M.M.-40 MID TERM PRACTICE PAPER CLASS XI (2020) M.T.-1.5Hr.

General Instructions:- **There are 11 questions in this paper. All questions are Compulsory. Section A contains Q.1-4, of 2 marks each. Section B Contains Q.5 –9, 5 questions of 4 mark each. Section C contains Q.10-11, each of 6 marks.**

Section A

1. In how many of the distinct permutations of the letters in MISSISSIPPI do the four I's not come together?

2. Find the modulus and the arguments of the complex number
$z = -\sqrt{3} + i$

3. For any two complex numbers z_1 and z_2 prove that
$Re(z_1 z_2) = Re\, z_1\, Re\, z_2 - Im\, z_1\, Im\, z_2$.

4. Let A = {x, y, z} and B = {1, 2}. Find the number of relations from A to B.

Section B

5. Prove $\frac{\cos 4x + \cos 3x + \cos 2x}{\sin 4x + \sin 3x + \sin 2x} = \cot 3x$

6. Let A = {9, 10, 11, 12, 13}and let $\because \quad 9 = 3 \times 3$ be defined by f (n) = the highest prime factor of n. Find the range of f.

7. In how many ways can the letters of the word ASSASSINATION be arranged so that all the S's are together?

8. Solve the following system of inequalities graphically:
$2x + y \geq 4,\ x + y \leq 3,\ 2x - 3y \leq 6$

9. Prove that : cos A cos(60 - A) cos (60 + A) = $\frac{1}{4}\cos 3A$

Section C

10. Prove that : tan a + 2 tan 2a + 4 tan 4a + 8 cot 8a = cot a

11. A college awarded 38 medals in Football, 15 in Basketball and 20 to Cricket. If, these medals went to a total of 58 men and only three men got medals in all the three sports, how many received medals in exactly two of the three sports ?

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