

(FOR THE CANDIDATES ADMITTED
DURING THE ACADEMIC YEAR 2022-23 ONLY)

SUBJECT CODE **22 UCO 4A5**
REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI
END-OF-SEMESTER EXAMINATIONS : MAY – 2024
B.Com. (AIDED & SF) MAXIMUM MARKS: 50
IV SEMESTER TIME : 3 HOURS

PART – III
BUSINESS MATHEMATICS AND STATISTICS

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. In how many years will Rs. 5000 grow to Rs. 10000 at 12.5% simple interest?
a) 8 Years b) 12 Years c) 20 Years d) 9 Years
2. It is given that at $X = 2$, the function $x^3 - 12x^2 + kx - 8$ attains maximum value, on the interval $[0,3]$, then the value of k is.....
a) 23 b) 34 c) 36 d) 45
3. The median of the data 3,7,2,11,4 and 9 is.....
a) 2.3 b) 3.4 c) 3.6 d) 5.5
4. If we throw two dice simultaneously, what would be the probability that we get a 10 or 11?
a) $2/36$ b) $3/36$ c) $5/36$ d) $4/36$
5. The geometric mean of the two regression co-efficient is
a) $> r$ b) $< r$ c) $= r$ d) cannot determined

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES. (K2)

6. Define the term 'set'.
7. Write the formula for compound interest.
8. Define Mode.
9. Explain independent events.
10. State the methods of finding correlation co-efficient.

(CONTD 2)

SECTION – B

(5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K3)

11. a) Sohan bought a second hand refrigerator for Rs. 2500, then spent Rs. 500 on its repairs and sold it for Rs 3,300. Find his loss or gain per cent.
(OR)
- b) A sum of ` 10,000 is borrowed at a rate of interest 15% per annum for 2 years. Find the simple interest on this sum and the amount to be paid at the end of 2 years
12. a) Find the maximum value of $f(x) = x^3 - 6x^2 + 9x + 15$.
(OR)
- b) The function $f(x) = x^4 - 62x^2 + ax + 9$ is maximum at $x = 1$, then find the value of a.
13. a) The average weight of a group of seven boys is 56 kg. The individual weights (in kg) of six of them are 52, 57, 55, 60, 59 and 55. Find the weight of the seventh boy.
(OR)
- b) Write the merits of median.
14. a) What is the probability of drawing either a king or a queen in a single draw from a well shuffled pack of 52 cards?
(OR)
- b) If A and B are two events such that $P(A) = 1/4$, $P(B) = 1/2$ and $P(A \text{ and } B) = 1/8$, find (i) $P(A \text{ or } B)$ (ii) $P(\text{not } A \text{ and not } B)$.
15. a) Calculate the correlation coefficient of the given data.

x	50	51	52	53	54
Y	3.1	3.2	3.3	3.4	3.5

(OR)

- b) Find the means of X and Y variables and the coefficient of correlation between them from the following two regression equations: $2y - x - 50 = 0$ and $3y - 2x - 10 = 0$.

(CONTD 3)

SECTION – C**(5 X 5 = 25 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.****(K4/K5)**

16. a) Find the compound interest on Rs 48,000 for one year at 8% per annum when compounded half-yearly.

(OR)

- b) At what rate of compound interest per annum, a sum of RS. 1200 becomes Rs. 1348.32 in 2 years?

17. a) What is the value of the function $(x - 1)(x - 2)^2$ at its maxima?

(OR)

- b) Find the maximum value of function $x^3 - 12x^2 + 36x + 17$ in the interval $[1, 10]$.

18. a) (i) Write the limitations of statistics.
(ii) Write the merits and demerits of Arithmetic mean.

(OR)

- b) Find Mode

Wages(in Rs 1000)	10-11	11-12	12-13	13-14	14-15	15-16	16-17
No. of Workers	12	25	19	27	20	16	13

19. a) A bag contains 4 balls. Two balls are drawn at random without replacement and are found to be blue. What is the probability that all balls in the bag are blue?

(OR)

- b) One card is drawn from a deck of 52 cards, well-shuffled. Calculate the probability that the card will (i) be an ace, (ii) not be an ace.

(OR)

20. a) Discuss with an example Partial and Multiple correlation.

(OR)

- b) Find the two regression lines to the data below.

x	10	12	13	12	16	15
Y	40	38	43	45	37	43

Estimate the amount of y when the $x = 20$.