

2020

## ECONOMICS (Honours)

Paper Code : V - A & B

[New Syllabus]

Full Marks : 100

Time : Four Hours

### 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
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Subject Name : 

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- 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
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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।

Turn Over

**Paper Code : V-A**

Full Marks : 20

Time : Thirty Minutes

Choose the correct answer.

Each question carries 2 marks.

1. The sum of the squares of the deviations of the values of a variable is least when the deviations are measured from:
  - (a) Harmonic mean
  - (b) Geometric mean
  - (c) Median
  - (d) Arithmetic mean
2. If the values of mean, median and mode coincide in a unimodal distribution, then the distribution will be:
  - (a) Skewed to the left
  - (b) Skewed to the right
  - (c) Multimodal
  - (d) Symmetrical
3. The standard deviation is independent of:
  - (a) Change of origin only
  - (b) Change of scale of measurement
  - (c) Change of origin and scale of measurement
  - (d) none of the above
4. If the value of any regression coefficient is zero, then two variables are:
  - (a) Qualitative
  - (b) Correlation
  - (c) Dependent
  - (d) Independent

*Turn Over*

5. When  $b_{xy}$  is positive, then  $b_{yx}$  will be:

- (a) Negative
- (b) Positive
- (c) Zero
- (d) Ones

6. Seasonal variation is a type of periodic movement where the period is:

- (a) More than one year
- (b) Not more than one year
- (c) Equal to one month
- (d) Equal to six months

7. The probability of getting an even number, when a die is thrown once, is:

- (a)  $\frac{2}{3}$
- (b) 1
- (c)  $\frac{5}{6}$
- (d)  $\frac{1}{2}$

8. Suppose that the probability of event A is 0.2 and the probability of event B is 0.4. Also, suppose that the two events are independent. Then  $P(A|B)$  is:

- (a) 0.2
- (b) 0.5
- (c) 0.08
- (d) None of the above.

9. Null and alternative hypotheses are statements about:

- (a) Population parameters.
- (b) Sample parameters.
- (c) Sample statistics.
- (d) It depends - sometimes population parameters and sometimes sample statistics.

*Turn Over*

10. In hypothesis testing, a Type II error occurs when

- (a) The null hypothesis is not rejected when the null hypothesis is true.
- (b) The null hypothesis is rejected when the null hypothesis is true.
- (c) The null hypothesis is not rejected when the alternative hypothesis is true.
- (d) The null hypothesis is rejected when the alternative hypothesis is true.

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*Turn Over*

2020

**ECONOMICS (Honours)****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 answer type Questions)**Answer any *four* questions

10×4=40

1. (a) Prove that the logarithm of G.M of a set of observations is the A.M of logarithm of the observations. (5)
- (b) Find the Median of the following distribution: (5)

Marks	Below 10	Below 20	Below 30	Below 40	Below 50
No. of students	3	8	17	20	22

2. (a) Find the S.D of the first 'n' natural numbers. (4)
- (b) Find Mean Deviation about Median of the following distribution (6)

Weight(lbs)	120-124	125-129	130-134	135-139	140-144	145-149
No. of boys	12	25	28	15	12	8

3. (a) Calculate the coefficient of correlation between the series: (8)

X	360	420	500	550	600	640	680	720	750
Y	100	104	115	160	180	290	300	320	330

- (b) Can the value of the correlation coefficient be zero? Justify your answer. (2)

*Turn Over*

4. (a) Do you think that the regression coefficients  $b_{xy}$  and  $b_{yx}$  can obtain opposite sign? (3)

(b) If the two regression equations are  $X+2Y=5$  and  $2X+3Y=8$ , identify the equations which is X on Y and which one is Y on X. Also find the Mean of X and Y. (7)

5. (a) If  $P(A)=1/3$ ,  $P(B)=1/8$  and  $P(A \cup B)=1/2$  find (5)

i)  $P(A^c \cup B^c)$

ii)  $P(A^c/B)$

(b) The odds in against solving a problem by a student X is 8:6 and the odds in favour of solving that problem by student Y is 14:16, what is the probability that exactly one can solve the problem. (5)

6. The monthly expenditure of 1000 families is given below with mean and median both are Rs. 87.50. Find the missing frequencies: (10)

Expenditure	40-59	60-79	80-99	100-119	120-139
No. of families	50	?	500	?	50

7. Find the regression equations X on Y and Y on X for the following data: (10)

Population	11	14	14	17	17	21	25
Demand	15	27	27	30	34	38	46

8. What is Cost of Living Index (CLI)? Calculate the CLI for the following data: (4+6)

Groups	Index Number	Weight
Food	360	60
Clothing	295	5
Fuel and Light	287	7
House Rent	110	8
Misc.	315	20

*Turn Over*

**Section - II**  
**(Essay answer type Questions)**

Answer any *two* questions.

20×2=40

9. Why Fisher's Index number is called ideal Index number? Verify your statement in respect to the following data: (20)

Items	Year 2010		Year 2020	
	Price	Quantity	Price	Quantity
A	10	18	12	15
B	25	10	32	8
C	30	6	50	5
D	105	4	100	7

10. (a) Show that the Mean of Binomial Distribution is 'np' and Variance is 'npq', where n= no. of trails, p= probability of success and q= probability of failure. (15)

(b) Poisson distribution is used to measure the probability of infinite Discrete Random Variables. Do you agree with this statement? Give reasons to your answer. (5)

11. (a) A business firm receives on an average 2.5 telephone calls per day during the time period 10.00-10.05 am; find the probability that on a certain day the firm receives (5)

i) No call

ii) Exactly four calls

iii) At least one phone call, during the same period. (given  $e^{-2.5} = 0.0821$ )

(b) Calculate from the under noted table the measure of Skewness based on Mean, Median and Standard Deviation: (15)

X	100- 200	200- 300	300- 400	400- 500	500- 600	600- 700	700- 800	800- 900
F	45	88	146	206	79	52	30	14

*Turn Over*



12. (a) For the following series of observations, verify that the 4 - year centered moving average is equivalent to a 5 - year weighted moving average with weights 1, 2, 2, 2, 1 respectively. (12)

Year:	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Annual Sale (Rs in '000)	2	6	1	5	3	7	2	6	4	8	3

(b) The Mean and Standard Deviation of 100 items were found to be 60 and 10 respectively. At the time of calculation: two items were wrongly taken as 5 and 45 instead of 30 and 20. Calculate the correct mean and S.D. (8)