Total No. of Questions : 5]

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SEAT No. :

[Total No. of Pages : 4

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F.Y. B.Com (Semester - I)

BUSINESS MATHEMATICS AND STATISTICS - I

(2019 Pattern) (CBCS) (3 Credits)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Use of logarithmic table and calculator is allowed.
- 4) Use of graph paper is allowed.

Q1) a) Answer the following multiple choice questions by selecting correct option (any five): [5]

- i) How much simple interest earned an ₹100 for 6 months at 8% p.a.?
 - a) 8 c) 4 d) 400
- ii) If the payments of an annuity are made at the end of each period is called.
 - a) annuity due b) immediate annuity
 - c) perpetuity (d) status

iii) The purchase price of a perpetuity of ₹ 150 per year at 10% p.a. is

b)

d)

1000

250

350

- a) 150
- c) 15
- iv) The number of shares if the total dividend at 8% on the shares with face value ₹ 10 was ₹ 240 is
 - a) 300
 - c) 200

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If population is homogeneous, then _____ is better method for v) sampling. Simple random sampling a) b) Stratified **Systematic** c) d) two stage Range in the data set 8, 10, 20, 9, 15, 10, 13, 28, is vi) 8 a) 28b) c) 20d) 0.55 The mode of the data 2, 8, 9, 9, 17 is vii) 9 b) <u>a</u>` 17 d) State whether the following statements are True or False. (Any Five)[5] b) i) A simple interest is depends only on period ii) > EMI means equated monthly installment. Preferred shares are guaranteed cash dividends. iii) The mid point of class interval between 10 and 11 is 10.5. iv) For a sample at least 50% of population required. v) If a data a having coefficient of variation is 50 standard deviation is vi) 20 then mean of data is 40. The median of the data 14, 9, 15, 8, 12 is 12. vii) **02**) Attempt any four of the following : [20] How long will it take for ₹ 3000 to amount to ₹ 3300 at 4% p.a. a) simple interest? Find the difference between compound and simple interest on ₹ 500 For b) 💧 2 years at 10% p.a. (compounded yearly). Find the sum will amount to ₹ 4000 in 3 years at 6% compound interest. c) Suresh purchase a car for ₹ 10,00,000 on installment basis under equal d) 24 monthly installments at 12% p.a. Find EMP by reducing method. Find the amount of annuity of ₹ 400 payable quarterly for 3 years at 16% e) p.a. Explain the terms sinking fund and simple annuity. f)

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- Q3) Attempt any two of the following :
 - What is dividend? Explain cash dividend and stock dividend. a)
 - Ramrao invested ₹ 2,50,000 in a mutual fund scheme with entry load of **b**) 1% and exist load 2% (for 3 years). He had to redeem all the units after 2 years when net asset value had dropped to ₹2,30,000 In the mean while, he has received a dividend of \gtrless 15,000 what is his gain or loss percent?
 - Two companies have shares of 12% at 134 and 16% at 135. In which of c) the shares would the investment be more profitable?
- Q4) Attempt any two of the following:
 - Define statistics. Write the scope of statistics in Industry and Economics. a)
 - What is data collection? Write the methods of data collection. b)
 - Explain SRSWOR and draw all possible SRSWOR of size 2 from the c) observations 3, 4, 7, 9, 11 and 14,
- Q5) Attempt any Four of the following.
 - For the frequency distribution given belo a)

Daily sales		7		
(in thousands Rs.)	10-20 20-30	30-40	40-50	50 & above
No.of shops	2 23	47	10	8

Find

- i) Class width of second class.
- State open end class. ii)
- State type of classification iii)
- Form less than cumulative frequency distribution. iv)
- How many shops have sales less than 30,000 v)
- Draw more than ogive curve for the following frequency distribution. b)

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No.of students	3	9	15	30	18	5
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[10]

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c) Compute the mode of the following frequency distribution.

Daily			\succ			
Wages (₹)	50-100	100-150	150-200	200-250	250-300	300-350
No.of Workers	5	15.	25	18	12	5
		0.,	•	•	•	•

- d) Find the arithmetic and geometric mean of 2, 4, 8, 16, 32.
- e) Two workers on the same job shows the following results over a long period of time.

	Worker A	Worker B
Mean time of completing job	30	25
(in minutes)	X	
Standard deviation	06)	04

i) Which worker appears to be more consistent in the time he requires to complete job? Why?

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- ii) Which worker is faster in completing the job? Why?
- f) Define range and standard deviation, state the formula for each encase of ungrouped data.