Total No. of Questions : 5]

SEAT No. :

P2846

[Total No. of Pages : 4

[5801] - 104

First Year B.Com.

114 A : BUSINESS MATHEMATICS AND STATISTICS - I

(Semester - I) (2019 Pattern) (CBCS) (Credits - 3)

Time : 2½ 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): **[1 each]**

i) How much simple interest earned on ₹10,000 at 10% p.a. for 3 years?

a) 100 b) 300

c) 1000 d) 3000

ii) When the series of payment is equal then it is called as ______.

a) perpetuity b) immediate annuity

c) simple annuity d) annuity due

iii) If the face value and market value are equal then it is called as ______.

a) Bonus b) Dividend

c) at Par d) Net Asset Value (NAV)

iv) The market value of ₹100 share is ₹140 share, Mr. Akash buys such 300 shares, find his investment.

a) ₹ 30,000 b) ₹ 40,000

c) ₹ 42,000 d) ₹ 14,000

v) If population is homogeneous then which sampling method is better for selecting sample.

a) Systematic b) Stratified

c) two-stage d) Simple Random Sampling (SRS)

P.T.O.

vi) Find mode of the following data:

16, 5, 10, 8, 10, 8, 12, 8, 13.

a) 10 b) 12

c) 8 d) 16

vii) Find standard-deviation (s.d.) of the following data:

(3, 3, 3, 3, 3).

a) 3 b) 5

c) 0 d) 15

b) State whether the following statements are true or false (any five): **[1 each]**

i) When interest is calculated on the amount in the previous year, it is called as compound interest.

ii) When the payments are made at the end of each period such an annuity is called perpetuity.

iii) The dividend which is declared between two annual general meetings is known as interim dividend.

iv) The N.A.V. represents market value of a unit of the fund.

v) The entire population is divided into several homogeneous groups called as strata.

vi) If each value in a data set of observations is doubled, then median of the new series is not changed.

vii) If each value in a data set of observations is doubled, then variance of the new series is also doubled.

Q2) Attempt any four of the following: **[4×5=20]**

a) Define the following terms:

Principal, Term, Amount, EMI, Present value.

b) What sum will amount to ₹ 3296 in 4 months at 9% p.a. on simple interest?

c) A machine depreciates each year by 10% of its value at the begining of the year, at the end of the 4th year its value is ₹ 65,610. Find its original cost.

d) Find the amount of ₹ 800 annuity payable quarterly for 3 years at 16% p.a.

e) Find the present value of immediate annuity of ₹ 67 per month for 3 years at 8% p.a.

f) Calculate EMI for ₹ 2,00,000 at 5% flat rate over 10 years.

Q3) Attempt any two of the following: **[2×5=10]**

a) What is dividend? Explain annual dividend and interim dividend.

b) A trading company pays dividend at 7%. What is the market value of its stock so that, there may be 6% net income after giving income tax at 6%.

c) If NAV was ₹144 at the end of the year with 12.5% increases during the year. Find NAV at the begining of the year.

Q4) Attempt any two of the following: **[2×5=10]**

a) Explain the procedure fo drawing SRSWR and SRSWOR, with an illustration.

b) State the advantages of sampling over census.

c) In a population of size N=8, the observations were 2, 4, 7, 9, 11, 0, 25, 14. Draw all possible SRSWOR of size 2.

Q5) Attempt any four of the following: **[4×5=20]**

a) Following is a frequency distribution of 100 shops according to daily sales in a super market on a particular day.

Daily sales (in'000 ₹)	10-20	20-30	30-40	40-50	50-60	60 and above
No.of shops	12	27	39	-	7	5

Find i) The missing frequency.

ii) Form the less than cumulative frequency distribution.

iii) Is there any open-end class? If yes state it.

iv) How many shops have sales more than ₹ 40,000.

v) State type of classification.

b) Draw histogram for the following data. Hence obtain its mode graphically.

Marks	0-20	20-40	40-60	60-80	80-100
No.of students	9	25	40	30	10

c) Average monthly sales of certain departmental store for first 11 months was ₹ 56,000. Due to repair and renewal of shop in the last month the average sales dropped down to ₹ 8,000.

Find the average monthly sales in the year.

d) Obtain median for the following data.

Dividend %	10-15	15-20	20-25	25-30	30-35
No.of companies	10	20	15	5	2

e) Define: Range and standard deviation (s.d.) state the formula for each in case of ungrouped data and frequency distribution.

f) Information regarding monthly salaries of workers of two Companies A and B is given below:

	Company A	Company B
No.of Workers	60	90
mean salary	₹12,000	₹15,000
S.D.of salary	₹100	₹120

Which company has less variation in salaries?