



MATHEMATICS

SYLLABUS:- Trigonometric Ratios and identifies Exercise – 6.1 – VSA Q/s- all SA & Q/s 1 to 10

Section - A

I. Answer all the following questions. 2 x 5 = 10

- Find the value of $\sin 210^\circ$ and $\cot 765^\circ$
- Find the value of $\sin^2 \frac{\pi}{10} + \sin^2 \frac{4\pi}{10} + \sin^2 \frac{6\pi}{10} + \sin^2 \frac{9\pi}{10}$
- Find the value of $\sin 330^\circ, \cos 120^\circ + \cos 210^\circ, \sin 300^\circ$
- Show that $\cot \frac{\pi}{20} \cot \frac{3\pi}{20} \cot \frac{5\pi}{20} \cot \frac{7\pi}{20} \cot \frac{9\pi}{20} = 1$
- Prove that $(\tan \theta + \cot \theta)^2 = \sec^2 \theta + \operatorname{cosec}^2 \theta = \sec^2 \theta \operatorname{cosec}^2 \theta$

Section - B

II. Answer all the following questions. 4 x 4 = 16

- If $\tan 2\theta = \lambda$, prove that $\frac{\tan 160^\circ - \tan 110^\circ}{1 + \tan 160^\circ - \tan 110^\circ} = \frac{1 - \lambda}{2\lambda}$
- If $\sin \theta = -\frac{1}{3}$ and θ does not lie in 3rd quadrant, find the value of (i) $\cos \theta$ (ii) $\cot \theta$
- If $\sec \theta + \tan \theta = 5$ find $\sin \theta$ and determine the quadrant in which θ lies
- If ABCD is a cyclic quadrilateral then prove that
(i) $\sin A + \sin B = \sin C + \sin D$ (ii) $\cos A + \cos B + \cos C + \cos D = 0$
- If $\sin \theta = \frac{4}{5}$ and θ is not in first quadrant, find the value of $\cos \theta$

Section - C

III. Answer any two of the following questions. 2 x 7 = 14

- Show that $\frac{\sin 150^\circ - 5 \cos 300^\circ + 7 \tan 225^\circ}{\tan 135^\circ + 3 \sin 210^\circ} = -2$
- If $8 \tan A = -15$ and $25 \sin B = -7$ and neither A or B is in the fourth quadrant, then show that
$$\sin A \cos B = \cos A \sin B = -\frac{304}{425}$$
- Show that
$$\frac{\cos(\pi - A) \cot\left(\frac{\pi}{2} + A\right) \cos(-A)}{\tan(\pi + A) \tan\left(\frac{3\pi}{2} + A\right) \sin(2\pi - A)} = \cos A$$

**IPE MODEL :: ECONOMICS (50 Marks)****SYLLABUS: Introduction to Positive and Normative Economics.****SECTION-A**

- I. Answer any TWO of the following questions. 2 x 10 = 20 M**
1. Examine the Wealth and Welfare definitions of Economics.
 2. Critically examine the Scarcity definition of Economics.
 3. Explain the concepts and scope of Micro Economics and Macro Economics.

SECTION-B

- II. Answer any FOUR of the following questions. 4 x 5 = 20 M**
4. Examine the Wealth definition of Economics.
 5. Examine the Welfare definition of Economics.
 6. Explain Growth definition of Economics.
 7. What is Micro Economics? What is its importance?
 8. What is Macro Economics? What is its importance?
 9. Distinguish between Micro Economics and Macro Economics.

SECTION-C

- III. Answer any FIVE of the following questions. 5 x 2 = 10 M**
10. What is Micro Economics?
 11. What is Macro Economics?
 12. What is Positive Economics?
 13. What is Normative Economics?
 14. Explain the Wealth definition.
 15. Explain the Welfare definition.
 16. Explain Growth definition.

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