Sri Raghavendra Tuition Center

Test III

11th Standard

Maths

Date : 02-08-24

Reg.No. :

Exam Time : 01:00 Hrs   Total Marks : 50

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EACHER NAME: P.DEEPAK M.Sc.,M.A.,B.Ed.,DCA.,TET-1.,TET-2.,

PHONE NUMBER : 9944249262

EMAIL: darthi99ktp@gmail.com

Centum Book Available

I. Multiple Choice Question   5 x 1 = 5

1) $\frac{1}{cos80^0} - \frac{\sqrt{3}}{sin80^0} =$

   (a) $\sqrt{2}$ (b) $\sqrt{3}$ (c) 2   (d) 4

2) The maximum value of $4sin^2x + 3\cos^2x + sin\frac{x}{2} + cos\frac{x}{2}$ is

   (a) $4 + \sqrt{2}$ (b) $3 + \sqrt{2}$ (c) 9   (d) 4

3) $\left(1 + cos\frac{\pi}{8}\right)\left(1 + cos\frac{3\pi}{8}\right)\left(1 + cos\frac{5\pi}{8}\right)\left(1 + cos\frac{7\pi}{8}\right) =$

   (a) $\frac{1}{8}$ (b) $\frac{1}{2}$ (c) $\frac{1}{\sqrt{3}}$ (d) $\frac{1}{\sqrt{2}}$

4) If $cos\ 28^0 + sin\ 28^0 = k^3$, then $cos\ 17^0$ is equal to

   (a) $\frac{k^3}{\sqrt{2}}$ (b) $-\frac{k^3}{\sqrt{2}}$ (c) $\pm\frac{k^3}{\sqrt{2}}$ (d) $-\frac{k^3}{\sqrt{3}}$

5) If $\pi < 2\theta < \frac{3\pi}{2}$, then $\sqrt{2 + \sqrt{2 + 2cos4\theta}}$ equals to

   (a) -2 cosθ   (b) -2 sinθ   (c) 2 cosθ   (d) 2 sinθ

II. Answer all the questions.   5 x 2 = 10

6) Identify the quadrant in which an angle of each given measure lies; -55^0

7) Identify the quadrant in which an angle of each given measure lies; -230^0

8) Express each of the following angles in radian measure
    -205^0

9) Find the degree measure corresponding to the following radian measure; $\frac{10\pi}{9}$

10) Show that tan (45° + A) = $\frac{1+\tan A}{1-\tan A}$

III. Answer any five questions. 11th is compulsory.   6 x 3 = 18

11) For each given Angle, find a coterminal angle with a measure of θ such that $0^o \leq \theta \leq 360˚$
     -270^0

12) For each given Angle, find a coterminal angle with a measure of θ such that $0^o \leq \theta \leq 360˚$
     1150^0

13) What must be the radius of a circular running path, around which an athlete must run 5 times in order to describe 1 km?

14) In a circular of diameter 40 cm, a chord is of length 20 cm. FInd the length of the minor arc of the chord?

15) A train is moving on a circular track of 1500 m radius at the rate of 66 Km/hr. What angle will it turn in 20 seconds?

16) What is the length of the arc intercepted by a central angle of measure 41^0 in a circle radius 10 ft ?

IV. Answer all the questions.   4 x 5 = 20

17) If $\sin\theta + \cos\theta$ = m, show that $\cos^6\theta + \sin^6\theta = \frac{4-3(m^2-1)^2}{4}$, where $m^2 \le 2$

18) If $a\cos\theta - b\sin\theta = c$, show that $a\sin\theta + b\cos\theta = \pm\sqrt{a^2 + b^2 - c^2}$

19) If $\frac{cos^4\alpha}{cos^2\beta} + \frac{sin^4\alpha}{sin^2\beta} = 1$ prove that $\frac{cos^4\beta}{cos^2\alpha} + \frac{sin^4\beta}{sin^2\alpha} = 1$

All the best

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