2021

ECONOMICS (Honours)

Paper Code : V - A & B

[New Syllabus]

Important Instructions for Multiple Choice Question (MCQ)

- Write Subject Name and Code, Registration number, Session and Roll number in the space provided on the Answer Script.

  Example : Such as for Paper III-A (MCQ) and III-B (Descriptive).

  Subject Code : | III | A | & | B |

  Subject Name : | |

- Candidates are required to attempt all questions (MCQ). Below each question, four alternatives are given [i.e. (A), (B), (C), (D)]. Only one of these alternatives is 'CORRECT' answer. The candidate has to write the Correct Alternative [i.e. (A)/(B)/(C)/(D)] against each Question No. in the Answer Script.

  Example — If alternative A of 1 is correct, then write :
  1. — A

- There is no negative marking for wrong answer.

মাল্টিপল চয়েস প্রশ্নের (MCQ) জন্য জরুরী নির্দেশাবলী

- উত্তরপত্রে নির্দেশিত স্থানে বিষয়ের (Subject) নাম এবং কোড, রেজিস্ট্রেশন নম্বর, সেশন এবং রোল নম্বর লিখতে হবে।

  উদাহরণ — যেমন Paper III-A (MCQ) এবং III-B (Descriptive)।

  Subject Code : | III | A | & | B |

  Subject Name : | |

- পরীক্ষার্থীদের সবগুলি প্রশ্নের (MCQ) উত্তর দিতে হবে। প্রতিটি প্রশ্নে চারটি করে সম্ভাব্য উত্তর, যথাক্রমে (A), (B), (C) এবং (D) করে দেওয়া আছে। পরীক্ষার্থীকে তার উত্তরের স্বপক্ষে (A) / (B) / (C) / (D) সঠিক বিকল্পটিকে প্রশ্ন নম্বর উল্লেখসহ উত্তরপত্রে লিখতে হবে।

  উদাহরণ — যদি 1 নম্বর প্রশ্নের সঠিক উত্তর **A** হয় তবে লিখতে হবে :

  1. — A

- ভুল উত্তরের জন্য কোন নেগেটিভ মার্কিং নেই।

Paper Code : V - A

Full Marks : 20 Time : Thirty Minutes

Choose the correct answer.

Each question carries 2 marks.

1. If the A.M. and G.M. of two positive real numbers are 25 and 15 respectively, then their H.M. is —

   (A) 3

   (B) 9

   (C) 1/3

   (D) 1/9

2. Find out the Median from the following terms —

   3, 9, 2, 8, 7, 1, 1, 4, 5, 6, 6, 2, 9, 7, 8, 4, 6

   (A) 6.5

   (B) 6

   (C) 8

   (D) 7

3. Suppose a variable assumes 10 equal values : 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, then their Standard Deviation is equal to —

   (A) 0

   (B) 1

   (C) 5

   (D) – 5

4. Sum of the absolute deviations is minimum when measured about its —

(A) Mean

(B) Median

(C) Mode

(D) None

5. A symmetric distribution has its skewness —

(A) 1

(B) –1

(C) 0

(D) 1/2

6. Find the Range from the set of observations : 3, 5, 8, 2, 7, 5, 9, 6 —

(A) 2

(B) 9

(C) 7

(D) 0

7. Monthly Income of a worker is —

(A) Continuous Variable

(B) Discrete Variable

(C) Attribute

(D) None

8. If b_{xy} = –1.35 and b_{yx} = – 0.6, the value of the Correlation Coefficient is —

(A) 0

(B) 0.9

(C) – 0.9

(D) 0.5

9. If n = 10 and $\sum d^2 = 280$, the Rank Correlation Coefficient is equal to —

(A) – 0.28

(B) 0.28

(C) 0.7

(D) – 0.7

10. The probability of getting an even number in throwing a dice one time is —

(A) 1/6

(B) 1

(C) 1/2

(D) 1/3

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Paper Code : V - B

[New Syllabus]

Full Marks : 80 Time : Three Hours Thirty Minutes

The figures in the margin indicate full marks.

Section - I

[Short Eassy Type Questions]

Answer any *four* questions : 10×4=40

1. (a) Below is the frequency distribution of weights of a group of 50 students of a class.

Weights (in kg)	No. of Students
30 - 35	5
35 - 40	12
40 - 45	10
45 - 50	8
50 - 55	10
55 - 60	5

Draw a Histogram for the distribution. Also find out the cumulative frequencies (less than and more than types) for the distribution.

(b) Define the following : Class Width, Relative Frequency. 6+4

2. (a) If the geometric means of two groups of size N_1 and N_2 are given as G_1 and G_2, then show that the combined group Geometric Mean is :

$$\log G = (N_1 \log G_1 + N_2 \log G_2) / (N_1 + N_2)$$

(b) Show that the Weighted G.M. is unaffected if all the weights are multiplied by a constant. 6+4

3. (a) Prove that the Standard Deviation is independent of change of origin but depends upon change of scale.

   (b) Out of 400 observations, 100 observations have the values all equal to 1 and the rest of the observations are all zero. Find the Mean and S.D. of all the 400 observations taken together. 5+5

4. (a) Calculate the Mean Deviation from the Median of the following data :

   46, 79, 26, 85, 39, 65, 99, 29, 56, 72

   (b) Define Coefficient of Variation. What are its uses? 5+5

5. (a) Find out the first three raw moments and central moments of the following data : 2, 5, 8, 9.

   (b) In a distribution, the difference between the first and third quartile is 2.03 and their sum is 72.7. The Median is found to be 36.18. Find the Coefficient of Skewness. 5+5

6. (a) If three uncorrelated variables X_1, X_2 and X_3 have the same S.D., find the Correlation Coefficient between $(X_1 + X_2)$ and $(X_2 + X_s)$

   (b) If the two variables X and Y satisfy the relationship : $Y = 6X - 5$, find the Correlation Coefficient between the two variables.

7. (a) Define Mutually Exclusive Events and Exhaustive Events.

   (b) Prove that for any two events A and B,

   $P(A \cup B) = P(A) + P(B) - P(A \cap B)$.

   What happens if A and B are mutually exclusive? 4+4+2

8. There are two boxes. One box contains 4 white and 6 red balls. Other box contains 3 white and 7 red balls. Two balls are drawn randomly one from each box. Find the probability that :

   (a) Both the balls are Red.

   (b) One ball is White and one ball is Red.

   (c) Both the balls are of same colour.

   Define Multiplication Theorem of Probability and Independent Events. 6+4

Section - II

[Essay Type Questions]

Answer any *two* questions : 20×2=40

9. (a) If the two regression lines are given as : $4x + y = 52$ and $x + y = 32$. Obtain the Means and Correlation Coefficient.

   (b) Two variables X_1 and X_2 have the variances σ_1^2 and σ_2^2. Determine the value of 'a' such that $(X_1 + aX_2)$ and $\left(X_1 + \sigma_1/\sigma_2 X_2\right)$ are uncorrelated.

   (c) If $u = ax + by$ and $v = ax. by$ and if u and v are uncorrelated, prove that :

   $S_u.S_v = 2abS_x.S_y.\sqrt{1-r^2_{xy}}$

   where S_u, S_v, S_x, S_y are the Standard Deviations of u, v, x and y and r is the correlation coefficient. 5+5+10

10. What is Time Reversal Test and Factor Reversal Test? Show that Laspeyre's Index Number and Paasche's Index Number do not satisfy both the tests but Fisher's Ideal Index Number satisfy both the tests simultaneously. 8+12

11. What is meant by Time Series? Explain the different components of time series. Discuss the Moving Average Method for smoothing time series data. 4+8+8

12. (a) Three perfect coins are tossed together. What is the probability of getting at least one head?

   (b) If a random variable X follows a Poisson distribution such that

   $P(X = 1) = P(X = 2)$. Find the Mean of the Distribution and $P(X = 0)$.

   (c) Prove that the Poisson distribution is a limiting form of Binomial distribution. 5+5+10

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