

APEEJAY SVRAN GLOBAL SCHOOL
SESSION-2020-21
TERM-I END EXAMINATION
SUBJECT-MATHEMATICS
CLASS- XI

Name - _____
Date - _____

M.M: 40
Duration: 1 hour 30 min

General Instructions :

- 1) All the questions are compulsory.
- 2) The question paper is divided in 4 sections – A , B , C , D. Section A consist of 4 questions (MCQ) of 1 mark each. Section B consist of 4 questions of 2 marks each. Section C consist of 4 questions of 4 marks each. Section D consist of 2 questions of 6 marks each.
- 3) Submission of rough sheet used for calculations along with answer sheets , is mandatory.

SECTION A

- 1) Find the angle in radians through which a pendulum swings if its length is 75 cm and the tip describes an arc of length 21 cm.
a) $\frac{7}{25}$ b) $\frac{17}{25}$ c) $\frac{12}{25}$ d) $\frac{7}{15}$
- 2) Find $2 \sin 45^\circ \sin 15^\circ$
a) $\frac{\sqrt{3}+1}{2}$ b) $\frac{\sqrt{3}-1}{2}$ c) $\frac{\sqrt{3}-4}{2}$ d) $\frac{\sqrt{3}+5}{2}$
- 3) Find the seventh term of the sequence $-5, -2, 1, 4, \dots, \dots, \dots, 85$
a) $\sqrt{200}$ b) $\sqrt{300}$ c) $\sqrt{500}$ d) $\sqrt{120}$
- 4) Which term of the series $3 - 3\sqrt{3} + 9 - \dots$ is 729?
a) 23 b) 14 c) 11 d) 16

SECTION B

- 5) Express $\operatorname{cosec}(-7498^\circ)$ as a function of angle less than 45 degree.
- 6) Express the given in the form of $a + ib$: $\frac{1+7i}{(2-i)^2}$
- 7) The ratio of second to seventh of n AM between -7 and 65 is 1:7. Find n
- 8) Find the distance of the point $(-2, 3)$ from the line $12x - 5y = 2$

SECTION C

- 9) Prove that $(\cos x + \cos y)^2 + (\sin x - \sin y)^2 = 4 \cos^2 \frac{x+y}{2}$
- 10) If 4th, 10th and 16th terms of a GP are x, y and z respectively. Prove that x, y, z are in GP.
- 11) $\lim_{x \rightarrow 0} \frac{\sin ax + bx}{ax + \sin bx}$, $a, b, a+b \neq 0$

SECTION D

- 12) Solve the inequality graphically $x + 2y \leq 10$, $x + y \geq 1$, $x - y \leq 0$, $x \geq 0$, $y \geq 0$
- 13) a) find the multiplicative inverse of $\sqrt{5} + 3i$

b) find the modulus and argument of $-\sqrt{3} + i$