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**BBABMC 234**

III Semester B.B.A. Degree Examination, April 2021
(2020-21 Batch Onwards)
(Choice Based Credit System)
BUSINESS STATISTICS AND MATHEMATICS

Time : 3 Hours

Max. Marks : 80

- Instructions :** 1) *Non-programmable calculators may be used.*
2) *Logarithm tables will be provided on request.*
3) **Provide working notes wherever necessary.**

SECTION – A

Answer **any 4** questions. **Each** question carries **4** marks.**(4×4=16)**

1. Explain the methods of collecting primary data.
2. Explain the components of a time series with one example.
3. Prepare a blank table to show the distribution of students strength of colleges X, Y and Z according to gender and three faculties (Commerce, Arts and Science).
4. The profit made by 130 firms in a year are as follows. Find the arithmetic mean.

Profit ('00000 Rupees)	Number of firms
1 – 2	5
2 – 3	27
3 – 4	36
4 – 5	28
5 – 6	20
6 – 7	11
7 – 8	3

5. Calculate simple interest and compound interest on ₹ 15,000 for 3 years at 8% p.a.

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6. Find the equated due date for the following bills :
 ₹ 6,000 due on 12th June
 ₹ 7,000 due on 24th July
 ₹ 4,580 due on 17th August

7. From the following data, find the likely value of x when y is 36 :

	X	Y
Mean (\bar{X})	14.1	27
S.D. (σ)	0.9	3

Coefficient of correlation (r) = - 0.6.

SECTION – B

Answer **any 4** questions. **Each** question carries **8** marks.

(4×8=32)

8. Explain the different types of classification.

9. Calculate mean deviation from median :

Wages (₹)	Workers
40 – 60	12
60 – 80	47
80 – 100	31
100 – 120	08
120 – 140	02
140 – 160	03

10. Calculate the coefficient of Spearman's rank correlation :

x	y
18	83
28	51
35	34
44	34
35	34
26	28
37	46
48	47



11. Calculate the trend values by finding four yearly moving averages for the following time series :

Year	Sales (Thousands)
2010	29
2011	27
2012	26
2013	26
2014	24
2015	25
2016	22
2017	24

12. a) 60 men work for 7 days earn ₹ 50,400. How many men should work for 9 days to earn ₹ 75,600 ? 4
- b) Find present value of perpetuity due of ₹ 6,000 at 15% p.a. 4
13. A bill with face value ₹ 3,000 due after 3 months. It is discounted through a bank at 15% p.a. Calculate true discount, banker's discount and banker's gain.
14. What is the future value and present value of an annuity immediate of ₹ 3,000 for 4 years at 3.5% p.a. compound interest ?

SECTION – C

Answer any 2 questions. Each question carries 16 marks. (2×16=32)

15. Calculate Karl Pearson's coefficient of correlation :

$x \backslash y$	20 – 30	30 – 40	40 – 50	50 – 60
10 – 15	10	10	–	–
15 – 20	–	20	8	–
20 – 25	–	10	25	6
25 – 30	–	–	7	4



16. The following are the percentage marks in Mathematics and Statistics of 10 students.

Mathematics	Statistics
75	82
80	78
93	86
65	72
87	91
71	80
98	95
68	72
89	89
77	74

- a) Find the two regression equations.
 b) Find the expected marks in statistics of a student who has scored 75% in Mathematics.
17. The following are the figures of production in a sugar factory :

Year	Production (Tons)
2014	40
2015	43
2016	42
2017	39
2018	40
2019	37
2020	35

- a) Fit a straight line trend by the method of least squares.
 b) Estimate the production for the year 2022.
18. The following are the distribution of monthly pay of workers of two factories :

Monthly Pay (₹)	Factory A	Factory B
400 – 600	4	10
600 – 800	18	20
800 – 1000	25	42
1000 – 1200	2	18
1200 – 1400	1	10

- i) Which factory pays higher average salary ?
 ii) In which factory is salary variation more ?