

**M.H.A. Sem-III (2012 COURSE) (CHOICE BASED CREDIT
SYSTEMS) : WINTER - 2018**

SUBJECT : OPERATIONS RESEARCH IN HOSPITAL

Day : Monday
Date : 26/11/2018

W-2018-1283

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 books.
 - 4) Draw neat and labeled diagram **WHEREVER** necessary.
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SECTION – I

Q. 1 Solve **ANY TWO** of the following: **(14)**

a) Patients are waiting outside an Eye care facility, with 3 doctors. Discuss the nature of the Queuing problem. Discuss the nature of arrival process, service mechanism, number of channels and possible variations that may be seen at different times.

b) Solve the following LP problem using graph-paper:

$$\text{Maximize } 2x + 3y,$$

$$\text{Constraint 1 : } x + y \leq 20,$$

$$\text{Constraint 2 : } 2x + y \leq 30$$

c) Discuss the general steps to be followed in applying OR strategies to solving problems in Hospital Management. Assume a situation of your choice for purpose of illustration.

Q. 2 Solve **ANY FOUR** of the following: **(16)**

a) Scheduling of floor duties of Nursing staff can be an ASSIGNMENT problem. Justify.

b) Write a note on History of Operation Research

c) If the arrival rate is very high compared to service rate at the OPD, what are the possible Queuing solutions a manager can think of?

d) The terms Maximize and Minimize are used often in Operation Research problem formulations. Differentiate with the help of illustrative situations.

e) An optimum is always feasible but feasible is not always optimal. Do you agree? Discuss.

P. T. O.

SECTION – II

Q. 3 Solve **ANY TWO** of the following: **(14)**

- a) Use NW corner method to find initial feasible solution on in following transportation problem:

	Costs (100 Rs.)			Supply
	D ₁	D ₂	D ₃	
M ₁	5	7	3	90
M ₂	3	8	10	95
M ₃	5	10	2	90
Demand	100	75	100	

- b) Discuss one instance of application of CPM in a typical project implementation in a Hospital related project.
- c) What are the places in a hospital where queuing is applicable? Elaborate.

Q. 4 Write short notes on **ANY FOUR** of the following: **(16)**

- a) Slack variable
- b) PERT
- c) Hungarian method
- d) Simulation problems
- e) History of Operations Research

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