Reg. No. | | | | | | | | | | | |

**BCMCMCS 101**

# I Semester B.Com. Degree Examination, December 2024/January 2025
## (SEP) (2024 – 25 Batch Onwards)
## QUANTITATIVE TECHNIQUES – I

Time : 3 Hours

Max. Marks : 80

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### SECTION – A

Answer **any four** of the following : **(4×4=16)**

1. Define Statistics in singular and plural sense.
2. A person deposited Rs. 6,200 on June 20, 2024. It amounted to Rs. 6,250 on October 12, 2024 at simple interest. Find the rate of interest.
3. Average weight of a basket of apples is 75 Kgs. A basket of 35 apples is mixed with another basket of 45 apples. In the mixture, average weight is found to be 68 kgs. Find the average weight of first basket of apples.
4. Find the LCM of 28, 42 and 64 by factorization method.
5. What is meant by index number ? Mention the uses of index number.
6. Calculate Range and Coefficient of Range for the following data

| **Marks** | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 |
|---|---|---|---|---|---|
| **No. of Students** | 10 | 15 | 28 | 32 | 40 |

### SECTION – B

Answer **any four** of the following : **(8×4=32)**

7. What is meant by Primary data and Secondary data ? Also, mention the various types of variables with one example each.
8. a) The catalogue price of an article sold is Rs. 89,000. The trade discount and cash discount are 10% and 5% respectively. Find out the net cash price of the article sold. **5**

   b) A man bought two bicycles for Rs. 2,500 each. If he sells one at a profit of 5%, then how much should he sell the other so that he makes a profit of 20% on the whole ? **3**

**P.T.O.**

9. Calculate Q.D. and its Co-efficient for the following data.

| Marks | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 – 60 | 60 – 70 | 70 – 80 |
|---|---|---|---|---|---|---|---|---|
| No. of Students | 10 | 15 | 28 | 32 | 40 | 35 | 26 | 14 |

10. Simplify $\frac{2^n.4^{n-1}.8^{n+1}}{16^{2n}.32^{-n}}$.

11. From the following data compute weighted average price relative index.

| Commodities | Quantity | Price in 2023 (Rs.) | Price in 2024 (Rs.) |
|---|---|---|---|
| A | 12 | 10 | 16 |
| B | 10 | 20 | 25 |
| C | 20 | 5 | 8 |
| D | 1 | 7 | 14 |

12. Calculate mean and median for the following data.

| Cl : | 0 – 9 | 10 –19 | 20 – 29 | 30 – 39 | 40 – 49 | 50 – 59 | 60 – 69 |
|---|---|---|---|---|---|---|---|
| f : | 4 | 7 | 12 | 17 | 15 | 10 | 5 |

## SECTION – C

Answer **any two** of the following : **(16×2=32)**

13. a) Explain the steps involved in the construction of index numbers. **10**

    b) A man borrowed Rs. 4,500 for 9 years at compound interest, if the rate of interest is 4% p.a. for the first 2 years, 4.5% p.a. for the next 3 years and 5% p.a. for the last 4 years. How much does he repay at the end of 9 years ? **6**

14. From the following data compute Mean, Median and Mode.

| X | F |
|---|---|
| Less than 10 | 8 |
| Less than 20 | 12 |
| Less than 30 | 30 |
| Less than 40 | 50 |
| Less than 50 | 71 |
| Less than 60 | 87 |
| Less than 70 | 95 |
| Less than 80 | 100 |

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15. The following are the runs made by two cricketers in 10 innings.

| Innings | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Cricketer A | 31 | 48 | 13 | 51 | 38 | 43 | 50 | 36 | 47 | 82 |
| Cricketer B | 51 | 5 | 12 | 83 | 37 | 112 | 42 | 18 | 79 | 20 |

Find out :

a) Which of the two cricketers is better scorer ?

b) Which of them is more consistent ?

16. From the following data, compute Fisher's ideal index and prove that time reversal test and factor reversal test are satisfied by Fisher's ideal formula of index number.

| Commodity | Base Year | | Current Year | |
|---|---|---|---|---|
| | Price | Quantity | Price | Quantity |
| A | 6 | 50 | 10 | 56 |
| B | 2 | 100 | 2 | 120 |
| C | 4 | 60 | 6 | 60 |
| D | 10 | 30 | 12 | 24 |
| E | 8 | 40 | 12 | 36 |

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