Class 11 Time : 1 hr.
24-7-2014 First Unit Test in MATHEMATICS M. Marks : 20

GENERAL INSTRUCTIONS:

1. Attempt all the questions.
2. Section- A consists of 4 questions of 1 mark each.
3. Section-B consists of 6 questions of 2 marks each.
4. Section- C consists of 2 questions of 3 marks each.

SECTION - A

1. Find the solution of: $3x - 7 > 5x - 1$, for real x.

2. Change into degree: $\left(\frac{1}{4}\right)^c$.

3. Find $\cos\theta$; if $\sin\theta = \frac{-2\sqrt{6}}{5}$ and θ in IIIrd quadrant.

4. Evaluate: $\tan(225^0).\cot(405^0) + \tan(765^0).\cot(675^0)$

SECTION - B

5. In an experiment, a solution of hydrochloric acid is to be kept between 30^0 and 35^0 Celsius. What is the range of temperature in degree Fahrenheit, if $C=\frac{5}{9}$ (F-32), where C and F are the temperatures in degree and Fahrenheit respectively.

6. Solve the following system of linear in equation for real x: $\frac{5x+8}{4-x} < 2$.

7. Prove the following using mathematical induction,
$\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+.....+\frac{1}{2^n}=1-\frac{1}{2^n} \quad \forall\ n \in N$

8. Prove the following using mathematical induction:
$(2n + 7) < (n + 3)^2$. $\forall\ n \in N$

9. The radius of a circle is 30cm. Find the length of the arc of this circle, if the length of the chord of this arc is 30cm.

SECTION - C

10. Prove that : $\sec\left(\frac{3\pi}{2}-\theta\right)\sec\left(\theta-\frac{5\pi}{2}\right)+\tan\left(\frac{5\pi}{2}+\theta\right)\tan\left(\theta-\frac{3\pi}{2}\right)=-1.$

11. Find the solution graphically: $x + y \le 9$, $y > x$, $x \ge 0$.

-x-x-x-x-x-