section & Layout

(C) MRP

(D) Aggregate Planning

(ii) The ISO standard associated with "Quality Management and Quality System Elements – Guidelines" is

(A) ISO 9001

(B) ISO 9002

(C) ISO 9003

(D) ISO 9004

(iii) In a particular plant there are 15 workers manufacturing a single product and the output per month consisting of 25 days of that particular product is 450 units. How much is the monthly productivity?

(A) 30 units

(B) 18 units

(C) 15 units

(D) 25 units

(iv) In which phase of the product life cycle the objective is to hold the existing customers and create new customers?

(A) Maturity phase

(B) Introduction phase

(C) Growth phase

(D) Decline phase

(v) Gantt Chart is a principal tool used in –

(A) Scheduling

(B) Loading

(C) Planning

(D) Routing

(vi) Which one of the following processes of Project Quality Management assures the existence and effectiveness of process and procedures tools?

(A) Quality definition

(B) Quality Assurance

(C) Quality Control

(D) Quality Improvement

(vii) The Slack Time of Tail Event of Activity – D of a Project is 1 day. If the total Float and Free Float of the activity D are 8 days and 6 days respectively, the Independent Float of D will be

(A) 3 Days

(B) 4 Days

(C) 5 Days

(D) None of the above

(viii) Which one of the following is not the primary constraint of a project?

(A) Time

(B) Cost

(C) Machine

(D) Quality

(ix) Preventive Maintenance is useful in reducing

(A) Inspection Cost

(B) Shutdown Cost

(C) Cost of premature replacement

(D) Set-up Cost of Machine

(x) A workshop of Gear Tech (I) Ltd. has 20 nos. of identical machines. From the failure pattern of the machines, it is calculated that the expected time before failure is 4 months. It costs ₹ 500 to attend a failure machines and rectify the same. What will be the yearly cost of servicing the broken down machines?

(A) ₹ 50,000
(B) ₹ 30,000
(C) ₹ 32,000
(D) ₹ 10,000

(xi) The Strategy which is about how to compete successfully in particular markets is :

(A) Corporate Strategy
(B) Operational Strategy
(C) Business Strategy
(D) Functional Strategy

(xii) Which among the following provide(s) the standards for performance appraisal?

(A) Mission
(B) Vision
(C) Values
(D) Objectives

(xiii) In the "SMART goal framework" the letter "S" stands for :

(A) Specific
(B) Strategy
(C) Skill
(D) Social

(xiv) Environment is _____.

(A) complex
(B) dynamix
(C) multi-faceted
(D) All of the above

(xv) In context with BPR, which among the following is true?

(A) BPR has resulted in major gains in speed.
(B) BPR has resulted in major gains in efficiency.
(C) BPR has resulted in major gains in quality.
(D) BPR has resulted in major gains in efficiency, quality and speed.

SECTION – B

Answer *any five* questions from Question No. 2 to Question No. 8. in Section "B" :
Each question carries 14 marks 14×5=70

2. (a) "Recent trends in Production and Operations Management relate to global competition" **– With reference to this Statement, Align** seven of the recent trends in Production and Operations Management. 7

(b) "Likewise, the Business Organisations and Human Beings, each product has a life that goes through various phases or cycles" **– In this Context, Analyze and Align** the Prospective Phases of Product Life Cycle. 7

3. (a) **STEEL MAX Ltd.** invested in a precision laser cutting machine with a purchase cost of ₹ 5,00,000 and an installation cost of ₹ 50,000. The resale value remains fixed at ₹ 60,000 throughout its life. However, maintenance costs increase with age. The management is analyzing over a 10-year span to determine the most cost-effective replacement year.

Year	1	2	3	4	5	6	7	8	9	10
Maintenance Cost (₹ in Thousand)	10	15	22	30	45	60	80	110	145	185

(Ignore Cost of Money)

Required :

(i) **Analyze** Average Annual Cost of replacement of cutting machine for each year.

(ii) **Assess** and Identify after how many years should Steel Max Ltd., replace the cutting machine on economic considerations. 7

(b) **FRESHWEAR** Clothing Co. shifted its marketing strategy to focus heavily on digital outreach. The management wants to examine how their monthly sales are influenced by the number of social media ad impressions (in Crore). They collected the following data over the last six months:

Month	Ad. Impressions (in Crore) (X)	Sales (₹ In Crore) (Y)
Jan	1	18
Feb	2	23
Mar	4	32
Apr	3	28
May	10	38
Jun	4	29

Required :

(i) Fit a linear regression of Sales (Y) on Ad. Impressions (X)

(ii) If FRESHWEAR plans to run a campaign that reaches **5 Crore** (Nos.) impressions, forecast their expected monthly sales using simple linear regression. 7

4. (a) **AUTO BUILD Ltd.** specializes in high-precision car components. The production manager wants to assign four skilled workers – R, A, N and Z – to four complex assembly jobs : GA, BS, EM and EF. Each worker has different time efficiencies for each job (in hours). The goal is to assign one job to each worker **to minimize the total time** required.

Jobs / WORKERS	GA	BS	EM	EF
R	10	12	16	17
A	9	12	14	14
N	12	14	15	16
Z	10	11	12	13

Required :

(i) **Analyze** and **Assign** the appropriate job to each worker to minimize the total work hours.

(ii) **Assess** what is the minimum total time required to finish the jobs. 7

(b) QUICKKART COURIERS Ltd., a growing logistics firm, wants to simulate their parcel delivery times during monsoon to assess variability and potential delays. They have collected historical data and created a probability distribution of delivery time (in minutes).

Delivery Time (minutes.)	15	20	25	30	35
Probability	0.10	0.20	0.35	0.25	0.10

The following two digit random numbers are to be used to simulate delivery for 10 parcels.

Random Number	04	19	33	46	60	74	85	91	23	38

Required :

(i) Using the given two digit random numbers in sequence, **Simulate** the 10 parcel delivery times.

(ii) **Assess** the total and average parcel delivery times. 7

5. (a) ROTIS Ltd. a manufacturing company produces two types of products : Super and Regular. Resource requirements for production are given below in the table. There are 16000 hours of assembly worker hours, 7000 hours of paint time and 3000 hours of inspection time available per week. Regular customers will demand at least 500 units of the Regular type and 200 units of Super type.

Product Type	Profit per unit (₹)	Assembly time (Hrs.)	Paint time (Hrs.)	Inspection time (Hrs.)
Regular	50	12	8	2
Super	75	16	9	2

Required :

Develop a mathematical formulation of L. P. P to determine how many products should be produced to maximize the profit. (You are not required to solve the LPP). 7

(b) **SWIFT TRANS LOGISTICS Ltd.** is planning a distribution centre expansion. The operation manager have split their schedule of implementation into the following 6 activities and have estimated time duration (in weeks) under 3 scenarios as under :

(Time in Weeks)

Activity and Identification		Optimistic time estimate (t_0)	Pessimistic time estimate (t_p)	Most likely time estimate (t_m)
A	1 – 2	1	5	3
B	1 – 3	3	9	6
C	2 – 4	2	8	5
D	3 – 4	5	13	9
E	2 – 5	3	5	4
F	4 – 5	5	11	8

Required :

(i) **Assess** the expected duration (in weeks) for each activity.

(ii) **Design** the PERT Network Diagram and indicate all paths through it.

(iii) **Identify** the Critical Path and its duration (in weeks).

(iv) **Analyze** and indicate the variance of each activity. 7

6. (a) "The goal is to achieve quantity and quality of effort between individuals and the team" – **In this context, analyze and append** the details regarding the SMART goal framework to create organizational objectives. 7

(b) "**BLOCKCHAIN** is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network" – **In this context, Examine and Align** the important components of a BlockChain. 7

7. (a) **Summarize**, in brief, a detailed explanation of the PESTEL Framework. 7

(b) "The Formal Strategic Planning process has five main steps" – **In accordance to this statement, Examine and Align** the respective steps of Strategic Planning process. 7

8. (a) **What do you infer** from Project-based Structures? **Align** the advantages and disadvantages of project based structures. 7

(b) (i) **Critically Assess** important reasons that lead an organization to undertake Business Process Re-engineering.

(ii) **Discuss** four concerns while implementing the Business Process Re-engineering program. 7
