Vidya Vikas Mandal's
Ramacrisna Madeva Salgaocar Higher Secondary School
Margao Goa

Std: XI VOC – CT | First Term Exam, October, 2023 | Duraton: 2 hr.
Date:19/10/23 | Subject : Mathematics (voc) | Marks:40

Instructions :

i. All questions are compulsory
ii. There are four sections in this question paper(A,B,C&D)
iii. In section A there are 8 questions of 1 mark each.
iv. Section B contains 8 questions of 2 marks each.
v. Section C contains 3 questions of 3 marks each.
vi. Section D contains 1 question of 4 mark.
vii. Write the number of each question clearly on the answer book.

Section A

Question numbers from 1 to 8 carry 1 mark each.

1. Find l(AB) if A=(4,7) and B=(8,4)
2. Find Cartesian coordinates of a point whose polar coordinates are $(4, \frac{\pi}{3})$
3. Find the centroid of a triangle with vertices (4,5) , (6,2)and(8,9)
4. Find the measure of angle in radian if its measure in degree is 160^0
5. In ΔABC, $\angle A = 45^0$ and $\angle B = 30^0$ find $\angle C$ in radian.
6. Find the value of the following determinant
$$\begin{vmatrix} 5 & 4 \\ -2 & 3 \end{vmatrix}$$
7. Solve the following equation
$$\begin{vmatrix} x-1 & x+3 \\ 1 & 2 \end{vmatrix} = 0$$
8. Write the logarithmic form of the following expression which is in exponential form.
$2^4 = 16$

Section B

Question numbers from 9 to 16 carry 2 marks each.

9. In ΔABC $\angle A = 90^0$, l(AB)=2 , l(AC)=2 , find B and l(BC)
10. Find the coordinates of the points on the x axis which is at distance of 10 units from (3,-6)

11. ABCD is a parallelogram. If A=(-2,4) , B=(-3,5) C=(3,-2), Find the coordinates of D.

12. If A=(2,-5) and B=(-3,-7) and P divides seg internally in the ratio 3:5 Find coordinates of P.

13. If $\sin\theta = \frac{\sqrt{3}}{2}$, and θ lies in second quadrant, find $\cos\theta$.

14. Find the value of the following determinant

$$\begin{vmatrix} 5 & 6 & -4 \\ 4 & 3 & 2 \\ 13 & 12 & 0 \end{vmatrix}$$

15. Find x if

$$\begin{vmatrix} x & 1 & 2 \\ 3 & x & 3 \\ 1 & 3 & 2 \end{vmatrix} = 6$$

16. State any two laws of logarithm .

Section C

Question numbers from 17 to 20 carry 3 marks each.

17. Show that ΔABC is right angled triangle if its vertices are A(3,6) B(9,0) C(-1,2)

18. Solve the following equations using determinants

$2x + y = 19$, $x - 6y = -10$

19. Verify the following .

$4\cos^3 45^\circ - 3\cos 45^\circ = -\sin 45^\circ$

20. Find $\sin 105^\circ$ without using table.

Section D

Question number 21 carry 4 mark.

21. Solve the following equations using determinants

$x + y + z = 0$, $2x + y + z = 2$, $4x - y - 3z = 20$

OR

21. Find the trigonometric ratios of $\frac{5\pi}{4}$

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