

Student Name:

Date:

SEQUENCE AND SERIES

I. Multiple Choice Questions

Select and write one most appropriate option out of the four options given for each of the questions 1–5.

- The standard deviation of some temperature data in °C is 5. If the data were converted into °F, the variance would be
(a) 81 (b) 57
(c) 36 (d) 25
- If $\operatorname{cosec} A + \cot A = 11/2$, then $\tan A$ is equal to
(a) $21/22$ (b) $15/16$
(c) $44/117$ (d) $117/43$
- What does a couple produce in rigid motion?
(a) Pure rotation (b) Pure translation
(c) Rotation and translation (d) No motion
- If 91% of A is 39% of B, and B is $x\%$ of A, then the value of x is:
(a) $\frac{200}{3}$ (b) $\frac{700}{3}$
(c) $\frac{400}{3}$ (d) $\frac{500}{3}$
- With the help of ruler and compasses, which of the following is not possible to construct?
(a) 70° (b) 60°
(c) 135° (d) 160°

II. Fill in the Blanks Type Questions

Fill in the blanks with a suitable word for each of the questions 6–10.

6. The number 4096 is which term in the following Geometric sequence 2, 8, 32, 128, _____.
7. The standard deviation is _____ to the mean deviation taken from the arithmetic mean.
8. If 40% of x is 150, then x is _____.
9. If x and y are complementary angles, then _____.
10. A quadratic and linear system can be represented by a line and a parabola in the _____.

III. True or False

State whether the following statements are true or false for each of the questions 11–15.

11. List the next 3 terms of the geometric sequence
 $\frac{1}{2}, \frac{3}{2}, \frac{9}{2}, \dots \rightarrow \frac{27}{2}, \frac{81}{2}, \frac{243}{2}$
12. If the perimeter of an isosceles triangle is 11 cm and its base is 5 cm, its area is $\frac{5}{4}\sqrt{11}$ cm².
13. Every fraction is a rational number.
14. Plains are useful because they are rich in mineral deposits.
15. Bearings show whether lines are going north, south, east or west.

IV. Very Short Answer Type Questions

Answer each of the questions 16–20.

16. Find the 10th and n th term of the sequence 4, 9, 14, 19,

17. If the bearing of Y from X is 120° , find the bearing of X from Y.

18. Find the 30th and n th term of the sequence 4, 9, 14, 19,

19. A Senior Football Club in Liberia has thirty members. Their ages are given below. Make a frequency distribution table for it.

20. Solve $4x^2 + 32x - 8 = 0$ graphically.

V. Short Answer Type Questions

Answer each of the questions 21–25.

21. A farmer buys a used tractor for ₹ 1,20,000. He pays ₹ 60,000 cash and agrees to pay the balance in annual instalments of ₹ 5,000 plus 12% interest on the unpaid amount. What will the tractor cost him?

- 22.** A carpenter was hired to build 192 window frames. The first day he made 5 frames and each day, thereafter he made two more frames than he made the day before. How many days did it take him to finish the job?

- 23.** A man accepts a position with an initial salary of L\$ 5,200 per month. It is understood that he will receive an automatic increase of L\$ 320 in the very next month and each month thereafter.

- (i) Find the salary for the 10th month.
 - (ii) What is his total earnings during the first year?
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- 24.** Nidhi Gupta writes letters to five of her friends. She asks each of them to copy the letter and mail to five different persons with the request that they continue the chain similarly. Assuming that the chain is not broken and that it costs 15 paise to mail one letter, find the total money spent on postage till the 6th set of letters is mailed.

- 25.** A manufacturer reckons that the value of a machine which costs him L\$ 15,625 will depreciate each year by 20%. Find the estimated value of the machine at the end of 6 years.

Teacher's Signature