2018

(October)

BUSINESS ADMINISTRATION

(Honours)

(BBAC–102)

(Quantitative Analysis)

Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

PART—A

(*Marks* : 50)

UNIT—I

1. *(a)* What is meant by frequency distribution? 2

(b) The following are the marks obtained by 50 students in a class :

45	75	65	40	30	62	37	43	50	8
9	15	37	42	67	69	35	83	71	76
36	38	15	39	18	4	6	17	19	7
48	27	21	73	25	30	8	41	51	55
28	60	80	64	77	52	45	46	22	79

Formulate a frequency distribution table with a uniform class interval and draw a histogram. 4+4=8

OR

2. *(a)* What are the various measures of dispersion? 3

(b) Calculate the mean deviation from the following data : 7

Marks	*No. of students*
Less than 10	5
Less than 20	13
Less than 30	20
Less than 40	32
Less than 50	60
Less than 60	80
Less than 70	90
Less than 80	100

UNIT—II

3. Find out the coefficient of correlation between the per capita income and the price level from the following data : 10

Per capita income (X) (in ₹)	*Price level* (Y)
360	100
420	104
500	115
556	160
600	280
590	290

(Continued)

OR

4. From the following data, find the two regression lines : 5+5=10

X :	2	4	5	6	8	11
Y :	18	12	10	8	7	5

UNIT—III

5. *(a)* What is a relation in a set? 2

(b) In how many ways can 7 Englishmen and 6 Indians sit in a round table so that no two Indians are together? 4

(c) If ${}^{n}P_{6} = 30\ {}^{n}P_{4}$, find the value of n. 2

(d) If ${}^{9}C_{2r+3} = {}^{9}C_{8-3r}$, find the value of r. 2

OR

6. *(a)* Distinguish between trial and event. 2

(b) What is the classical definition of probability? 2

(c) Three coins are tossed simultaneously. What is the probability that the three coins show *(i)* 3 heads, *(ii)* 2 heads and 1 tail? 1+2=3

(d) From a pack of 52 cards, one card is drawn at random. Find the probability that a card drawn is either a spade or a king. 3

(Turn Over)

UNIT—IV

7. *(a)* Find the value of the following : 4

$$\begin{vmatrix} 2 & 3 & 0 \\ -2 & 1 & 2 \\ 6 & 5 & -1 \end{vmatrix}$$

(b) Solve the following system of equations : 6

$$2x-3y+z=-1$$
$$3x+y-2z=1$$
$$4x-y+z=9$$

OR

8. *(a)* What is an identity matrix? 2

(b) Given

$$A=\begin{bmatrix} 7 & 5 \\ 1 & 3 \\ 8 & 6 \end{bmatrix},\ B=\begin{bmatrix} 4 & 9 & 10 \\ 2 & 6 & 5 \end{bmatrix} \text{ and } C=\begin{bmatrix} 2 \\ 6 \\ 7 \end{bmatrix}$$

Show that $(AB)C = A(BC)$. 8

UNIT—V

9. *(a)* Find the domain and range of the function $f(x)=\sqrt{4-x^2}$. 3

(Continued)

(b) Evaluate the following : 2+2+3=7

(i) $\lim\limits_{x\to 0}\dfrac{(1+x)^3-1}{x}$

(ii) $\lim\limits_{x\to 2}\dfrac{x^2-4}{2x-4}$

(iii) $\lim\limits_{x\to 2}\dfrac{4-x^2}{3-\sqrt{x^2-5}}$

OR

10. *(a)* Find dy/dx of—

(i) $y=\dfrac{1-x}{1+x^2}$;

(ii) $y=\sqrt{\dfrac{1+x}{1-x}}$;

(iii) $2x^2-3xy+y^2=0$. 2×3=6

(b) Find the points of maximum and minimum of the function $y=x^3-9x^2+15x-3$. 4

PART—B

(*Marks* : 25)

UNIT—I

11. Find the median height (in cm) from the following data : 5

158, 161, 152, 156, 151, 153, 160, 157, 165

OR

12. The following are the number of SMS received in a cell phone by a person :

7, 4, 10, 9, 15, 12, 7, 9, 7, 10

Find the standard deviation. 5

UNIT—II

13. State the properties of regression coefficients. 5

OR

14. What is meant by index number? Mention the uses of index number. 2+3=5

UNIT—III

15. *(a)* State De Morgan's law of union and intersection of sets. 2

(b) In a class of 50 students, 35 students take mathematics, 25 take statistics and 20 students take both the subjects. How many students take neither of the two subjects? 3

OR

16. *(a)* In how many ways can the letter of the word 'FRACTION' be arranged, taken all a time? 2

(Continued)

(b) How many words of 2 vowels and 3 consonants can be formed from an alphabet of 5 vowels and 7 consonants, the letters of the words being all different? 3

UNIT—IV

17. What is a singular matrix? Is the matrix

$$A=\begin{bmatrix}1 & 1 & 1\\ 1 & 2 & 3\\ 2 & 3 & 4\end{bmatrix}$$

a singular matrix? Justify your answer. 2+3=5

OR

18. If

$$A=\begin{bmatrix}2 & 0 & 4\\ 6 & 2 & 8\\ 2 & 4 & 6\end{bmatrix} \text{ and } B=\begin{bmatrix}8 & 4 & -2\\ 0 & -2 & 0\\ 2 & 2 & 6\end{bmatrix}$$

find $3A-2B$. 5

UNIT—V

19. *(a)* What is a function? 2

(b) Find for what values of x, the function $y=\dfrac{x^2-5x+6}{x^2-8x+12}$ is undefined. 3

OR

20. Given $p=100-q-q^2$, find the marginal revenue function. 5

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