O. P. JINDAL SCHOOL, SAVITRI NAGAR

Periodic Test - II (2023 – 2024)

Class: XI **MM: 20**

Subject: Mathematics **Time: 1 Hour**

General Instructions:

i) All questions are compulsory.

ii)Question no. 1 to 8 carries 1 mark each , question no. 9 to 11 carries 2 marks each , question no. 12 and 13 carries 3 marks each .

iii)There is no overall choice. However, internal choice has been provided.

SECTION A

1. The sum of first 16 terms of an AP, : 10, 6, 2, ... is

a) -320 b) 320 c) -352 d) -400

2. A geometric mean between 3 and 243 is

a) 81 b) 27 c) 9 d) 123

3. Which term of the sequence 3, 6, 12, ... is 768?

a) 10 b) 8 c) 9 d) none of these

OR

The sum of the GP 3, 6, 12, ... up to 10 terms is

a) 1024 b) 2048 c) 3069 d) 1023

4. The number of 4 letter words that can be formed from the letter of the word 'PART' when repetition is allowed, is

a) 24 b) 196 c) 1 d) 256

5. The number of possible outcomes when a coin is tossed 6 times is

a) 36 b) 64 c)12 d) 32

6. The total number of terms in the expansion of $(x + a)^{51} - (x - a)^{51}$ after simplification is

a)10 b) 25 c) 26 d) 52

7. The two successive terms in the expansion of $(1 + x)^{24}$ whose coefficient are in the ratio1:4 are:

a) 3^{rd} and 4^{th} b) 4^{th} and 5^{th} c) 5^{th} and 6^{th} d) 7^{th} and 8^{th}

OR

The coefficient of x^8y^{10} in the expansion of $(x + y)^{18}$ is:

a) ${}^{18}C_8$ b) ${}^{18}P_8$ c) 2^{18} d) none of these

8. The constant term in the expansion of $\left(x-\frac{1}{x}\right)^{10}$ is:

a) 152 b) -152 c) -252 d) 252

SECTION B

9. From a committee of 8 persons, in how many ways can we choose a chairman and a vice chairman assuming one person cannot hold more than one position?

10. Find the 4^{th} term in the expansion of $(x - 2y)^{12}$.

OR

Evaluate $(96)^3$ using binomial theorem.

11. Which term of the sequence 2, $2\sqrt{2}$, 4, ... is 128?

SECTION C

12. Find $(a + b)^4 - (a - b)^4$. Hence evaluate $\left(\sqrt{3}+\sqrt{2}\right)^4 - \left(\sqrt{3}-\sqrt{2}\right)^4$.

13. Find the sum of the series 5 + 55 + 555 + ... n terms

OR

Find 12^{th} term of a GP, whose 8^{th} term is 192 and common ratio is 2.

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