B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

PEROIDIC TEST 2
MATHEMATICS

Class: XI | **Time: 1hr**
Date: 06-11-25 | **Max Marks: 25**
Admission no: | **Roll no:**

General Instructions:

1. This Question Paper has 4 Sections A, B, C and D.
2. Section A has 5 MCQs carrying 1 mark each
3. Section B has 4 questions carrying 02 marks each.
4. Section C has 1 question carrying 03 mark.
5. Section D and E have 1 question carrying 05 and 04 marks respectively.
6. All Questions are compulsory.

SECTION A

1. If the 5th term and 8th term of an AP are 20 and 29 respectively, find the 12th term. **1m**
(a) 41 (b) 38 (c) 35 (d) None of these

2. The 3rd term of a GP is 24 and the 6th term is 192. Find the common ratio. **1m**
(a) 2 (b) 3 (c) 4 (d) None of these

3. The sum of first 10 terms of the GP $2, 6, 18, \ldots$ is **1m**
(a) 39362 (b) 59048 (c) 118090 (d) None of these

4. The equation $y^2 = 4ax$ represents **1m**
(a) Parabola (b) Ellipse (c) Hyperbola (d) None of these

5. The equation of a circle with centre (0, 0) and radius 5 is **1m**
(a) $x^2 + y^2 = 5$ (b) $x^2 + y^2 = 25$ (c) $x^2 + y^2 + 5 = 0$ (d) None of these

SECTION B

6. The 4th term of a G.P. is square of its second term, and the first term is – 3. Determine its 7th term. **2m**

7. Find the equation of the circle with radius 5 whose centre lies on x-axis and passes through the point (2,3) **2m**

8. Find the centre and the radius of the circle $x^2 + y^2 + 8x + 10y - 8 = 0$ **2m**

9. **Insert three numbers between 1 and 256 so that the resulting sequence is a G.P.** **2m**

SECTION C

10. **Show that the ratio of the sum of first n terms of a G.P. to the sum of terms from $(n + 1)^{th}$ to $(2n)^{th}$ term is $1/r^n$.** **3m**

SECTION D

11. **Find the equation of the circle which passes through the points (2, – 2), and (3,4) and whose centre lies on the line x + y = 2.** **5m**

SECTION E

12. **A bacterial culture doubles every hour. Initially, there are 500 bacteria.** **4m**

Q1. Write the GP representing number of bacteria after each hour.

Q2. Find the number of bacteria after 6 hours.

Q3. Find the total number of bacteria produced in 6 hours.

*******************BEST OF LUCK********************