

Ques Setter	
Moderator	
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Subject Code:

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[N.B. – Answer all the questions. Each question carries ONE mark. Block fully, with a black ball-point pen, the circle of the letter that stands for the correct/best answer in the “Answer sheet” for the Multiple Choice Questions Examination.]

Candidates are asked not to leave any mark or spot on the question paper.

1. Which measure is suitable for open-ended distribution?
(a) Median (b) Mode (c) Geometric Mean (d) Arithmetic mean
2. How many measure of central tendency are there?
(a) 2 (b) 3 (c) 4 (d) 5
3. An equation is: $y = 5x + 9$. If $\bar{x} = 20$, what is \bar{y} ?
(a) 100 (b) 209 (c) 109 (d) 29
4. For two non-zero positive numbers, the harmonic mean is 8 and the geometric mean is 12. What is the arithmetic mean?
(a) 16 (b) 18 (c) 20 (d) 22
5. Find the mode of the following frequency distribution:

Value	2	3	4	5	6
Frequency	3	5	2	7	1

(a) 3 (b) 5 (c) 6 (d) 5
6. The arithmetic mean of a variable is 2.6. What is the first raw moment around 6?
(a) 2.2 (b) -3.4 (c) 0.1 (d) 1.8
7. In a symmetric distribution–
i. Frequencies of higher values are lower
ii. Frequencies of low values are higher
iii. Frequencies of low values are lower
Which one is correct?
(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii
8. $\beta_2 = 1$ implies data are–
(a) Leptokurtic (b) Platykurtic (c) Mesokurtic (d) Symmetric
9. In a box and whisker plot, the following statements hold true:
i. The length of the box represents the interquartile range (IQR).
ii. The whiskers extend from the minimum to the maximum data values.
iii. The median is represented by the top of the box.
Which one is correct?
(a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii
10. The following values represent the quartiles of a data set: $Q_1 = 25, Q_2 = 50, Q_3 = 75$
What is the interquartile range (IQR)?
(a) 25 (b) 50 (c) 75 (d) 100
11. The relationship between β_2 and γ_2 is –
(a) $\beta_2 = \gamma_2 - 3$ (b) $\gamma_2 = \beta_2 - 3$ (c) $\gamma_2 = 3\beta_2$ (d) $\gamma_2 = \frac{\beta_2}{3}$

12. The first raw moment around 3 of a data set is 18. What is the arithmetic mean of the data?
- (a) 6 (b) 17 (c) 28 (d) 21
13. Which of the following is an example of cyclic variation in a time series?
- (a) Boom and recession phases in an economy
 (b) Increase in electricity consumption during summer
 (c) High demand for umbrellas during the rainy season
 (d) Sudden decline in stock prices due to a pandemic

Answer the next THREE questions based on the following information

Year	2015	2016	2017	2018	2019	2020	2021	2022
Average Temperature (°C)	22.5	23.0	24.2	24.5	25.0	25.5	26.0	27.0

Table 1: Source–National Weather Service

14. What is the second value of the semi-average method?
- (a) 25.75 (b) 26.00 (c) 25.88 (d) 24.29
15. What kind of trend do the data show?
- (a) Upward (b) Downward
 (c) Both upward & downward (d) No trend
16. Which component of the time series is most prominent in the data?
- (a) Seasonal Variation (b) General Trend (c) Irregular Variation (d) Cyclic Variation
17. In additive model, in the long run, $\sum R_t =$ –
- (a) 0 (b) 1 (c) Undefine (d) Infinity
18. If $\sum (x_i - a)^2$ is minimized, then the value of a is:
- (a) \bar{x} (b) 0 (c) Median (d) Mode
19. Which is not a function of statistics?
- (a) Data collection (b) Data organization (c) Analysis (d) Database creation
20. Which of the following is an example of a finite population?
- (a) Books in a school library (b) Stars in the universe
 (c) Grains of sand on a beach (d) Atoms in the atmosphere
21. Classifying students based on their grades (A, B, C, etc.) represents which measurement scale?
- (a) Nominal (b) Ordinal (c) Interval (d) Ratio
22. Given $\sum_{i=1}^{10} a_i^2 = 40$ and $\sum_{i=1}^{10} a_i = 20$, find the value of $2 \sum_{i=1}^{10} a_i^2 - 3 \sum_{i=1}^{10} a_i + 60$.
- (a) 70 (b) 100 (c) 80 (d) 50
23. In Bangladesh, a census is usually done every – years
- (a) 20 (b) 15 (c) 10 (d) 12

Answer the next two questions based on the following information

$$X = 3, 5, 7, 10$$

24. Find $\sum (X_i + 3)$
- (a) 28 (b) 32 (c) 37 (d) 40
25. $\sum (X_i - 5)^2$
- (a) 16 (b) 33 (c) 12 (d) 8

Answer Key

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|--------------------|---|-----------------------------------|
| 1. (b) Mode | 10. (b) 50 | 19. (d) Database creation |
| 2. (d) 5 | 11. (b) $\gamma_2 = \beta_2 - 3$ | 20. (a) Books in a school library |
| 3. (c) 109 | 12. (d) 21 | 21. (b) Ordinal |
| 4. (b) 18 | 13. (a) Boom and recession phases in an economy | |
| 5. (d) 5 | 14. (c) 25.88 | 22. (c) 80 |
| 6. (b) -3.4 | 15. (a) Upward | 23. (c) 10 |
| 7. (b) i and iii | 16. (b) General Trend | 24. (c) 37 |
| 8. (b) Platykurtic | 17. (a) 0 | 25. (b) 33 |
| 9. (a) i and ii | 18. (a) \bar{x} | |