I Semester M.B.A. Degree Examination, January/February 2015
(CBCS) (2014 – 15 & Onwards)
Paper – 1.4 : STATISTICS FOR MANAGEMENT

Time : 3 Hours

Max. Marks : 70

Instruction : *Statistical tables and calculators are **allowed**.*

SECTION – A

Answer **any five** of the following questions. **Each** question carries **five** marks.
Answers to theoretical questions should **not** exceed **250** marks. **(5×5=25)**

1. What is sampling ? Discuss different sampling techniques and their relevance in statistical inference.

2. The data given below pertains to the patients admitted into a corporate Hospital during the years 2007 and 2013. Fit a straight line trend by the method of least squares and estimate the number of patients for the years 2014 and 2015. A graph is not necessary

Years	2007	2008	2009	2010	2011	2012	2013
Patients in lakhs	19	21	25	29	26	27	32

3. Define the following concepts :

   a) Null hypothesis and alternative hypothesis.

   b) One Tailed and Two Tailed tests.

   c) Point estimation and internal estimation.

   d) Type I and Type II errors.

   e) Confidence limits.

4. A survey of 500 students yielded the data given below : Using Chi-square analysis and assuming a 5 % significance level, find whether mentoring has an impact on the performance index.

Performance Index	Mentoring done	No mentoring	Total
Very high	200	50	250
Average	150	50	200
Very low	25	25	50
	375	125	500

5. Illustrate and explain the concept of Kurtosis with suitable diagrams. Also illustrate and explain the concept of skewness and state the formulae for the absolute and relative measures of skewness.

6. A company wants to select a team leader from among the following candidates :

   a) Male, age 40

   b) Male, age 43

   c) Female, age 38

   d) Female, age 29

   e) Male, age 39

   What is the probability that the team leader selected, will be

   1) Either male or aged above 41 years ?

   2) Either female or aged below 35 years.

7. What are non parametric tests ? Discuss with suitable examples the different non parametric tests and state their relevance.

SECTION – B

Answer **any three** questions. **Each** question carries **ten** marks. Answers to theoretical questions should **not** exceed **500** words. **(3×10=30)**

8. Compute the Fisher's ideal index and prove the factor reversal test and time reversal tests. Also compute the cost of living index by the aggregate expenditure and family budget methods for the following data :

Commodity	p_0	q_0	p_1	q_1
Rice	12	20	14	22
Wheat	11	21	12	23
Oil	10	19	11	20
Sugar	9	18	8	21
Fuel	13	20	14	20

9. A film director claims that his movie is liked equally by people of all ages. Using ANOVA and assuming a 5 % level of significance, comment on whether the film director is correct in his assumption or not

Age	Disliked the movie	Neutral	Liked the movie
18 – 30 years	400	450	425
30 – 42 years	375	350	375
43 – 55 years	300	200	100
Above 55 years	225	200	200

10. Write short notes on :

   a) Diagrammatic representation of data (wtith illustrations).

   b) Decision tree and its relevance with an example and illustration.

11. The weekly wages of 2000 workers are normally distributed. Its Mean and Standard Deviation are Rs. 140 and Rs. 20 respectively. Estimate the number of workers whose weekly wages will be

   a) Between Rs. 120 and Rs. 130

   b) More than Rs. 170

   c) Less than Rs. 165

   d) Between Rs. 135 and Rs. 145

   e) Between Rs. 138 and Rs. 150.

SECTION – C

This is a **compulsory** Section.   (1×15=15)

12. In a class of 10 students the marks scored in the subjects of Sociology and Mathematics are listed as below. From the data find

   a) The two regression coefficients

   b) The two regression equations

   c) The most likely marks in Statistics when marks in Economics are 80

   d) The most likely marks in Economics when marks in Statistics are 60

   e) Also find the Correlation Coefficient between them :

Marks in Sociology	85	77	65	51	82	48	91	42	72	58
Marks in Mathematics	77	81	55	62	66	65	88	49	69	70

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