Model Question paper

Trigonometry 2

11th Standard

**Maths**

Reg.No. : | | | | | | |

I. Answer all the questions.

II. Use blue pen only.

Time : 02:00:00 Hrs

Total Marks : 50

## Part - A

10 x 1 = 10

1) Area of traingle ABC is.....

(a) $\frac{1}{2}abcosc$ (b) $\frac{1}{2}absinc$ (c) $\frac{1}{2}absinc$ (d) $\frac{1}{2}bcsinB$

2) s(s-a)(s-b)(s-c)=.....

(a) $\triangle$ (b) $\triangle^2$ (c) $2\triangle$ (d) $\frac{\triangle}{s}$

3) In any traingle ABC,is.....

(a) abc (b) $\frac{abc}{4R}$ (c) $\frac{abc}{2R}$ (d) $\frac{abc}{R}$

4) In traingle ABC,the value of sin A sin B sin C is.....

(a) $\frac{\triangle}{2R}$ (b) $\frac{\triangle}{4R}$ (c) $\frac{\triangle}{2R^2}$ (d) $\frac{\triangle}{4R^2}$

5) cos B is equal to.....

(a) $\frac{c^2+a^2-b^2}{2ca}$ (b) $\frac{c^2+b^2-a^2}{2bc}$ (c) $\frac{a^2+b^2-c^2}{2ab}$ (d) $\frac{a^2+b^2+c^2}{2ab}$

6) $\sin^4\theta+\cos^4\theta$ =

(a) $\sin^2\theta\cos^2\theta$ (b) $1+2\sin^2\theta\cos^2\theta$ (c) $1-2\sin^2\theta\cos^2\theta$ (d) $2\cos^2\theta\sin^2\theta$

7) If $A=30^0$, $B=60^0$ then cos(A+B) is

(a) 0 (b) 1 (c) $\frac{1}{2}+\frac{\sqrt{3}}{2}$ (d) $\infty$

8) $\sin 75^0-\sin 15^0$ =

(a) $\sin 60^0$ (b) $\cos 105^0+\cos 15^0$ (c) $\sin 105^0-\sin 15^0$ (d) $\cos 105^0-\cos 15^0$

9) The value of $\tan 330^0$ is

(a) $\frac{1}{\sqrt{3}}$ (b) $-\frac{1}{\sqrt{3}}$ (c) $\sqrt{3}$ (d) $-\sqrt{3}$

10) The value of sec $\frac{\pi}{4}$ is

(a) $\sqrt{2}$ (b) $\frac{1}{\sqrt{2}}$ (c) $-\sqrt{2}$ (d) $-\frac{1}{\sqrt{2}}$

## Part - B

5 x 2 = 10

11) Solve the following

$sin^2\theta-2cos\theta+\frac{1}{4}=0$

12) Show that $\frac{tan\theta+sec\theta-1}{tan\theta-sec\theta+1}=\frac{1+sin\theta}{cos\theta}$

13) Prove that $\frac{2cos2A+1}{2cos2A-1}=tan(60^0+A)tan(60^0-A)$

14) Prove that $(a+b)sin\frac{C}{2}=Ccos\frac{A-B}{2}$

15) Prove that $cos\ 2A=\frac{1-tan^2A}{1+tan^2A}$

## Part - C

5 x 3 = 15

16) If $cos\theta=-\frac{1}{2}and\,tan\theta>0$ $show$ $that$ $\frac{5\ \ tan\theta+4sin\theta}{\sqrt{3}cos\theta-3sin\theta}=3$

17) Prove the following

$\frac{2tan22\frac{1}{2}^\circ}{1-tan^222\frac{1}{2}^\circ}=1$

18) Prove that $\frac{1+sin\theta-cos\theta}{1+sin\theta+cos\theta}=tan\frac{\theta}{2}$

19) If $2cos\theta=x+\frac{1}{x}$ then prove that $cos2\theta=\frac{1}{2}\left(x^2+\frac{1}{x^2}\right)$

20) Find tan15°

## Part - D

3 x 5 = 15

21) Prove that $\frac{sin(A-B)}{sin(A+B)}=\frac{a^2-b^2}{c^2}$

22) Find the principal values of $cos^{-1}\left(-\frac{1}{2}\right)$

23) In any triangle ABC prove that

$\sum a(+\left(b^2+c^2\right)cosA=3abc$

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