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June -2016

(Diploma In Operation Research) DOR

DOR-01,02,03,04

IMPORTANT INSTRUCTIONS

- ✓ Students have download assignments from University website.
- ✓ It is compulsory to submit assignments to appear for exam. Exam form will not be accepted from the student who has not submitted assignment on or before given date.
- ✓ Last date of submission of prepared assignments to study center is **30/12/2016**. After this date, assignments will not be accepted.
- ✓ It is compulsory to collect receipt of submission of assignments from the study center.
- ✓ Make sure to collect your evaluated assignments from your study center with evaluation sheet.
- ✓ Students can check their assignments marks on university website.
- ✓ Passing criteria for Diploma course is 50% for all assignment subjects.

Diploma programmes

Dear Student,

You are required to do one assignment for the **Diploma Programme** It is a Tutor Marked Assignment (TMA) and carries 100 marks. It covers four blocks of the course.

As in day-to-day life, **Planning** is important in attempting the assignment as well. Read the assignment carefully; go through the units on which the questions are based; jot down some points regarding each question and then re-arrange them in a logical order. In the Long-type answer, pay attention to your introduction and conclusion. The introduction must tell you how to interpret the given topic and how you propose to develop it. The conclusion must summarize your views on the topic.

Make sure that your answer :

- a) is logical
- b) is written in simple and correct English
- c) does not exceed the number of words indicated in your questions
- d) is written neatly and clearly.

ROLL NO: _____

NAME: _____

ADDRESS: _____

DATE: _____

Mo No. _____

COURSE TITLE: _____

ASSIGNMENT: _____

STUDY CENTRE: _____

Please remember that it is compulsory to submit your assignment before you can take the Term End Examination. Also remember to keep a copy of your assignment with you and to take a receipt from your Study Centre when you submit the assignment.

Good Luck,

Dr. Babasaheb Ambedkar Open University

Assignment :- (DOR-1)

Basics of Operation Research

Last Date of Submission At Study Center :- 30/12/2016 **Max-Marks-100**

Section – A : Answer the Following Questions. (Any two) (40)

- (1) Define Operation Research and State its Relations with decision making.
- (2) What are the opportunities and short comings of Operation Research.
- (3) Describe the Structure of the Linear programming Model.

Section – B : Answer the Following Questions. (Any two) (30)

- (1) State the uses of Operation Research in various areas.
- (2) Explain the various operation research models.
- (3) State the advantages and limitations of linear programming models.

Section – C : Write a short note on the following (20)

- (1) Graphical solution of linear programming problems.
- (2) Guidelines in Linear programming model formulation.

Section – D : State the Statement are True of False. (10)

- (1) CPM uses the techniques of the identification of the Critical Path.
 - (2) Allocation Models are not used to allocate all available resources to activities.
 - (3) There are three phases in operation research procedure is based.
 - (4) Linear programming treats all relationship among decision variables as linear.
 - (5) Linear programming helps in portfolio selection.
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Assignment :- (DOR-2)

Assignment and Transportation Problems

Last Date of Submission At Study Center :- 30/12/2016

Max-Marks-100

Section – A : Answer the Following Questions.

(40)

- (1) Explain the solution method of Assignment Problem.
- (2) Explain the Mathematical Model of Transportation Problem.

Section – B : Answer the Following Questions.

(30)

- (1) A machine expenses Rs.12,200 and its Scrap value is Rs.200, a constant in Pratima Ltd. its maintenance expense is known from the past experience as follows:

After how many years should the machine be replaced?

Year	1	2	3	4	5	6	7	8
Maintenance Expense Rs.	200	500	800	1200	1800	2500	3200	4000

- (2) Obtain a feasible solution of the transportation problem by matrix minima method.

Sales Centres:

Godows	X	Y	Z	W	Supply
A	8	9	6	3	18
B	6	11	5	10	20
C	3	8	7	9	18
Demand	15	16	12	13	56

Section – C : Write a short note on the following

(20)

- (1) Unbalance Assignment Problem.
- (2) Travelling Salesman Problem.
- (3) Least Cost Method
- (4) Vogel's Approximation Method

Section – D : State the Statement are True of False.

(10)

- (1) The problem of assignment arises because availability of various alternatives.
- (2) The expense matrix is always square matrix.
- (3) Multi objective optimization deals with solving optimization problems.
- (4) The transportation problem is related mainly with the reducing the transportation cost and reduce the time of reaching.
- (5) If the supplies and demands are integer, every basic solution integer values.

Assignment :- (DOR-3)

PERT & CPM

Last Date of Submission At Study Center :- 30/12/2016

Max-Marks-100

Section – A : Answer the Following Questions. (Any two) (40)

- (1) Describe the concepts of PERT and CPM ? State main points of difference in between them?
- (2) Describe the various stages of project management.

Section – B : Answer the Following Questions. (Any two) (30)

(1) From the following information draw diagram for this project and indicate the critical path.

Activity	Description	Immediate Predecessors	Time (Days)
A	Prepare Sketches	-	2
B	Outline specification	-	1
C	Prepare drawing	A	3
D	Write Specification	A,B	2
E	Run off prints	C,D	1
F	Have Specification	B,D	3
G	Assemble bid packages	E,F	1

(2) From the information draw the network and determined critical path.

Activity	During (Days)			Immediate Predecessors
	Most Likely	Optimistic	Pessimistic	
A	3	1	1	-
B	6	2	14	A
C	3	3	3	A
D	10	4	22	B,C
E	7	3	15	B
F	5	2	14	D,E
G	4	4	4	D

Section – C : Write a short note on the following (20)

- (1) Various types of floats.
- (2) Resource smoothing.
- (3) Resource leveling
- (4) Resource allocation.

Section – D : State the Statement are True or False. (10)

- (1) PERT was developed in 1956.
- (2) PERT was developed by E.I. Dupont Company.
- (3) CPM and PERT are based on the pre-presentation of the project as a network of activity.
- (4) Activities are represented by arrowed lines between the nodes or circles.
- (5) Events in the network diagram are identified by numbers.

Assignment :- (DOR-4)

Other Methods of O.R.

Last Date of Submission At Study Center :- 30/12/2016

Max-Marks-100

Section – A : Answer the Following Questions. (Any two)

(40)

- (1) Describe the concepts of decision making.
- (2) State the types of environment under which decisions can be made.
- (3) Explain the decision tree approach in decision making.

Section – B : Answer the Following Questions. (Any two)

(30)

- (1) What are the reasons for which risk reducing measures to be used in capital budgeting.
- (2) What a maximum amount can be paid for obtaining perfect information for forth coming activities.
- (3) Explain sensitivity analysis as a risk reducing measure in capital budgeting.

Section – C : Write a short note on the following

(20)

- (1) Simulation as a risk reducing measure.
- (2) Expected Value of Perfect Information.
- (3) Expected Opportunity Loss.
- (4) Maximum criteria of decision making.

Section – D : State the Statement are True of False.

(10)

- (1) Making of a decision requires an enumeration of feasible and viable alternatives.
- (2) The state of nature are not mutually exclusive and collectively.
- (3) The payoff values are always conditional values.
- (4) Where no information is available to assess the likelihood of alternative outcomes is known as extreme uncertainty.
- (5) The probability assignment will give some definite measure of possibility of different cash flows.