MBA HOSPITAL AND HEALTH SYSTEM
MANAGEMENT DEGREE EXAMINATION
FIRST YEAR
(for candidates 2011 – 2012 onwards)
PAPER III – BIO-STATISTICS AND OPERATION RESEARCH
Q.P. Code : 432033

Time : 3 hours   **Maximum : 100 marks**
    (180 Min)

Answer ALL questions in the same order.

I. Elaborate on :   **Pages Time Marks**
                                                           (Max.)(Max.)(Max.)

1. A company faced with 2 the problem of assigning 6 different
   Machines and 5 different jobs. The cost of estimated as follows
   (100 Rs.).   17   40   20

	Jobs				
	1	2	3	4	5
1	2.5	5	1	6	1
2	2	5	1.5	7	3
3	3	6.5	2	8	3
4	3.5	6.5	2	9	4.5
5	3.5	7	3	9	6
6	6	9	5	10	6

(Machines label on left side of rows)

   Solve the problem assuming that the object is minimizing the total cost.

2. 100 students randomly selected from the 1000 students enrolled
   in a MBA programme were cross-classified by age and grade point.
   According, the following data were completed.   17   40   20

Grade Point	25and under	26-28	Over 28
Upto 3.0	6	9	5
3.1 to 3.5	18	14	8
3.6 to 4.0	11	12	17

II. Write notes on :

1. Define statistics. Discuss its functions and limitations.	4	10	6
2. What are the advantages of diagrammatic representation of data.	4	10	6
3. Briefly explain the scale of measurements.	4	10	6
4. Bring out the merits and demerits of mean deviation.	4	10	6
5. What you meant by regression analysis. How does it help in decision making?	4	10	6
6. Write a short note a estimation for large and small sample test.	4	10	6
7. Explain the techniques of operation research.	4	10	6
8. Explain the various methods transportation models.	4	10	6
9. Explain the approach of Human Resource management.	4	10	6
10. Explain the uses of computers in handling information.	4	10	6

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Time : 3 hours   Maximum : 100 marks

I. Elaborate on: **(2x20=40)**

1. Write down the steps involved in graphical and simplex methods of solving optimization problems.

2. Explain the concepts (i) real-time information and control and (ii) Requirement of effective control techniques and Budget.

II. Write notes on :   **(10X6=60)**

1. Define and compare the characteristics of Arithmetic Mean, the Geometric Mean and the Harmonic Mean.

2. Explain the method of calculating coefficient of Variation and also state the purpose of the coefficient of variation.

3. The following scores represent a nurses assessment (x) and a physician's assessment(y) of the condition of 10 patients at time of admission to a trauma center.

X:	18	13	18	15	10	12	8	4	7	3
Y:	23	20	18	16	14	11	10	7	6	4

   Construct a scatter diagram for these data and interpret the result.

4. Explain the meaning of regression and the method of computing regression equations.

5. Explain the test procedure for difference of two means in large regression equations.

6. List out the advantages and disadvantages of nonparametric tests.

7. Explain dual simplex method in Linear Programming theory.

8. Explain Hungarian method by giving an example.

9. How to orient and socialize a new employee?

10. What are the challenges created by information?

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Time : 3 hours **Maximum : 100 marks**

I. Elaborate on : **(2x20=40)**

1. Briefly explain the Skill and Personal characteristics need by selecting Managers.

2. An animal feed company has to produce 200 kgm. of a feed mixture consisting of two ingredients X_1 and X_2. X_1 costs   Rs. 3per kgm and X_2 Rs. 5 Per kgm. Not more than 80 kgm of X_1 can be used and at least 60 kgm of X_2 must be used. Using Simplex technique find how much of each ingredient should be used in mix of the company to minimize cost. Also determine the cost of optimum mix.

II. Write notes on : **(10x6=60)**

1. Define statistics. Discuss its scope and limitations.
2. Describe the various steps involving to construct a frequency table.
3. Explain how the data recorded in medical practice.
4. Define arithmetic mean. Bring out the properties of arithmetic mean.
5. What is Scatter diagram? Bring out the merits and demerits.
6. List out the advantages and disadvantages of non parametric tests.
7. Define operation Research. Explain the limitation of operation research.
8. Explain the concept of Balanced and Unbalanced problems in transportation problem.
9. Explain how the situational factors affecting staffing.
10. Define controlling. Explain the concept of effective control technique.

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MBA (HOSPITAL & HEALTH MANAGEMENT) DEGREE EXAMS
FIRST YEAR
(2011-2012 Batch onwards)
PAPER III – BIO-STATISTICS AND OPERATION RESEARCH

Q.P. Code: 432033

Time: Three hours   **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Calculate Mean, Median and Mode from the following data and verify empirical relation.

Class	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Frequency	3	7	13	17	12	10	8	8	6	6

2. Solve the following using graphical or simplex method:
   Minimize $Z = 4X_1 + 5X_2$ Subject to $2X_1 + 7X_2 \geq 31$ and $5X_1 + 3X_2 \geq 34$ when $X_1, X_2 \geq 0$

II. Write notes on: **(10 x 6 = 60)**

1. Explain the different phases of operations research.
2. What are the components of linear programming model?
3. Discuss the application of statistics in management.
4. Find the co-efficient of correlation between X and Y.

X	10	14	15	28	35	48
Y	74	61	50	54	43	26

5. State the various steps involved in hypothesis testing.
6. Draw and explain cumulative frequency curve.
7. Two groups of 100 people each were taken for testing the use of vaccine, 15 persons contracted the disease out of the inoculated persons, while 25 contracted the disease in the other group. Test the efficiency of vaccine using chi-square at 5% level of significance for 1df is 3.84.
8. Calculate optimal solution for the assignment problem with the following matrix:

	Job			
	A	**B**	**C**	**D**
1	5	3	2	8
2	7	9	2	6
3	6	4	5	7
4	5	7	7	8

(Man)

9. Discuss the role of operations research in managerial decision making.
10. Explain briefly:
    a) Degrees of Freedom b) Scatter diagram c) Quartile Range

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