GITAM UNIVERSITY
(Estd. u/s 3 of the UGC Act, 1956)

Centre for Distance Learning
(Approved by Joint Committee of UGC-AICTE-DEC)
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OM 311 - OPERATIONS RESEARCH

ASSIGNMENT – I   5 X 3 =15 Marks

1. Explain nature and scope of operations research with limitations.

2. Solve the linear programming problem graphically

$Min Z = 5x_1 + 6x_2$

$Subjected\ to\ the\ constraint\ s$

$x_1 + x_2 \geq 5$

$2x_1 + 3x_2 \geq 12$

$3x_1 + 2x_2 \geq 12$

$x_1 \geq 0\ \&\ x_2 \geq 0$

3. Solve the following LPP using Simplex method

$Min Z = 3x_1 + 2x_2 + 5x_3$

$Subjected\ to\ x_1 + x_2 + x_3 \leq 9$

$2x_1 + 3x_2 + 5x_3 \leq 30$

$2x_1 - x_2 - x_3 \leq 8$

$x_1, x_2, x_3 \geq 0$

4. Find the optimum solution for the following transportation problem

	D1	D2	D3	D4	Availability
O1	23	27	16	18	30
O2	12	17	20	51	40
O3	22	28	12	32	53
Required	22	35	25	41	123

5. Use Branch and Bound method to solve the following LPP

$Max Z = 7x_1 + 9x_2$

$Subjected\ to\ the\ constraint\ s$

$-x_1 + 3x_2 \leq 6$

$7x_1 + x_2 \leq 35$

$x_2 \leq 7$

$x_1, x_2 \geq 0$

ASSIGNMENT – II   5 X 3 =15 Marks

6. Solve the linear goal programming problem graphically:

Find $x_1\ \&\ x_2$ so as to

$Minimise\ Z = G_1\left(d_3^+ + d_4^+\right) + G_2 d_1^+ + G_3 d_2^- + G_4\left(d_3^- + \frac{3}{2}d_4^-\right)$

$and\ satisfy\ the\ goals:$

$G_1 : x_1 + x_2 + d_1^- + d_1^+ = 40$

$G_2 : x_1 + x_2 + d_2^- - d_2^+ = 100$

$G_3 : x_1 + d_3^- - d_3^+ = 30$

$G_4 : x_2 + d_4^- - d_4^+ = 15$

$each\ x_i, d_i^-, d_i^+ \geq 0$

The goal has been listed in the order of priority.

7. A company has 6 sales men and 3 market areas A,B and C. It is desired to determine the number of sales men to allocate to each market area to maximize profit. The following table given the profits from each market area as a function of the number of salesmen allocated:

Area	Salesmen						
	0	1	2	3	4	5	6
A	38	41	48	58	66	72	83
B	40	42	50	60	66	75	82
C	60	64	68	78	90	102	109

Use dynamic programming technique to solve the above problem.

8. The demand for an item in a company is 18000 units per year, and the company can produce the items at the rate of 3,000 per month.. The cost of one set-up is Rs. 500.00 and the holding cost of 1 unit per month is 15 paise. The shortage cost of one unit is Rs.20.00 per month. Determine (i) optimum production batch quantity and the number of strategies, (ii) optimum cycle time and production time, (iii) maximum inventory level in the cycle , and (iv) Total associated cost per year if the cost of the item is Rs. 20 per unit.

9. Solve (3x3) game by the simplex method of LP whose pay off matrix is

$$\begin{bmatrix} 3 & -1 & -3 \\ -3 & 3 & -1 \\ -4 & -3 & 3 \end{bmatrix}$$

10. Explain the generation of Random Numbers with suitable examples

OM 312 - PROJECT MANAGEMENT
ASSIGNMENT – I   5 X 3 =15 Marks

1. Discuss in detail tools and techniques in project management.
2. Describe the methods of forecasting demand.
3. A network comprises of the following activities:

Activity	Duration (weeks)	Activity	Duration (weeks)
1 – 2	6	2 – 7	4
1 – 4	6	5 – 7	Dummy
1 – 3	2	4 – 8	6
3 – 5	4	6 – 8	8
2 – 4	Dummy	7 – 8	8
5 – 6	2		

(a) Draw an AOA network.
(b) Compute forward pass calculations and backward pass calculations, free float, total float for all activities and determine the critical path. Mark the critical path in the network.

4. Explain the methods of resource leveling.
5. Discuss in detail the costing and pricing of projects.

ASSIGNMENT – II   5 X 3 =15 Marks

6. Explain in detail various organizational structure in the projects.
7. Discuss in detail project monitoring and reporting.
8. Explain the factors affecting control of project cost with examples.
9. Describe computer applications in project appraisal.
10. Describe the objectives, planning procedure and organizational structure required for commissioning of projects.

OM 313 - LOGISTICS AND SUPPLY CHAIN AMANAGEMENT
ASSIGNMENT – I   5 X 3 =15 Marks

1. Briefly explain the role of Logistics in Indian economy?
2. Define the role of Customer focus in enhancing the customer Relationship Management?
3. Define the Scope of Integrated Supply chain in Demand forecasting and Management?
4. Briefly explain the role of Re engineering in Managing and Development of Supply Chain relationships?
5. Briefly explain the scope of Integrated Logistics in global Market strategies?

ASSIGNMENT – II   5 X 3 =15 Marks

6. Briefly explain the stages of Global supply Chain Management with reference to current economic global crisis?

7. Define the role of Information Technology and its applications for integrated supply chain strategies?
8. How does the Material Requirement (Resource) Planning effects Supply Chain and operation review?
9. Briefly define the methodology for benchmarking in current challenging economic scenario?
10. Discuss the role and selection of Transportation method for effective Logistics and Supply Chain Management?

OM 314 : MATERIALS MANAGEMENT
ASSIGNMENT – I   5 X 3 =15 Marks

1. Define materials management. What are the categories in which materials can be put? Discuss the functions of the materials management in detail.
2. Explain the role of materials management department in an organization.
3. Discuss in detail the formal logistics quality process.
4. Discuss the process of May or Buy decision making.
5. Explain the materials requirement planning.

ASSIGNMENT – II   5 X 3 =15 Marks

6. Explain just-in-time production system.
7. Discuss the concept of repetitive manufacturing. Also explain the underlying concept and the working of the Kanban system.
8. Explain briefly probabilistic inventory models.
9. What do you mean by WIP? Explain various methods of controlling WIP inventories.
10. Explain in detail materials information system.

OM 315 : MAINTENANCE MANAGEMENT
ASSIGNMENT – I   5 X 3 =15 Marks

1. Explain in brief functions, objectives and types of maintenance.

2. How do you prepare maintenance planning and scheduling? Explain with an example.
3. What is zero based budgets? Explain the sources of collecting maintenance costing and their applications.
4. Discuss in detail the spare parts inventory management.
5. Describe in detail safety and environmental issues in maintenance management.

ASSIGNMENT – II   5 X 3 =15 Marks

6. What is the difference between maintenance technology and maintenance engineering? What steps are needed to introduce and sustain HRD, specifically for maintenance in an organization? Explain.
7. Discuss in detail the replacement of unit machines and components.
8. Explain the types of maintenance. Also describe the planning and scheduling of a plant shutdown.
9. What is condition based maintenance? Discuss condition monitoring techniques.
10. Discuss in detail importance, types and methodology of maintenance audit.

NOTE:
1) Last date for submission of assignments for all the courses / papers is- 14th March for May exams or 14th October for Dec exams
2) Non-submission of assignments as per the scheduled date mentioned above attracts a fine of Rs. 200/- upto 25th March for May exams or 25th October for Dec exams per each assignment of a courses / paper and under any circumstances the assignments will not be accepted from 26th March/October for May/Dec exams.
3) Assignments are to be written in the Book-lets provided by CDL and other formats are not accepted.
4) Answer all 10 questions, in a single book only.