

M.H.A. SEM-III (2012 COURSE) (CHOICE BASED CREDIT SYSTEMS) : WINTER - 2017

SUBJECT : OPERATIONS RESEARCH IN HOSPITAL

Day : **Friday**
Date : **24/11/2017**

W-2017-1039

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION – I

- Q.1** Answer any **TWO** of the following questions: **(14)**
- a) What is linear programming? What are its advantages and applications?
 - b) Describe any two steps in operations research methodology in details.
 - c) What are the constituents of a Queuing system.
- Q.2** Write short notes on any **FOUR** of the following: **(16)**
- a) Simulation procedure
 - b) Routing problem
 - c) Competitive situations in game theory
 - d) Scope of operations research
 - e) Structure of mathematical model

SECTION – II

- Q.3** Answer any **TWO** of the following questions: **(14)**
- a) Find an initial feasible solution to the transportation problem (using any method)

	Warehouse 1	Warehouse 2	Warehouse 3	Demand
Shop 1	5	4	2	100
Shop 2	1	7	1	200
Shop 3	2	3	5	125
Supply	75	225	125	

- b) Clearly indicate the feasible set of solutions defined by constraints on a graph paper
 $X \geq 0, Y \geq 0$
 $X + Y \leq 12$
 $2X + Y \leq 20$
Determine the vertices. It is said that the set is convex, explain why?
- c) A small medical shop is to be established and the activities are
A : Identify a location
B : Arrangement of Capital (Loan)
C : Get a License
D : Procure stock
E : Inaugurate the shop
Discuss the dependencies of these activities and draw a network diagram. Assume time lines and indicate them on the diagram. Show a typical critical path.

- Q.4** Write short notes on any **FOUR** of the following: **(16)**
- a) Job scheduling
 - b) Linear constraints
 - c) Slack variables
 - d) NW corner method
 - e) History of OR (Operations Research)
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