

MATHEMATICS : PAPER-II

Time : 2.45 Hrs.

PARTS – A & B

Max.Marks:40

Instructions:

1. Read all Questions.
2. Part A answers should be written in separate answer Book.
3. There are three sections in Part-A
4. Answer all questions.
5. Every answer should be written Visibly and neatly.
6. There is internal choice in Section-III

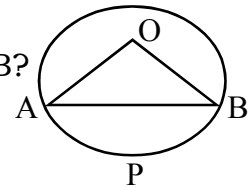
PART-A

Time: 2.15 Hrs.

Mars:30

SECTION-I (4x1=4M)

1. If you plot the points (0,0), (2,0), (2,2) and (0,2) and join them in order, name the quadrilateral so obtained, based on your observations.
2. A contractor wants to setup a slide for the children to play in the park. He wants to set it up at the height of 2m and by making an angle of 30° with the ground. What should be the length of the slide?
3. 12 defective pens are accidentally mixed with 132 good ones. It is not possible to just look at a pen and tell whether it is defective or not. One pen is taken out at random from this lot. Determine the probability that the pen taken out is a good one.
4. In the figure, how can you find the are of the segment APB?

**SECTION-II****5X2=10m**

5. State the converse of Thali's theorem.
6. Find the distance between the points $p(\cos \alpha, -\sin \alpha)$ and $Q(-\cos \alpha, \sin \alpha)$
7. Prove that $\frac{\sin A}{1 + \cos A} + \frac{1 + \cos A}{\sin A} = 2 \operatorname{Cosec} A$

PART-B

Time : 30 Min.

Marks: 10

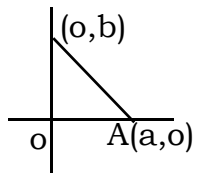
SECTION-IV

14. If the two end points of a diameter of a circle are (2,-2) and (-6,6) then its center is ()
 A) (0,0) B) (2,2) C) (-2,2) D) (-4, 2)
15. In $\triangle ABC$, if D,E are mid points of AB and AC respectively, then DE: BC= ()
 A) 1:1 B) 1:2 C) 1:3 D) 1:4
16. If ' θ ' is an acute angle and $\sec\theta = \frac{5}{3}$, then $\tan\theta + \cot\theta =$ ().
 A) $\frac{15}{12}$ B) $\frac{25}{12}$ C) $\frac{35}{12}$ D) 25
17. The angle of elevation of the top of a tower from a point on the ground which is 30m away from the foot of a tower of height $10\sqrt{3}m$ is ()
 A) 30° B) 60° C) 90° D) 120°
18. If a two digit number is chosen at random the probability that the number chosen is a multiple of 3 is ()
 A) $\frac{1}{2}$ B) $\frac{1}{2}$ C) $\frac{1}{4}$ D) $\frac{1}{5}$
19. The mean of 18 observations is 7 and if for each observation 5 is added. The new mean will be ()
 A) 12 B) 17 C) 19 D) 21
20. The number of pairs of parallel tangents that can be drawn to a circle is ()
 A) 1 B) 2 C) 3 D) infinite
21. A parallelogram circumscribing a circle is a ()
 A) Square B) Rectangle C) Rhombus D) Kite
22. which of the following is not correct ()
 A) $\cos 0^\circ = 0$ B) $\sin 90^\circ = 0$
 C) $\tan 5^\circ = \cot 45^\circ$ D) both A and B
23. If the mean of x and $\frac{1}{x}$ is m . the mean of x^2 and $\frac{1}{x^2}$ is ()
 A) $m^2 + 2$ B) $m^2 - 2$ C) $2m^2 + 1$ D) $2m^2 - 1$

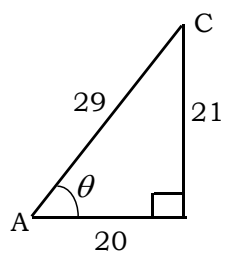
24. AB, CD, PQ are perpendicular to BD and AB=x, CD=y and PQ=Z then ()
 A) $x+y =z$ B) $x-y=z$ C) $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$ D) $\frac{1}{x} - \frac{1}{y} = \frac{1}{z}$
25. Which is better measure of central tendency when individual observations are not important. ()
 A) Mean B) Medion C) Mode D) Range
26. The area swept out by a horse tied in a rectangular grass filed with a rope 8m long is ()
 A) $16 \pi m^2$ B) $32 \pi m^2$ C) $48 \pi m^2$ D) $64 \pi m^2$
27. A Social studies text book contains 250 pages, A page is selected at random. What is the probability that the number on the page selected is a perfect square.
 A) $\frac{7}{12}$ B) $\frac{12}{7}$ C) $\frac{7}{125}$ D) $\frac{125}{7}$
28. The probability of getting 53 sundays in an ordinary year is ()
 A) $\frac{1}{7}$ B) $\frac{6}{7}$ C) $\frac{1}{52}$ D) $\frac{52}{53}$ (a,b)

29. If $x= a \sin \theta$ and $y= b \tan \theta$ then $\frac{a^2}{x^2} - \frac{b^2}{y^2} =$ ()
 A) 0 B) 1 C) a+b D) a-b
30. From the figure, circumscentre of ΔOAB is ()

- A) $(\frac{a}{4}, \frac{b}{4})$ B) $(\frac{b}{2}, \frac{b}{2})$
 C) (a,b) D) (2a, 2b)



31. From the adjacent figure $\frac{29}{21}$ represents
 A) $\sin \theta$ B) $\cos \theta$
 C) $\cot \theta$ D) $\operatorname{Cosec} \theta$



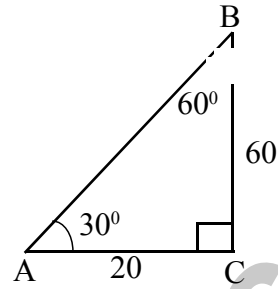
32. From the adjacent figure value of $\sin^2 A + \sin^2 B$

A) $\frac{\sqrt{3}}{2}$

B) $\frac{1}{\sqrt{2}}$

C) $\frac{1}{2}$

D) 1



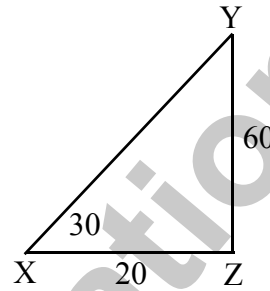
33. From the Figure $\theta =$

A) 30°

B) 45°

C) 60°

D) 90°



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