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MPC-006

02526

M.A. IN PSYCHOLOGY (MAPC)

Term-End Examination

June, 2011

MPC-006 : STATISTICS IN PSYCHOLOGY

Time : 2 hours *Maximum Marks : 50*

Note : *Answer **any five** questions. Each question carries **10** marks.*

1. What do you mean by nonparametric statistics ? Discuss the basic assumptions, advantages and disadvantages of nonparametric statistics. **10**

2. Discuss Bivariate Regression. Find out Karl Pearson correlation coefficient between stress and adjustment scores given below. **4+6=10**

Stress score :	2	4	5	6	8	11
Adjustment score :	18	12	10	8	7	5

3. Discuss Spearman's Rank Correlation. Compute Spearman rank-order correlation coefficient between scores on home environment and academic achievement scores given below : **4+6=10**

Home Environment :	110	106	109	82	95	95
Academic Achievement :	68	68	80	63	71	60

4. Define partial and multiple correlation. Obtain the regression equations of x and y from the following data : 5+5=10

X :	4	5	3	2	6	1	7	3
Y :	6	4	0	0	5	2	1	5

5. Discuss the main features of Normal probability distribution. Why is the Normal probability distribution most popular in statistical analysis ? 10

6. Describe t-test and Mann - Whitney U-test. Two independent samples of 8 and 7 items respectively had the following values. Is the difference between means of the two samples significant ? 5+5=10

Sample I : 9 11 13 11 15 9 12 14

Sample II : 10 12 12 14 9 8 10

7. Define chi-square distribution. A questionnaire containing items for testing neurotic symptoms is administered on 50 normal and 75 neurotic persons. Using χ^2 (chi square), find out whether items differentiate normal person from neurotic 4+6=10

	Responses	
	No	Yes
Normal	30	20
Neurotic	60	15

(The critical χ^2 value with 1 df at .05 level = 3.84 and .01 level = 6.64)

8. Describe Kruskal Wallis Analysis of variance. An experimenter is interested in examining the effectiveness of three methods of teaching. A group of 15 subjects were randomly divided into three groups. The scores are given below. Examine whether the three of teaching differed in terms of effectiveness or not ? **4+6=10**

Subjects	Method I	Method II	Method III
1	1	2	4
2	3	0	2
3	2	1	3
4	3	2	4
5	2	1	3

(The critical value of 'F' corresponding to 2 and 12 df at .05 level = 3.88 and at .01 level = 6.93).

9. Discuss significance of difference between the means. There were two groups. Experimental group was trained for stress management while control group was untrained. The following table gives their scores on stress inventory. By using 'U' test examine whether scores differ significantly or not ? **4+6=10**

Experimental Group	Control Group
12	17
13	16
15	14
9	22
8	19
	11

(for $m_1 = 5$, $m_2 = 6$, the probability associated with $U = 4$ is .013)

10. Write Short Notes on ***any two*** of the followings : **5x2=10**

(a) Type I Error

(b) One tail test and two tail test

(c) Yate's correction in chi-square