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Reg. No.....

Name.....

B.A. DEGREE (C.B.C.S.S.) EXAMINATION, JUNE 2026

Sixth Semester

Economics

Core Course—QUANTITATIVE ECONOMICS

(2014—2016 Admissions—Mercy Chance)

[For Private Registration Candidates]

Time : Three Hours | Maximum Weight : 25

Instructions : *This question paper contains* **two sections**. *Answer* **Section I** *questions in the answer book provided.* **Section II Internal Examination** *questions must be answered in the* **question paper** *itself. Follow the detailed instructions given under* **Section II**.

Section I

PART A (OBJECTIVE TYPE QUESTIONS)

Answer **all** *questions.*
Each bunch of **four** *questions carries a weight of* 1.

I. Choose the correct answer :

1 Variance is a measure of :

a) Central tendency. b) Dispersion.

c) Probability. d) None of the above.

2 A normal distribution has a skewness of :

a) 0. b) 1.

c) –1. d) Infinity.

3 If two events A and B are independent, then $P(A \cap B)$ is given by :

a) $P(A) + P(B)$. b) $P(A) - P(B)$.

c) $P(A) \times P(B)$. d) None of the above.

Turn over

4 Kurtosis measures :

a) The peakedness of a distribution.

b) The dispersion of data.

c) The symmetry of data.

d) The mean of a dataset.

II. 5 A probability distribution must satisfy which of the following conditions ?

a) $0 \leq P(X) \leq 1$ for all values of X.

b) The sum of all probabilities equals 1.

c) Both a) and b).

d) None of the above.

6 The mean of a binomial distribution with parameters n and p is given by :

a) $np(1-p)$.

b) np.

c) $n(1-p)$.

d) None of these.

7 In a standard deck of 52 playing cards, what is the probability of drawing a red card (heart or diamond) ?

a) 1/2.

b) 1/4.

c) 26/52.

d) 13/52.

8 If two dice are rolled, what is the probability of getting a sum of 7 ?

a) 1/6.

b) 1/12.

c) 1/36.

d) 1/18.

III. 9 What is the expected value of a random variable ?

a) The most likely value of the variable.

b) The largest value the variable can take.

c) The average value of the variable, weighted by its probabilities.

d) The smallest value the variable can take.

10 If two events are mutually exclusive, what is the probability of both events occurring ?

a) 0.
b) 1/2.
c) 1.
d) Cannot be determined.

11 What is the median of the following set of numbers : 7, 5, 9, 3, 11 ?

a) 5.
b) 7.
c) 9.
d) 11.

12 What is the definition of probability ?

a) The ratio of favourable outcomes to possible outcomes.
b) The total number of outcomes.
c) The certainty of an event occurring.
d) The number of impossible outcomes.

IV. 13 What is the probability of getting a head when flipping a fair coin ?

a) 1/2.
b) 1/4.
c) 3/4.
d) 1.

14 For a given dataset, if the mean is 50 and the median is 40, which of the following statements is most likely true ?

a) The distribution is symmetric.
b) The distribution is positively skewed.
c) The distribution is negatively skewed.
d) The distribution is uniform.

15 What is the mean of the following set of numbers : 4, 8, 12 16, 20 ?

a) 10.
b) 12.
c) 14.
d) 16.

16 Which measure of central tendency is most appropriate for categorical data ?

a) Mean. b) Median.

c) Mode. d) Range.

(4 × 1 = 4)

Part B (Short Answer Questions)

Write a short note on any **five** *questions, not exceeding* 50 *words each.*
Each question carries a weight of 1.

17 Lorenz curve.

18 Mode.

19 Scatter diagram.

20 Product rule of differentiation.

21 Kurtosis.

22 Normal distribution.

23 Partial derivative.

24 Random experiment.

(5 × 1 = 5)

Part C (Short Essays)

Write short essays on any **four** *questions, not exceeding* 150 *words each.*
Each question carries a weight of 2.

25 Find median from the following data which shows marks of a group of students :

Marks	:	15-25	25-35	35-45	45-55	55-65	65-75	75-85
No. of Students	:	3	5	12	15	9	9	7

26 Calculate Karl Pearson's correlation co-efficient for the following data :

X	:	6	8	10
Y	:	12	10	202

27 Suppose revenue function of a multi-product firm is $Z = 3x^2 + 2xy + 5y^2$. Calculate the marginal revenues of x and y at $x = 5$ and $y = 3$.

28 Describe Skewness. Examine various types of it and how to measure it.

29 Define Probability. Examine addition and multiplication theorems of probability.

30 Write a short note on binomial distribution. Examine various properties of it.

$(4 \times 2 = 8)$

Part D (Long Essays)

Answer any **two** *questions, not exceeding* 450 *words each.*
Each question carries a weight of 4.

31 Describe arithmetic mean. The marks obtained by 70 students in a class test are given below. Calculate arithmetic mean and standard deviation.

Marks	:	20-25	25-30	30-35	35-40	40-45	45-50	50-55
Frequency	:	10	12	8	20	11	4	5

32 Find the maximum profit that a company can make if the profit function is given by $Z = 41 - 24x - 18x^2$.

33 Calculate two regression lines using the data given below :

X	:	7	3	11	5	9
Y	:	10	12	6	9	8

$(2 \times 4 = 8)$