

M.Com. DEGREE EXAMINATION NOVEMBER 2007
COMMERCE
FIRST SEMESTER

COURSE : **MAJOR – CORE**
PAPER : **STATISTICS FOR BUSINESS APPLICATIONS**
TIME : **3 HOURS** **MAX. MARKS : 100**

SECTION – A

ANSWER ANY FIVE QUESTIONS: (5 x 8 = 40)

1. An astrologer predicts that in the year 2011, the batting performances of two of the world's best cricketers will be follows:

PERIOD (Quarters)	RUNS SCORED	
	Batsman A	Batsman B
1	700	500
2	650	350
3	700	900
4	900	800

Help the astrologer by recommending one of the two batsmen for the 'Batsman of the year award'. State your reasons.

2. The following table gives the number of days in a 50-day period during which automobile accidents occurred in a city:

No. of accidents:	0	1	2	3	4
No. of days:	21	18	7	3	1

Fit a Poisson distribution to the give data.

3. a) What are the properties of a normal curve?
b) Of a large group of men, 5% are under 60 inches in height and 40% are between 60 and 65 inches. Assuming a normal distribution, find the mean height and standard deviation.

4. The first four moments of a distribution about $X = 4$ are 1,4, 10 and 45. Obtain the various characteristics of the distribution on the basis of the information given. Comment upon the nature of the distribution.

5. Below are given the figures of production (in thousand quintals) of a sugar factory:

Year	: 2001	2002	2003	2004	2005
Production	: 80	90	92	84	94

Fit a straight line trend and estimate the production for the year 2007.

6. Obtain the two regression equations and the value of 'r' from the following table of marks in Accounts and Statistics.

Marks in statistics	Marks in Accountancy			
	5-15	15-25	25-35	35-45
0-10	1	1	-	-
10-20	3	6	5	1
20-30	1	8	9	2
30-40	-	3	9	3
40-50	-	-	4	4

7. What are the components of time series? Explain the significance of each one of them.
8. What is multiple linear regression? What is its importance in economic analysis?

SECTION – B

ANSWER ANY THREE QUESTIONS:

(3 x 20 = 60)

9. Calculate the Seasonal Indices by the method of link relatives from the following sales data related to an MNC – Soft drink company in Chennai.

YEAR	QUARTERS			
	I	II	III	IV
2001	12	11	12	16
2002	14	13	14	16
2003	15	13	16	17
2004	17	15	15	18
2005	18	16	9	12

10. The table shows the corresponding value of three variables X_1 , X_2 and X_3 . Find the least square regression equation of X_3 on X_1 and X_2 . Estimate when $X_1 = 10$ and $X_2 = 6$.

X_1	3	5	6	8	12	14
X_2	16	10	7	4	3	2
X_3	90	72	54	42	30	12

11. Calculate β_1, β_2 from the following distribution and interpret the results.
- | | | | | | | | | |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Age : | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 50-55 | 55-60 | 60-65 |
| Frequency: | 2 | 8 | 18 | 27 | 25 | 16 | 7 | 2 |
12. Find out the number of students securing second division in the University Examination from the following figures.
- | | | | | | |
|------------------|------|-------|-------|-------|--------|
| Marks obtained: | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
| (out of 100) | | | | | |
| No. of students: | 5 | 26 | 85 | 54 | 30 |
- [48% and above but less than 60% marks make second division].

13. Answer the following:
- a) What excel formulas would you use to calculate averages, standard deviation, median, variance?
 - b) What are the implications of a skewed distribution?
 - c) What are the properties of Binomial distribution?
 - d) Differentiate between Mutually exclusive and Independent events.

