

First Year MHA Degree Examinations, September 2017

OPERATIONS RESEARCH (2013 Scheme)

Time: 3 Hours

Max Marks: 100

- Answer all the questions
- Ordinary calculator can be used

Essays: **(2x20=40)**

1. Draw the network analysis and also estimate the expected time for completion of the project

Activity	Description	Predecessors	Optimistic time	Pessimistic time	Most likely time (M)
A	Select administrative and medical staff	-	9	15	12
B	Select site and do site survey	-	5	13	9
C	Select equipment	A	8	12	10
D	Prepare final construction plans and layout	B	7	17	9
E	Bring utilities to the site	B	18	34	23
F	Interview applicants and fill positions in nursing support staff, maintenance and security	A	9	15	9
G	Purchase and take, delivery of equipment	C	30	40	35
H	Construct the hospital	D	35	49	39
I	Develop an information system	A	12	18	15
J	Install the equipment	E,G,H	3	9	3
K	Train nurses and support staff	F,I,J	7	11	9

2. Application of OR techniques in health care.

Short Essays: **(2x10=20)**

3. Solve the following by transportation problem for maximization of profit.

		Market				Availability
		A	B	C	D	
Warehouse	X	12	18	6	25	200
	Y	8	7	10	18	500
	Z	14	3	11	20	300
Requirement		180	320	100	400	1000

4. A Factory has purchased a drilling machine at 40,000/-. They estimate (based on past data) that the running costs during the first five years for this machine will be follows:

Year	Running cost	Resale price
1	0	20,000
2	2000	15,000
3	3450	10,000
4	6000	4000
5	6000	2800

When should the company go for a replacement of their drilling machine.

Short notes:

(8x5=40)

5. What is EOQ, discuss the application of EOQ model
6. How do you determine the critical path.
7. ABC analysis.
8. Approaches for evaluation of decisions.
9. How do you determine the time in network analysis.
10. What are the elements of network diagram.
11. Queuing theory.
12. Limitation of OR technique
