



SRI RAGHAVENDRA TUITION CENTRE

Trigonometry - 3.1,3.2

11th Standard

Maths

Date : 18-07-24

Reg.No. :

Exam Time : 01:30 Hrs

Total Marks : 60

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Centum Book Available

I. Multiple Choice Question

5 x 1 = 5

- 1) The angle between the minute and hour hands of a clock at 8.30 is _____
(a) 80° (b) 75° (c) 60° (d) 105°
- 2) If $\operatorname{cosec} x + \cot x = \frac{11}{2}$ then $\tan x =$ _____
(a) $\frac{21}{22}$ (b) $\frac{15}{16}$ (c) $\frac{44}{117}$ (d) $\frac{117}{44}$
- 3) $\frac{\cos 3x}{2\cos 2x - 1}$ is _____
(a) $\cos x$ (b) $\sin x$ (c) $\tan x$ (d) $\cot x$
- 4) The value of $\sin^2 \frac{5\pi}{12} - \sin^2 \frac{\pi}{12}$ is _____
(a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$ (c) 1 (d) 0
- 5) $2 \sin 5x \cos x$ _____
(a) $\sin 6x + \cos 4x$ (b) $\sin 6x + \sin 4x$ (c) $\cos 6x + \sin 4x$ (d) $\cos 6x + \cos 4x$

II. Answer any 10 questions.

10 x 2 = 20

- 6) Find the degree measure corresponding to the following radian measure; $\frac{2\pi}{5}$
- 7) Find the degree measure corresponding to the following radian measure; $\frac{10\pi}{9}$
- 8) Find $(1 + \tan A + \sec A)(1 + \cot A - \operatorname{cosec} A)$.
- 9) Convert : 6 radians to degrees.
- 10) If $\tan \theta + \sec \theta = x$, find $\sin \theta$
- 11) Find the radian measures of $-37^{\circ} 30'$
- 12) Express each of the following angles in radian measure
 135°
- 13) Find the value of $\tan \frac{\pi}{2}$.
- 14) Identify the quadrant in which an angle of each given measure lies; -230°
- 15) Solve $2 \cos^2 x + 3 \sin x = 0$
- 16) Prove that $\sin^6 x + \cos^6 x = 1 - 3 \sin^2 x \cos^2 x$

III. Answer all the questions.

5 x 3 = 15

- 17) What must be the radius of a circular running path, around which an athlete must run 5 times in order to describe 1 km?
- 18) What is the length of the arc intercepted by a central angle of measure 41° in a circle radius 10 ft ?

- 19) For each given Angle, find a coterminal angle with a measure of θ such that $0^\circ \leq \theta \leq 360^\circ$
 395°
- 20) In a circular of diameter 40 cm, a chord is of length 20 cm. Find the length of the minor arc of the chord?
- 21) For each given Angle, find a coterminal angle with a measure of θ such that $0^\circ \leq \theta \leq 360^\circ$
 -450°

IV. Answer all the questions.

4 x 5 = 20

- 22) If $\sin \theta + \cos \theta = m$, show that $\cos^6 \theta + \sin^6 \theta = \frac{4-3(m^2-1)^2}{4}$, where $m^2 \leq 2$
- 23) If $\cot \theta (1 + \sin \theta) = 4m$ and $\cot \theta (1 - \sin \theta) = 4n$, then prove that $(m^2 - n^2)^2 = mn$
- 24) If $\sec \theta + \tan \theta = p$, obtain the values of $\sec \theta$, $\tan \theta$ and $\sin \theta$ in terms of p
- 25) If $a \cos \theta - b \sin \theta = c$, show that $a \sin \theta + b \cos \theta = \pm \sqrt{a^2 + b^2 - c^2}$

All the Best
