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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 |

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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 $\chi^2$ (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 $\chi^2$ value with 1 df at .05 level = 3.84 and .01 level = 6.64)

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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)

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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

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**MPC-006**

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# M.A. IN PSYCHOLOGY (MAPC)

## Term-End Examination

## December, 2011

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *Answer **any five** questions. Each question carries **10** marks. Only a simple calculator (but, not a scientific calculator) is permitted.*

**1.** What is parametric statistics ? Describe the basic assumptions and significance of Parametric Statistics. **10**

**2.** From the following data, find Karl Pearson Coefficient of correlation and interpret it. **10**

| X | Y |
|---|---|
| 5 | 1 |
| 10 | 6 |
| 5 | 2 |
| 11 | 8 |
| 12 | 5 |
| 4 | 1 |
| 3 | 4 |
| 2 | 6 |
| 7 | 5 |
| 1 | 2 |

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3. Discuss Rank Correlation and its application. Compute Spearman Rank Correlation coefficient between marks in Statistics and Mathematics. **3+7=10**

| | | |
|---|---|---|
| Marks in Statistics | : | 35 90 70 40 95 40 60 80 80 50 |
| Marks in Mathematics | : | 45 70 65 30 90 40 50 75 85 60 |

4. Define partial and multiple correlation. From the following data obtain the regression equation of X on Y and Y on X. **4+6=10**

| | | | | | |
|---|---|---|---|---|---|
| X : | 1 | 2 | 3 | 4 | 5 |
| Y : | 1 | 3 | 7 | 10 | 9 |

5. Define standard error of the mean and state it's function. The achievement scores of 10 students before and after practice are given below. Using 't' test examine whether practice makes a significant difference in the achievement score. **4+6=10**

| | | |
|---|---|---|
| Before practice | : | 70 65 90 95 80 90 65 75 80 60 |
| After practice | : | 120 80 110 105 110 135 115 82 110 80 |

(The Critical 't' value with df = 9 at .05 level= 2.26, .01 level = 3.25).

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6. Discuss the characteristics of normal distribution. The details of marks obtained by boys and girls on IQ test is given. Is the difference between the mean marks obtained by boys and girls significant ? **5+5=10**

Boys : n = 90, Mean = 50, SD = 12

Girls : n = 100, Mean = 55, SD = 7.5

(Critical value at .05 level = 1.96 and at .01 level = 2.58)

7. Describe chisquare and its distribution. The following table gives the classification of students according to the sex and examination results. Test whether examination result is independent of sex of the student. **5+5=10**

| | Male | Female |
|---|---|---|
| Passed | 30 | 40 |
| Failed | 20 | 10 |

(Critical $\chi^2$ value with 1 df at .05 level = 3.84, and at .01 level = 6.64)

8. What do you mean by Analysis of Variance ? Describe the different steps involved in calculating 'F' for one way analysis of variance. **10**

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**9.** Describe Kendall Rank correlation.

The rank of 12 students' on authoritarianism and social status are given below. Find out Kendall Rank Correlation co-efficient - $\tau$ (tau) for the following data. **4+6=10**

| Authoritarianism | Social Status |
|---|---|
| 2 | 3 |
| 6 | 4 |
| 5 | 2 |
| 1 | 1 |
| 10 | 8 |
| 9 | 11 |
| 8 | 10 |
| 3 | 6 |
| 4 | 7 |
| 12 | 12 |
| 7 | 5 |
| 11 | 9 |

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**10.** Write short notes on ***any two*** of the followings : **5x2=10**

(a) Type II Error

(b) Difference between descriptive statistics and inferential statistics.

(c) Level of significance

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**MPC-006**

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# M.A. IN PSYCHOLOGY (MAPC)

## Term-End Examination

## June, 2012

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

*Note : (i) Answer **any five** questions.*

*(ii) Each questions carries **10** marks*

*(iii) Use of a simple calculator may be **permitted**.*

---

**1.** Compare parametric and non parametric tests. **10**

**2.** Calculate product moment correlation for the following coefficient of scores obtained by students on test A and test B. **10**

| Students | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Test A | 15 | 25 | 20 | 30 | 35 |
| Test B | 60 | 70 | 40 | 50 | 30 |

**3.** Discuss in detail the organization of data in terms of : **10**

(a) Classification of data and

(b) Tabulation of data

**4.** Explain in detail the propertis of normal probability curve. **10**

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5. A study was conducted to examine the effect of three techniques on the stress level of the subjects. Test the difference among the three groups by using Analysis of variance (ANOVA) **10**

| Technique 1 | Technique 2 | Technique 3 |
|---|---|---|
| 3 | 4 | 5 |
| 5 | 5 | 5 |
| 3 | 3 | 5 |
| 1 | 4 | 1 |
| 7 | 9 | 7 |
| 3 | 5 | 3 |
| 6 | 5 | 7 |

- Critical value of F = 19.43 at 0.05 level of significance.
- Critical value of F = 99.44 at 0.01 level of significance.

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6. Discuss in detail significance of mean difference and standard error of the mean. **10**

7. Define chi square distribution and highlight its uses as a test of 'Goodness of fit'. **10**

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8. 100 females and 60 males were asked to select one of the five optional subjects. The choices are given in the table as follows : **10**

| Subjects | Females | Males |
|---|---|---|
| A | 10 | 15 |
| B | 25 | 15 |
| C | 10 | 5 |
| D | 30 | 15 |
| E | 25 | 10 |
| Total | 100 | 60 |

Find wether the choice of the subject depends on the gender of the individuals.

- Critical value of $x^2 = 9.488$ at 0.05 level of significance.
- Critical value of $x^2 = 13.277$ at 0.01 level of significance.

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9. Calculate regression equations for $x$ and $y$ based on the data given as follows : **10**

$x = 4, 5, 4, 6, 3, 2$
$y = 3, 5, 2, 4, 3, 1$

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**10.** A research was conducted to find out the effectiveness of group discussion and lecture method as methods of teaching. Two groups were involved in research group A was given group discussion and group B was given lecture method. With the help of 'U' test examine whether scores differ significantly or not. **10**

Group A : 8, 6, 10, 5
Group B : 9, 7, 11, 8, 12

The critical value for U for $N = 5$ and $N_s = 4$ is 0.008.

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# M.A. IN PSYCHOLOGY (MAPC)

## Term-End Examination

## December, 2012

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *(i) Answer **any five** questions.*

*(ii) Each questions carries **10** marks*

*(iii) Use of a simple calculator may be **permitted**.*

**1.** Discuss in detail parametric tests and highlight their assumptions. **10**

**2.** Calculate rank correlation coefficient for the following scores obtained by employees on Emotional Intelligence [EI] and Leadership [L] **10**

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EI = | 85 | 75 | 70 | 68 | 65 | 60 | 58 | 56 | 55 | 45 | 80 |
| L = | 90 | 74 | 70 | 65 | 64 | 62 | 60 | 48 | 50 | 86 | 82 |

**3.** Explain the concept of hypothesis testing and highlight the errors in hypothesis testing. **10**

**4.** Discuss in detail the setting up of the level of confidence or significance. **10**

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5. A group of individuals obtained following scores on two tests A and B. Calculate regression equations for both the tests. **10**

| | Individuals | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Test A = | 8 | 9 | 12 | 11 | 10 |
| Test B = | 10 | 10 | 20 | 18 | 12 |

6. A research was conducted to find out the effectiveness of three teaching methods namely, lecture method, group discussion and case study method. For this purpose three groups of 10 students each ,were formed and were assigned one of the teaching methods. The performance of the students is given as follows : **10**

| Group 1 [Lecture Method] | Group 2 [Group Discussion] | Group 3 [Case Study] |
|---|---|---|
| 6 | 14 | 10 |
| 10 | 8 | 7 |
| 9 | 19 | 8 |
| 7 | 15 | 6 |
| 10 | 10 | 5 |
| 8 | 11 | 7 |
| 11 | 13 | 9 |
| 11 | 12 | 13 |
| 10 | 9 | 11 |
| 12 | 12 | 8 |

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Using ANOVA find out significance of difference in the performance of three groups.

- Critical values of F = 3.35 at 0.05 level of significance
- Critical values of F = 5.49 at 0.01 level of significance

7. Explain Normal Distribution and highlight its characteristics. **10**

8. The opinions of 90 educated and 100 uneducated persons were taken on a health related attitude scale. The data collected is given as follows : **10**

| | Agree | No. Opinion | Disagree |
|---|---|---|---|
| Educated | 14 | 10 | 66 |
| Uneducated | 27 | 7 | 66 |

With the help of Chi square, find out whether significant difference in opinion exists in terms of the level of education of the persons.

- Critical value of $X^2$ = 5.991 at 0.05 level of significance
- Critical value of $X^2$ = 9.210 at 0.01 level of significance.

9. Define correlation and discuss product moment coefficient of correlation in detail with suitable example. **10**

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10. A researcher wanted to study the stress level of employees in public and private sector organisations. The scores of the employees are given as follows : 10

| Public Sector | Private Sector |
|---|---|
| 116 | 100 |
| 110 | 112 |
| 99 | 116 |
| 112 | 108 |
| 118 | 104 |
| 97 | 105 |
| 110 | 98 |
| 90 | 108 |
| 94 | 121 |
| 115 | 125 |
| | 110 |
| | 117 |
| | 106 |
| | 116 |
| | 118 |
| | 120 |
| $N_2 = 10$ | $N_1 = 16$ |

with the help of 'U' test find out whether scores of the two groups differ significantly or not.

- Critical value of U for
- $N_1 = 16$ and $N_2 = 10$ is 48]

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**MPC-006**

# M.A. IN PSYCHOLOGY (MAPC)

## Term-End Examination

## June, 2013

06283

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

**Note :** *(i) Answer **any five** questions.*

*(ii) Each question carries **10** marks.*

*(iii) Only simple calculator is **allowed.***

1. Differentiate between parametric and non - parametric statistics and discuss advantages to non - parametric statistics. 6+4

2. What do you mean by inferential statistics ? Dicuss advantages and disadvantages of descriptive statistics over inferential statistics. 10

3. Find the correlation between two sets of scores from the following data : 10

| Subjects | X | Y |
|---|---|---|
| A | 15 | 40 |
| B | 18 | 42 |
| C | 22 | 50 |
| D | 17 | 45 |
| E | 19 | 43 |
| F | 20 | 46 |
| G | 16 | 41 |
| H | 21 | 41 |

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4. Write importance of normal distribution. An IQ test was conducted on 500 students of class X. The mean and SD was found 100 and 16 respectively. Find how many students of the class X having IQ below 80 and above 120 . **4+6**

5. What do you mean by hypothesis testing ? Discuss significance of One - Tailed and Two - Tailed hypothesis testing in research . **4+6**

6. Define correlation. In four experiments, the correlations between X and Y were as follows : .60, .20, .70 and .40. The N's were 26, 31, 42 and 35. What is the mean r : the weighted average of these 4r's ? **2+8**

7. Write assumptions of Chi square and calculate Chi square from following : **10**

| | Right | Wrong |
|---|---|---|
| *fo* | 80% | 20% |
| *fe* | 50% | 50% |

8. Four groups of 8 students , each having an equal number of boys and girls were randomly selected and assigned to four different conditions of an experiment. Use ANOVA to test the main effects due to conditions of sex, and the interaction of the two. **10**

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| | Con. | I | II | III | IV |
|---|---|---|---|---|---|
| Boys | | 7 | 9 | 12 | 12 |
| | | 0 | 4 | 6 | 14 |
| | | 5 | 5 | 10 | 9 |
| | | 8 | 6 | 6 | 5 |
| Girls | | 3 | 4 | 3 | 6 |
| | | 3 | 7 | 7 | 7 |
| | | 2 | 5 | 4 | 6 |
| | | 0 | 2 | 6 | 5 |

9. Write short notes on ***any two*** of the following : 5+5

   (a) Characteristics of varience

   (b) Importance of alternative hypothesis

   (c) Importance of standard error of mean.

10. A group of 10 students was given four trials on a test of physical efficiency. The scores on the I and IV trials are given below. Test whether there was a significant gain from the first to the fourth trials. 10

| Students | Trial - I | Trial -IV |
|---|---|---|
| 1 | 15 | 20 |
| 2 | 16 | 22 |
| 3 | 17 | 22 |
| 4 | 20 | 25 |
| 5 | 25 | 35 |
| 6 | 30 | 30 |
| 7 | 17 | 21 |
| 8 | 18 | 23 |
| 9 | 10 | 17 |
| 10 | 12 | 20 |

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**MPC-006**

# M.A. IN PSYCHOLOGY (MAPC)

## Term-End Examination

## December, 2013

## MPC-006 : STATISTICS IN PSYCHOLOGY

00128

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *Answer **any five** questions. Each question carries **10** marks. Only simple calculator is **permitted.***

1. Define statistics and differentiate between descriptive and inferential statistics. **2+8**

2. What do you mean by decision errors ? Discuss applications of one-tailed and two - tailed hypothesis tests in statistics. **6+4**

3. From the following data, find Rank-Difference Coefficient of correlation : **10**

| Student | Score on Test I | Score on Test II |
|---|---|---|
| | X | Y |
| A | 10 | 16 |
| B | 15 | 16 |
| C | 11 | 24 |
| D | 14 | 18 |
| E | 16 | 22 |
| F | 20 | 24 |
| G | 10 | 14 |
| H | 8 | 10 |
| I | 7 | 12 |
| J | 9 | 14 |
| N=10 | | |

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4. Define regression ? Differentiate between linear and multiple regression by citing example. **2+8**

5. Discuss the level of measurement with suitable examples. **10**

6. What do you mean by non-parametric statistics ? Discuss advantages and disadvantages of non-parametric statistics. **2+8**

7. What do you mean by two sample tests ? Write step by step procedure for Wilcoxon test for small sample. **10**

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8. What are assumptions of Analysis of Variance ? Discuss uses and limitations of ANOVA. **4+6**

9. Write short notes on ***any two*** of the following : **10**

   (a) Type I Error

   (b) Level of significance

   (c) Alternative hypothesis

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**10.** Calculate simple regression from the following raw scores. and set up regression for predicting Y from X, and also X from Y. **10**

| X | Y | $X^2$ | $Y^2$ | XY |
|---|---|---|---|---|
| 10 | 12 | 100 | 144 | 120 |
| 11 | 18 | 121 | 324 | 198 |
| 12 | 20 | 144 | 400 | 240 |
| 9 | 10 | 81 | 100 | 90 |
| 8 | 10 | 64 | 100 | 80 |
| 50 | 70 | 510 | 1068 | 728 |
| X | Y | $X^2$ | $Y^2$ | XY |
| | | N = 5. | | |

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**MPC-006**

# M.A. IN PSYCHOLOGY (MAPC)

02012

## Term-End Examination

## June, 2014

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *Attempt any **five** questions. All questions carry equal marks. Use of simple calculator is permitted.*

1. Define Parametric and Non-parametric Statistics. Discuss their advantages and disadvantages. *5+5*

2. Discuss in detail the four major statistical techniques for organising the data. *10*

3. Describe the Hypothesis-testing process. What are the implications if you reject or fail to reject the Null Hypothesis ? *3+7*

4. Delineate the steps in setting up the level of significance. *10*

5. Describe linear and non-linear relationship with suitable examples. *10*

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**6.** Define Product moment coefficient of correlation. Calculate "*r*" for the following data : *3+7*

| | Set X | Set Y |
|---|---|---|
| 1 | 30 | 25 |
| 2 | 35 | 30 |
| 3 | 35 | 35 |
| 4 | 40 | 40 |
| 5 | 45 | 55 |
| 6 | 55 | 50 |
| 7 | 65 | 70 |
| 8 | 50 | 60 |
| 9 | 45 | 45 |
| 10 | 50 | 40 |
| Total | 450 | 450 |

**7.** When do we use Kendall "Tau" ? Find out Tau value for the following data : *2+8*

| Subject | $R_x$ | $R_y$ |
|---|---|---|
| A | 1 | 1 |
| B | 2 | 3 |
| C | 3 | 2 |
| D | 4 | 4 |

**8.** Describe with example, the divergence from Normality (The Non-Normal Distribution). *10*

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**9.** Discuss the procedure involved in Analysis of Variance. Find out the F-value for the following data : *4+6*

| Group A | Group B | Group C |
|---|---|---|
| 4 | 15 | 6 |
| 6 | 20 | 10 |
| 8 | 25 | 12 |
| 10 | 30 | 15 |
| 12 | 35 | 20 |

**10.** Write short notes on any ***two*** of the following : *5+5*

(a) Point estimation and Interval estimation

(b) Type I and Type II errors

(c) Degrees of freedom

(d) Variance

(e) Points to remember while testing the significance of difference in two means.

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# M.A. IN PSYCHOLOGY (MAPC)

## Term-End Examination

## December, 2014

05963

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *Answer **any five** questions. Use of simple calculator is permitted. **All** questions carry **equal** marks.*

**1.** What are the various assumptions underlying Parametric and non-Parametric Statistics ? **10**

**2.** Describe briefly the significance of the difference between the means of two independent samples. Find out whether the two groups differ significantly on the IQ scores given below. **3+7**

| Groups | IQ scores | SD |
|---|---|---|
| A | 120 | 2.0 |
| B | 140 | 6.0 |
| N = 25 | | 25 |

**3.** Differentiate between descriptive and Inferential Statistics with suitable examples. **10**

**4.** State the various forms of graphical presentation of Data. **10**

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5. How do we determine the strength of relationship between two variables ? Find out *Rho* (Spearman's rank correlation) for the following data. **3+7**

| | X | Y |
|---|---|---|
| 1 | 7 | 8 |
| 2 | 11 | 16 |
| 3 | 16 | 14 |
| 4 | 9 | 12 |
| 5 | 6 | 8 |
| 6 | 17 | 16 |
| 7 | 7 | 9 |
| 8 | 11 | 12 |
| 9 | 5 | 7 |
| 10 | 14 | 15 |

6. When do we use partial and multiple correlations ? Write the regression equation for the following. **3+7**

| Academic achievement | Anxiety |
|---|---|
| $x$ | $y$ |
| 1 | 4 |
| 3 | 2 |
| 4 | 1 |
| 5 | 0 |
| 8 | 0 |

7. Elucidate the concept of Normal curve and its properties. **10**

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8. Describe standard error of the mean for large and small sample. **10**

9. When do we use Kruskal Wallis Analysis of variance ? What relevant background information do you require on Kruskal Wallis ANOVA test ? **5+5**

10. Write short notes on **any two** of the following : **5+5**
    (a) Chi-square test
    (b) Skewness
    (c) Variance and Covariance : Building blocks of correlations
    (d) Regression
    (e) one-tail and two-tail test.

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**MPC-006**

# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

00478

## June, 2015

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *All sections are* ***compulsory****. Use of simple calculator be permitted.*

## SECTION A

***Note :*** *Answer any* ***two*** *of the following questions in about 500 words each :* *2×10=20*

**1.** Discuss the graphical and diagrammatic presentation of data. *5+5=10*

**2.** Define Correlation and Regression. Find out if a relationship exists between the two groups of data given below with the help of Spearman's Rank coefficient of correlation. *3+7=10*

Data 1 : 11, 10, 7, 9, 5, 8, 3, 6, 12, 13

Data 2 : 4, 3, 2, 20, 13, 12, 11, 10, 6, 5

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**3.** Define non-parametric statistics. Compute chi-square for the following data : *3+7=10*

| Age group | Attitude towards Tribals | | |
|---|---|---|---|
| | +ve | –ve | |
| 11 – 15 | 25 | 30 | 55 |
| 16 – 20 | 20 | 40 | 60 |
| 21 – 25 | 10 | 20 | 30 |
| 26 – 30 | 35 | 20 | 55 |
| Total | 90 | 110 | 200 |

$\chi^2$ at 0·01 level = 11·345

**4.** Explain the meaning of variance. Three groups of employees were given training for enhancing communication skills. Three different techniques were used. The scores of their performance test are given as follows. With the help of ANOVA, find out whether significant difference exists in their performance. *3+7=10*

| *Group A* | *Group B* | *Group C* |
|---|---|---|
| 6 | 5 | 7 |
| 3 | 5 | 3 |
| 7 | 9 | 7 |
| 1 | 4 | 1 |
| 3 | 3 | 5 |
| 5 | 5 | 5 |
| 3 | 4 | 5 |

Critical value = 0·01, level of significance = 6·01

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## SECTION B

***Note :*** *Answer any* ***four*** *of the following questions in about 300 words each :* *4×6=24*

**5.** Describe the measures of central tendency with hypothetical data. *6*

**6.** Explain regression equation with the help of hypothetical data. *6*

**7.** Calculate Mann-Whitney U-test with the help of the following data : *6*

Data 1 : 37, 62, 71, 65, 66, 45

Data 2 : 42, 61, 70, 63, 72, 47

**8.** Describe the different scales of measurement with suitable examples. *6*

**9.** Discuss the advantages and disadvantages of ANOVA. *6*

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## SECTION C

***Note :*** *Write short notes on any* ***two*** *of the following in about 100 words each :* *2×3=6*

**10.** Type I and Type II errors *3*

**11.** Linear Regression *3*

**12.** Kurtosis *3*

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**MPC-006**

# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## December, 2015

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *All sections are* ***compulsory****. Use of simple calculator is permitted.*

### SECTION A

*Answer any* ***two*** *of the following questions in about 500 words each :* *2×10=20*

**1.** What is hypothesis testing ? Discuss the steps involved in setting up the level of significance with suitable examples. *4+6*

**2.** Define Correlation. Find out if relationship exists between the two data given below with the help of Spearman's Rank coefficient of correlation : *2+8*

Data 1 : 20, 31, 42, 60, 51, 77, 62, 45, 50, 59

Data 2 : 21, 34, 39, 59, 53, 79, 61, 47, 48, 58

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**3.** Differentiate between parametric and non-parametric statistics. Compute chi-square for the following data : *3+7*

For the following question 'Whether cancer is contagious?', the replies given by individuals belonging to low and high Socio-Economic Status (SES) is given below :

| | Response | | |
|---|---|---|---|
| | Yes | No | Total |
| Low SES | 72 | 48 | 120 |
| High SES | 34 | 46 | 80 |

Critical value : 0·01, level of significance = 6·635

**4.** Explain the term variance. A research was carried out to study the effectiveness of three different methods in enhancing mathematical performance of students. The data based on the performance test is given below. Find out if significant difference exists in the performance of the students with the help of ANOVA. *3+7*

| *Group A* (Method 1) | *Group B* (Method 2) | *Group C* (Method 3) |
|---|---|---|
| 6 | 12 | 10 |
| 10 | 9 | 7 |
| 9 | 12 | 8 |
| 7 | 13 | 6 |
| 10 | 11 | 5 |
| 8 | 10 | 7 |
| 11 | 15 | 9 |
| 11 | 18 | 13 |
| 10 | 8 | 11 |
| 12 | 14 | 8 |

Critical value = 0·01, level of significance = 5·49.

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## SECTION B

*Answer any **four** of the following questions in about 300 words each :* 4×6=24

**5.** Differentiate between descriptive and inferential statistics. *6*

**6.** Compute the regression equation with the help of the following data : *6*

X : 7, 6, 10, 7, 10

Y : 9, 7, 10, 4, 5

**7.** Calculate Mann-Whitney U test with the help of the following data : *6*

Data 1 : 20, 27, 30, 31, 32, 25

Data 2 : 26, 33, 40, 36, 28, 21

**8.** Explain divergence in normality with the help of a suitable diagram. *6*

**9.** Discuss the merits and demerits of Two-way ANOVA. *6*

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## SECTION C

*Write short notes on any **two** of the following in about 100 words each :* *2×3=6*

**10.** Levels of Significance *3*

**11.** Linear Relationship *3*

**12.** Degree of Freedom *3*

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**MPC-006**

07892

# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## June, 2016

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *(i) All sections are compulsory.*

*(ii) Use of simple calculator be permitted.*

### SECTION - A

Answer **any two** of the following questions in about **450** words each : **2x10=20**

**1.** Define parametric and nonparametric statistics. Discuss their assumptions. **5+5**

**2.** Describe divergence of normality with suitable diagrams. Explain the factors causing divergence in normal curve. **10**

**3.** A research was carried out to find if significant difference exists in Achievement Motivation Scores obtained by three groups. Using ANOVA, find out if there exists difference in the 3 groups. **10**

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| Group - I | Group - II | Group - III |
|---|---|---|
| 4 | 8 | 7 |
| 4 | 12 | 7 |
| 6 | 14 | 7 |
| 2 | 23 | 8 |
| 4 | 14 | 7 |
| 4 | 25 | 8 |
| 5 | 15 | 9 |
| 2 | 15 | 8 |
| 3 | 14 | 8 |
| 4 | 13 | 6 |

Critical value : 5.49 at 0.01 level of significance
3.35 at 0.05 level of significance

4. Compute regression equation for X and Y based on the data given below : **10**

| Individuals | X | Y |
|---|---|---|
| A | 3 | 2 |
| B | 6 | 4 |
| C | 4 | 7 |
| D | 5 | 9 |
| E | 3 | 11 |
| F | 9 | 12 |

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## SECTION - B

Answer **any four** of the following questions in about **250** words each : **4x6=24**

5. Explain the meaning of descriptive statistics. Discuss its advantages and disadvantages. **2+4**

6. Calculate Mann - Whitney U - test with the help of the following data : **6**
Group 1 : 38, 64, 66, 70, 46
Group 2 : 45, 65, 71, 62, 70, 43

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7. Compute Chi - square for the following data : 6

| Years of Experience | Organisational Citizenship | |
|---|---|---|
| | High | Low |
| 1 - 5 Years | 10 | 15 |
| 6 - 10 Years | 15 | 20 |
| 11- 15 Years | 20 | 13 |

8. Compute Spearman's Rank correlation for the following data : 6

Data 1 : 34, 45, 54, 34, 23, 43, 45, 45, 43, 45

Data 2 : 43, 45, 54, 34, 34, 43, 43, 23, 34, 43

9. Describe Phi Coefficient and Biserial Correlation. 3+3

## SECTION - C

Write short notes on **any two** of the following in about **100** words each : 2x3=6

10. Kendall's Tau 3

11. Wilcoxon Matched Pair Signed Rank Test 3

12. Multiple Correlation 3

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**MPC-006**

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# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## December, 2016

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

*Note : (i) All sections are compulsory.*

*(ii) Use of simple calculator be permitted.*

## SECTION - A

**Note :** Answer **any two** of the following questions in about **500** words each : **2x10=20**

**1.** Discuss the concept of Normal Curve. Describe properties of Normal Probability Curve. **3+7**

**2.** Define Non-parametric Statistics. Describe the assumptions and use of non-parametric tests. **3+7**

**3.** A research was carried out to find if significant difference exists in the self concept of early, middle and late adolescents. The scores obtained on self concept are given below. Using ANOVA indicate if the groups differ on self concept significantly. **10**

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| Group I (Early) | Group II (Middle) | Group III (Late) |
|---|---|---|
| 14 | 8 | 7 |
| 15 | 13 | 5 |
| 13 | 14 | 7 |
| 12 | 22 | 6 |
| 11 | 14 | 8 |
| 10 | 24 | 8 |
| 9 | 12 | 10 |
| 5 | 15 | 8 |
| 3 | 20 | 6 |
| 4 | 15 | 6 |

Critical value : 5.49 at 0.01 level of significance.

3.35 at 0.05 level of significance.

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4. Compute regression equation for X and Y based on the data given below : **10**

| Individuals | X | Y |
|---|---|---|
| A | 2 | 10 |
| B | 7 | 12 |
| C | 8 | 3 |
| D | 3 | 10 |
| E | 5 | 10 |

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## SECTION - B

**Note :** Answer **any four** of the following questions in about **300** words each : **4x6=24**

**5.** Define hypothesis testing. Discuss general procedure for testing a hypothesis with the help of suitable example. **2+4**

**6.** Calculate Mann-Whitney U-test with the help of the following data : **6**

**Group 1 :** 40, 17, 46, 51, 45

**Group 2 :** 12, 18, 20, 15, 17

**7.** Compute Chi-square for the following data : **6**

| Gender | Answers given | |
|---|---|---|
| | Correct | Incorrect |
| Males | 50 | 60 |
| Females | 40 | 30 |

**8.** Compute Spearman's Rank Correlation for the following data : **6**

**Data 1 :** 44, 45, 45, 34, 43, 23, 54, 34, 67, 45

**Data 2 :** 12, 21, 32, 12, 12, 15, 26, 12, 16, 12

**9.** Describe point biserial correlation and tetrachoric correlation. **3+3**

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## SECTION - C

**Note :** Write short notes on **any two** of the following in about **100** words each : **2x3=6**

**10.** Kruskal-Walli's ANOVA Test **3**

**11.** Levels of measurement **3**

**12.** Wilcoxon Matched Pair Signed Ranks Test **3**

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**MPC-006**

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# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## June, 2017

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *(i) All sections are **compulsory.***

*(ii) Use of simple calculator be permitted.*

## SECTION - A

Answer **any two** of the following questions in about 450 words each : 2x10=20

1. Define and differentiate between Parametric and non-parametric statistics. 4+6

2. Explain step by step the calculation of point biserial correlation and phi coefficient and indicate their uses. 5+5

3. Explain linear and non-linear relationship. Find out the degree of relationship between the 2 data given below using Spearman's Rho. 3+7

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Data 1 : | 22 | 23 | 29 | 20 | 25 | 27 | 30 | 34 | 37 | 35 |
| Data 2 : | 35 | 39 | 22 | 40 | 31 | 45 | 30 | 28 | 25 | 20 |

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4. A research was carried out to find the effectiveness of three techniques of stress management. The data collected from three different groups on stress scale are given below. Find out using ANOVA if the obtained differences are significant. **10**

Group A (Technique 1) : 2, 4, 5, 6, 7
Group B (Technique 2) : 3, 2, 3, 2, 4
Group C (Technique 3) : 3, 6, 2, 4, 7
Critical Value : 0.05 level of significance = 19.41
0.01 level of significance = 99.46

## SECTION - B

Answer **any four** of the following questions in about **250** words each : **4x6=24**

5. Describe the four levels of measurement and indicate the data for which they are used. **6**

6. Compute Mann - Whitney U test for the following data : **6**

Data 1 : 10, 24, 14, 15, 30, 17, 29
Data 2 : 20, 12, 16, 18, 36, 38, 50

7. For question 'How often do you exercise ?', the replies given by males and females were categorized as frequently, occasionally, rarely and never. Is there any association between gender and frequency ? **6**

| | Frequently | Occasionally | Rarely | Never |
|---|---|---|---|---|
| Males | 10 | 5 | 4 | 6 |
| Females | 20 | 10 | 3 | 2 |

Critical Value : for 0.01 level of significance = 11.345
for 0.05 level of significance = 7.815

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8. Compute Kendall's tau for the following data : 6

| | A | B | C | D | E |
|---|---|---|---|---|---|
| X | 4 | 7 | 8 | 9 | 3 |
| Y | 3 | 4 | 7 | 8 | 9 |

9. Describe the properties of Normal Probability Curve. 6

## SECTION - C

Write short notes on **any two** of the following in about **100** words each : 2x3=6

10. Errors in Hypotheses testing 3

11. Correlation and Causality 3

12. Interactional effect 3

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# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## December, 2017

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

*Note : All sections are **compulsory**. Use of simple calculator be permitted.*

### SECTION - A

Answer **any two** of the following questions in about **450** words each : **2x10=20**

1. Define nonparametric statistics and discuss its advantages and disadvantages. **3+7**

2. Discuss multiple correlation. Explain partial correlation with suitable example. **3+7**

3. Define correlation. Find out if relationship exists between the data given below with the help of Pearson's Product Moment Coefficient of Correlation. **3+7**

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| **Data 1 :** | 2 | 3 | 4 | 7 | 8 | 9 | 2 | 3 | 4 | 8 |
| **Data 2 :** | 10 | 7 | 8 | 2 | 3 | 1 | 10 | 10 | 7 | 2 |

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4. A research was carried out to find if significant difference exists in motivation of three groups of employees after they received three different training programmes. Compute ANOVA for the data given below : 10

Group A (Training 1) : 2, 3, 2, 3, 5
Group B (Training 2) : 5, 5, 5, 10, 10
Group C (Training 3) : 10, 10, 2, 3, 5
Critical value : 0.05 level of significance = 19.41
0.01 level of significance = 99.46

## SECTION - B

Answer **any four** of the following questions in about **250** words each : 4x6=24

5. Discuss normal curve. Explain divergence from normal distribution, indicating the causes for the same. 2+4

6. Compute Mann - Whitney U test with the help of the following data : 6

**Data 1 :** 13, 16, 40, 47, 56, 70
**Data 2 :** 34, 12, 25, 39, 64

7. Male and female participants responded with strongly agree, agree, undecided, disagree and strongly disagree to a health related attitude questionnaire. The data is given below, compute chi square. 6

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| | strongly agree | agree | undecided | disagree | strongly disagree |
|---|---|---|---|---|---|
| Males | 1 | 4 | 7 | 8 | 5 |
| Females | 3 | 2 | 6 | 4 | 5 |

Critical Value : for 0.01 level of Significance = 13.277
for 0.05 level of Significance = 9.488

8. Compute Kendall's tau for the following data : 6

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| X | 2 | 7 | 1 | 5 | 8 | 10 |
| Y | 4 | 5 | 6 | 8 | 10 | 9 |

9. Explain null hypothesis with an example. Discuss errors in hypothesis testing. 3+3

## SECTION - C

Write short notes on **any two** of the following in about **100** words each : 2x3=6

10. Regression equation. 3

11. Measuring divergence from normal curve. 3

12. Ratio and Interval data. 3

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# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## June, 2018

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *(i) All sections are compulsory.*

*(ii) Use of simple calculator is permitted.*

### SECTION - A

**Answer any two of the following questions in about 450 words each :** 2x10=20

1. **What is inferential statistics ? Discuss in detail Hypothesis Testing.** 3+7

2. **Explain the concept and theoretical base of normal curve. Elucidate the properties of normal probability curve.** 4+6

3. **Define outliers. Compute only Spearman's Rho for the following data :** 2+8

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Data A | 5.0 | 5.9 | 6.0 | 5.7 | 5.6 | 5.5 | 4.9 | 3.6 | 4.0 |
| Data B | 53 | 50 | 49 | 55 | 63 | 60 | 64 | 69 | 70 |

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4 Compute ANOVA for the following data : 10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Group 1 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| Group 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 |
| Group 3 | 2 | 2 | 4 | 4 | 4 | 4 | 2 | 3 | 3 |

Critical value : 19.45 at 0.05 level of significance
99.46 at 0.01 level of significance

## SECTION - B

Answer **any four** of the following questions in about **250** words each : **4x6=24**

5. Discuss classification as a technique for organising the data. 6

6. Compute Mann Whitney U test for the following data : 6
Group A : 54, 76, 80, 69, 68, 52, 42, 49
Group B : 74, 72, 70, 56, 62, 45, 50, 48

7. Compute chi square for the following data : 6

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Responses

| | Agree | Disagree | Total |
|---|---|---|---|
| Male | 20 | 30 | 50 |
| Female | 30 | 70 | 100 |
| Total | 50 | 100 | 150 |

Critical value : 3.841 at 0.05 level of significance
6.635 at 0.01 level of significance

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8. Compute regression equation for X and Y based on the following data : 6

Individuals

| | A | B | C | D | E |
|---|---|---|---|---|---|
| X | 2 | 3 | 2 | 5 | 8 |
| Y | 3 | 2 | 4 | 1 | 10 |

9. Describe various levels of measurement with suitable examples. 6

## SECTION - C

Write short notes on **any two** of the following in about **100** words each : 2x3=6

10. Type I and Type II errors 3

11. Phi Coefficient 3

12. One-tailed and Two-tailed hypothesis tests 3

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# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## December, 2018

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

*Note : (i). All sections are compulsory.*

*(ii) Use of simple calculator is permitted.*

### SECTION - A

Answer **any two** of the following questions in about **450** words each : 2x10=20

1. Differentiate inferential from descriptive statistics. Describe steps in setting up the level of significance. 4+6

2. Discuss the rational for using non-parametric statistics and describe its advantages and disadvantages. 3+7

3. Explain partial correlation. Compute Spearman's Rho for the following data : 3+7

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Data : A | 60 | 54 | 59 | 44 | 49 | 48 | 40 |
| Data : B | 55 | 60 | 69 | 70 | 67 | 66 | 54 |

4. Compute ANOVA for the following data : 10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Group : 1 | 2 | 2 | 3 | 3 | 2 | 4 | 2 | 3 | 2 |
| Group : 2 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| Group : 3 | 3 | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 1 |

Critical value : 19.41 for 0.05 level of significance
99.46 for 0.01 level of significance

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## SECTION - B

Answer **any four** of the following in about 250 words each : **4x6=24**

5. Compute t test for the data given below : 6

Group A : 10, 4, 3, 2, 4, 2, 5, 10, 5, 5

Group B : 4, 6, 8, 2, 9, 1, 12, 13, 10, 10

Critical value : 2.10 at 0.05 level of significance

2.88 at 0.01 level of significance

6. Compute Mann Whitney U test for the following data : 6

Group A : 100, 86, 94, 85, 69, 70, 82, 74, 64, 59

Group B : 96, 92, 90, 84, 80, 78, 76, 65, 62, 50

7. Compute Chi square for the following data : 6

responses

| | Agree | Disagree | Not decided |
|---|---|---|---|
| Male | 20 | 10 | 20 |
| Female | 10 | 20 | 30 |

Critical value :

5.991 at 0.05 level of significance

9.210 at 0.01 level of significance

8. Discuss the importance and application of standard error of mean. 6

9. Discuss factors causing divergence in normal curve. 6

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## SECTION - C

Write short notes on **any two** of the following in about **100** words each : **2x3=6**

10. Point biserial correlation. 3

11. Linear regression. 3

12. Two ways Analysis of Variance. 3

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MPC-006

# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination, 2019

## MPC-006 : STATISTICS IN PSYCHOLOGY

**Time : 2 Hours]** **[Maximum Marks : 50**

**Note :** **All** sections are **compulsory**. Use of simple calculator is permitted.

### SECTION-A

**Note :** Answer **any two** of the following questions in about **450** words each.

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1. Explain descriptive statistics. Describe graphical presentation of data. [3+7=10]

2. Discuss Spearman's rank-order correlation with suitable example. [10]

3. Describe standard error. Compute t test for the following data : [3+7=10]

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Data 1 : | 8, | 4, | 2, | 1, | 6, | 7, | 2, | 3, | 2, | 5 |
| Data 2 : | 10, | 15, | 20, | 21, | 9, | 30, | 31, | 19, | 10, | 15 |

| | |
|---|---|
| Critical value = | 2.10 at 0.05 level |
| | 2.88 at 0.01 leve |

4. What is tetrachoric correlation ? Compute Kendall's tau for the following data : [3+7=10]

| | A | B | C | D | E |
|---|---|---|---|---|---|
| Variable X: | 3 | 1 | 2 | 4 | 5 |
| Variable Y: | 4 | 5 | 3 | 2 | 1 |

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## SECTION-B

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**Note :** Answer **any four** of the following questions in about **250** words each.

5. Explain hypothesis testing. Describe errors in hypothesis testing. [3+3=6]

6. Compute Mann-Whitney U test for the following data :[6]

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 1 : | 32, | 93, | 19, | 40, | 46, | 71, | 63, | 98, | 47, | 49, | 52 |
| Group 2 : | 89, | 21, | 82, | 91, | 85, | 84, | 103, | 101, | 100, | 107, | 110 |

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7. Compute Chi-square for the following data : [6]

Opinion

| | Agree | Undecided | Disagree |
|---|---|---|---|
| Male | 10 | 13 | 11 |
| Female | 15 | 12 | 14 |

8. Discuss the use of non-parametric tests. [6]

9. Explain in detail Wilcoxon matched pair signed rank test with suitable example. [6]

## SECTION-C

**Note :** Write short notes on **any two** of the following in about **100** words each.

10. Semipartial Correlation. [3]

11. Factors causing divergence in normal curve. [3]

12. Meaning of Variance. [3]

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MPC-006

# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination, 2019

## MPC-006 : STATISTICS IN PSYCHOLOGY

Time : 2 Hours

Maximum Marks : 50

**Note :** **All sections** are **compulsory**. Use of simple calculator be permitted.

### SECTION - A

**Note :** Answer **any two** of the following in about **450** words each: [2×10=20]

1. Explain the meaning of inferential statistics. Describe hypothesis testing. [5+5]

2. Discuss in detail partial correlation with suitable example. [10]

3. Describe the basic assumptions in testing of significance of difference between two sample means.Compute t-value for the following data : [4+6]

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Data 1: | 2 | 3 | 4 | 2 | 5 | 3 | 4 | 2 | 2 | 3 |
| Data 2: | 3 | 4 | 5 | 5 | 5 | 2 | 2 | 4 | 4 | 6 |

Critical Value =

2.10 at 0.05 level of significance

2.88 at 0.01 level of significance.

4. Compare between Rho and Tau. Compute Kendall's tau for the following data : [3+7]

| | A | B | C | D | E |
|---|---|---|---|---|---|
| Variable X : | 3 | 2 | 4 | 1 | 5 |
| Variable Y : | 5 | 1 | 2 | 3 | 4 |

## SECTION - B

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**Note :** Answer **any four** of the following questions in about **250** words each : [4×6=24]

5. Explain the meaning and concept of levels of significance. Describe the steps in setting up the level of significance. [3+3]

6. Compute Mann Whitney U test for the following data : [6]

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Group 1 : | 19 | 25 | 17 | 27 | 30 | 16 | 44 | 50 | |
| Group 2 : | 12 | 36 | 10 | 37 | 13 | 46 | 57 | 63 | 70 |

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7. Compute chi-square for the following data : [6]

| | Agree | Disagree |
|---|---|---|
| Males | 12 | 14 |
| Females | 13 | 20 |

8. Define non-parametric statistics and discuss its assumptions. [6]

9. Explain divergence in normality with the help of suitable diagrams. [6]

## SECTION-C

**Note :** Write short notes on **any two** of the following in about **100** words each : [2×3=6]

10. Measures of Dispersion [3]

11. Concept of Normal Curve [3]

12. Kruskal-Wallis ANOVA test [3]

------x------

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**MPC-006**

# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 Hours]* *[Maximum Marks : 50*

**Note:** All Sections are compulsory. Use of simple calculator is permitted.

### Section-A

Answer any two of the following questions in about 450 words each: 2×10=20

1. Define parametric statistics and describe its assumptions, advantages and disadvantages. 3+7

2. Explain linear and nonlinear relationship with suitable diagrams. Discuss the steps in computing Pearson's product moment correlation. 4+6

3. Compute *t* test for the following data: 10

   Group-A 2, 3, 5, 4, 1, 5, 10, 4, 6, 10

   Group-B 7, 10, 5, 8, 4, 6, 12, 13, 2, 3

4. Compute one way ANOVA for the following data and indicate if groups differ on the variable: 10

   | $F$ value = | $P < 0.5$ | $P < 0.1 =$ |
   |---|---|---|
   | | 3.35 | 5.49 |

   Group A : 2, 3, 4, 2, 3, 2, 2, 2, 3, 3

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Group B : 2, 4, 5, 5, 5, 2, 3, 5, 5, 2

Group C : 2, 3, 4, 2, 5, 2, 2, 3, 2, 3

## Section-B

Answer any four of the following questions in about 250 words each. 4×6=24

5. Discuss frequency distribution in terms of grouped and ungrouped data. Elucidate the types of frequency distribution. 4+2

6. Differentiate between partial and part correlation with suitable example. 6

7. Compute Mann Whitney U for the following data:

Group 1 : 23, 21, 7, 14, 10, 13, 25, 29, 48, 55

Group 2 : 20, 8, 15, 9, 45, 12, 40, 47, 50, 51

8. Discuss the step by step procedure for Kendall's Rank Order Correlation. 6

9. Compute Chisquare for the following data:

| | Male | Female |
|---|---|---|
| Literate | 10 | 30 |
| Illiterate | 20 | 40 |

## Section-C

Write short notes on <u>any two</u> of the following in about 100 words each: 2×3=6

10. Sampling error. 3

11. Assumptions underlying the Analysis of Variance. 3

12. Nominal data. 3

—x—

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**MPC-006**

# MASTER OF ARTS (PSYCHOLOGY)

## Term-End Examination

## February, 2021

## MPC-006 : STATISTICS IN PSYCHOLOGY

*Time : 2 hours* *Maximum Marks : 50*

***Note :*** *All sections are* ***compulsory****. Use of simple calculator is permitted.*

### SECTION A

***Note :*** *Answer any* ***two*** *of the following questions in about 450 words each :* *2×10=20*

**1.** Describe measures of central tendency. Elucidate advantages and disadvantages of descriptive statistics. *6+4=10*

**2.** What is Normal distribution ? Discuss its importance and characteristics. *10*

**3.** Compute t test for the following data : *10*

Group A : 2, 3, 4, 5, 2, 7, 5, 4, 3, 2

Group B : 3, 2, 7, 2, 6, 5, 5, 5, 4, 3

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**4.** Compute one-way ANOVA for the following data and indicate if the three groups differ on the variable. *10*

$P < \cdot 05 = 3 \cdot 35$

$P < \cdot 01 = 5 \cdot 49$

Group A : 2, 3, 2, 2, 2, 5, 5, 5, 5, 5

Group B : 3, 3, 3, 2, 2, 4, 4, 4, 2, 2

Group C : 3, 5, 4, 4, 2, 3, 2, 4, 5, 5

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## SECTION B

***Note :*** *Answer any* ***four*** *of the following questions in about 250 words each :* *4×6=24*

**5.** Discuss merits and demerits of Two-Way Analysis Variance. *3+3=6*

**6.** Discuss Point and Interval estimation. *3+3=6*

**7.** Compute Mann-Whitney U test for the following data : *6*

Group A : 7, 18, 20, 34, 23, 28, 27, 48, 43, 55

Group B : 16, 8, 37, 31, 35, 40, 42, 50, 52, 44

**8.** Compare Pearson's 'r' with Kendall's 'Tau'. *6*

**9.** Compute chi-square for the following data. *6*

| | Low socio-economic status | High socio-economic status |
|---|---|---|
| Male | 20 | 25 |
| Female | 60 | 35 |

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## SECTION C

***Note :*** *Write short notes on any* ***two*** *of the following in about 100 words each :* *2×3=6*

**10.** Histogram *3*

**11.** Interactional effect *3*

**12.** Assumptions underlying Regression *3*

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