B.B.A. Part-I First Semester

BBA 105 : Business Mathematics & Statistics

P. Pages : 4 | AT - 1348

Time : Three Hours | Max. Marks : 80

* 0 8 4 1 *

Notes : 1. There are three sections (A, B & C)
2. Section A - 20 marks, Section B - 20 marks, Section C - 40 marks
3. All questions are compulsory.
4. Section B and Section C comprises of short and long questions respectively one each from respective unit having internal choice from the same unit.
5. Show necessary working notes wherever necessary.

SECTION – A

20

Choose an appropriate option.

1. The LCM and GCD of two numbers are 90 and 6 respectively. If one of the number is 18 then find the other number.

a) 15 b) 30
c) 45 d) 60

2. Find the simple interest on Rs. 1,650 at 4% p.a. for 9 months.

a) Rs. 49.5 b) Rs. 495
c) Rs. 4.95 d) Rs. 594

3. Which of the following is a solution for the equation $3x - 2y = -11$

a) (2, -1) b) (5, 2)
c) (-3, 1) d) (4, -1)

4. An amount of Rs. 635 is to be distributed between Sonu and Monu in the ratio 2:3 find their shares.

a) Rs. 255 and 380 b) Rs. 260 and 375
c) Rs. 254 and 381 d) Rs. 250 and 385

5. $\int e^{2x} dx = ?$

a) $\frac{e^{2x}}{2} + e$ b) $e^{2x} + c$
c) $e^{x} + c$ d) $2e^{2x} + c$

6. $\int \cos(ax + b)\, dx = ?$

a) $\frac{\sin(ax + b)}{a} + e$ b) $\frac{-\sin(ax + b)}{a} + e$
c) $\frac{\cos(ax + b)}{b} + e$ d) $\frac{\cos(ax + b)}{b} + e$

7. $\int \text{cosec}^2(2x + b) dx = ?$

a) $\frac{-\cot(2x + b)}{2} + e$ b) $\frac{\cot(2x + b)}{2} + e$
c) $\frac{\cot(2x + b)}{2} + e$ d) $\frac{\cot(2x + b)}{b} + e$

8. $\int \tan x \, dx = ?$

a) $\log |\sin x| + c$ b) $\log \sin x + c$

c) $\log |\cos n| + e$ d) $\log \cos x + c$

9. Tabulation of data is a ----------

a) Need of statistics b) Function of statistics

c) Object of statistics d) (a) and (b) both

10. The number of decile is .....

a) 10 b) 9

c) 100 d) 99

11. The word of 'Statistic' is derived from .....

a) Statistic b) Statista

c) Status d) All of these

12. Given average mean = 20 and mode is 18, find out median.

a) 19.33 b) 20

c) 18.50 d) None of these

13. Range limits can be expressed as ----------

a) $R = H - L$ b) $R = H + L$

c) $\frac{R \times L}{H}$ d) All of these

14. Which of the following is the simplest measure of dispersion ?

a) Mean Deviation b) Standard deviation

c) Quartile Deviation d) Range

15. If lower and upper quartile for a certain data are 20 and 100 respectively, then which of the following is the quartile deviation for the data ?

a) 60 b) 40

c) 80 d) 50

16. If $\sum IW = 8840$, $\sum W = 130$ then cost of living Index number ----------

a) 68 b) 40

c) 30 d) 70

17. When 'r' is more than 0.75 & less than 1, then conclusion is ----------

a) High degree correlation b) Moderate degree

c) Low degree correlation d) Perfect correlation

18. Which one of the following is a formula of Karlpearson's correlation ?

a) $r = \frac{\sum xy}{n.\delta x \times \delta y}$ b) $r = \frac{\sum xy}{x^2}$

c) $r = \frac{\sum xy}{xy}$ d) $r = \frac{\sum xy}{n + x + y}$

19. In a distribution of 36 observations the value of coefficient of correlation is 0.58 what is the value of probable error.

a) 0.0746 b) 0.0788

c) 0.0850 d) 0.0888

20. In correlation first variable is known as ---------- .

a) Subject b) Relative

c) Both d) None of these

SECTION - B

1. The HCF of two number is 12 and their LCM is 72. If the first number is 36, find the other number. 4

OR

Mr. Sanket bought a machine for Rs. 4,80,000 and sold it for Rs. 5,01,600. What was his percentage of profit ?

2. If $x = \phi(t)$ is a differential function of t, then $\int f(x)dx = \int f[\phi(t)] \cdot \phi(t)dt$. 4

OR

Integrate the following with respect to x :-

$\sec^n x \cdot \tan x$.

3. Find out mean from the following data : 4

Marks	No. of Student
10 - 20	8
20 - 30	12
30 - 40	24
40 - 50	40
50 - 60	21
60 - 70	10

OR

What is statistics ?

4. Construct Fisher's Ideal 'Index number from the following information : 4

$\Sigma p_1 q_0 = 8370$ $\Sigma p_0 q_0 = 8180$

$\Sigma p_1 q_1 = 10050$ $\Sigma p_0 q_1 = 9260$

OR

Calculate 'Mean deviation' from the mean of the following data :

Marks	No. of Student
2	2
4	2
6	4
8	5
10	3
12	2
14	1
16	1

5. Number of pairs of observation of 'x' and 'y' series = 1000 4
'x' series standard deviation = 4.5
'y' series standard deviation = 3.6
Summation of product of corresponding deviation of 'x' and 'y' series $(\Sigma dxdy) = 4,800$.
Calculate the co-efficient of correlation between 'x' and 'y' series.

OR

If n = 16, P. E. = 0.085, find out 'r' (co-efficient of correlation)

SECTION - C

1. The compound and the simple interest on a certain principal at the same rate for 2 years are Rs. 53.30 and Rs. 52 respectively. Find the principal and rate of interest. **8**

OR

Solve the following equations :

$12x + 9y = 51$

$36x + 48y = 216$

2. Integrate the following with respect to x : **8**

$\sin \sqrt[3]{x}$.

OR

Evaluate the following $\int_1^2 \frac{dx}{x^2 + 6x + 5}$

3. Find out median, **8**

35 men get wages at the rate of 4.50 Rs.
40 men get wages at the rate of 5.50 Rs.
48 men get wages at the rate of 6.50 Rs.
100 men get wages at the rate of Rs. 7.50 Rs.
80 men get wages at the rate of Rs. 8.50 Rs.
55 men get wages at the rate of Rs. 9.50 Rs.

OR

Find out mode :

Wages in ₹	No. of labour
Above - 10	599
Above - 20	569
Above - 30	529
Above - 40	484
Above - 50	419

4. Find out standard deviation and coefficient of S. D. **8**

Height : 160 161 162 163 164 164 166 168 169 170 in cms.

OR

Find out quartile deviation coefficient of skewness = -0.36

$Q_1 = 8.6$, $M = 12.3$

5. Find out coefficient of correlation : **8**

Income	195	280	238	239	185	165	340	290	339	250
Wages	80	88	95	110	125	128	125	100	105	108

OR

From the following information, find out the value of 'r' and also find out probable error.

$\sum fdx = 26 \quad \sum fdx^2 = 46 \quad \sum fdy = 61$

$\sum fdy^2 = 139 \quad \sum fdxdy = 49 \quad n = 50$

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