**JNV**

**MODEL QUESTIONS**

**MATHEMATICS: 8 INTRO OF TRIGIGONOMETRY**

**Class : X**

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| 1 | In ΔABC, right angled at B, AB = 5 cm and sin C = C:\fake\image1.png. Determine the length of side AC.  C:\fake\image2.png | 1 |
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|  | ANS:     sin C = C:\fake\image3.pngC:\fake\image4.png  C:\fake\image5.png= C:\fake\image6.png C:\fake\image7.png  AC = 10 cm |  |
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| 2 | If sec θ = C:\fake\image8.png, find the values of tan θ and cosec θ. | 1 |
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|  | ANS:   |  |  | | --- | --- | | In ΔPQO, right angle at Q, sec θ = C:\fake\image9.png= C:\fake\image10.png So, OP = 25k and OQ = 7k PQ2 = OP2 – OQ2 = (25k)2 – (7k)2 = 625k2 – 49k2 = 576k2 C:\fake\image11.png  PQ = C:\fake\image12.png= 24k C:\fake\image13.png  tan θ = C:\fake\image14.png= C:\fake\image15.pngand cosec θ C:\fake\image16.png | C:\fake\image17.png | |  |
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| 3 | If sin θ = cos θ, find the value of θ. | 1 |
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|  | ANS:     sin θ = cos θ C:\fake\image18.png  C:\fake\image19.png= 1  C:\fake\image20.png  tan θ = 1 (Also tan 45° = 1) C:\fake\image21.png  tan θ = tan 45°  C:\fake\image22.png  θ = 45° |  |
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| 4 | If tan θ = C:\fake\image23.png, then evaluate C:\fake\image24.png | 1 |
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|  | ANS:     tan θ = C:\fake\image25.png  C:\fake\image26.png  θ = 30° C:\fake\image27.pngC:\fake\image28.png |  |
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| 5 | If sin (A – B) = C:\fake\image29.png, cos (A + B) = C:\fake\image30.png, find A and B. | 1 |
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|  | ANS:     sin (A – B) = C:\fake\image31.png C:\fake\image32.png  A – B = 30° ...(i) and cos (A + B) = C:\fake\image33.pngC:\fake\image34.png  A + B = 60° ...(ii) Solving equation (i) and (ii), we get A = 45° and B = 15° |  |
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| 6 | If tan θ = cot (30° + θ), find the value of θ. | 1 |
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|  | ANS:     tan θ = cot (30° + θ)  C:\fake\image35.png  cot (90° – θ) = cot (30° + θ) C:\fake\image36.png  90° – θ = 30° + θ  C:\fake\image37.png  2θ = 60°  C:\fake\image38.png  θ = 30° |  |
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| 7 | Express cot 85° + cos 75° in terms of trigonometric ratios of angles between 0° and 45°. | 1 |
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|  | ANS:     cot 85° + cos 75° = tan (90° – 85°) + sin (90° – 75°) = tan 5° + sin 15° |  |
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| 8 | If cot θ = C:\fake\image39.pngevaluate C:\fake\image40.png | 1 |
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|  | ANS:     C:\fake\image41.png |  |
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| 9 | Evaluate: 3cot2 60° + sec2 45° | 1 |
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|  | ANS:     3cot260° + sec245° = C:\fake\image42.png  [C:\fake\image43.png  cot 60° = C:\fake\image44.pngand sec 45° = C:\fake\image45.png] = 3 × C:\fake\image46.png+ 2 = 3 |  |
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| 10 | Without using trigonometric tables, evaluate C:\fake\image47.png | 2 |
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|  | ANS:     C:\fake\image48.png C:\fake\image49.pngC:\fake\image50.png |  |
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| 11 | Prove that : C:\fake\image51.png= cosec θ + cot θ. | 2 |
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|  | ANS:     LHS = C:\fake\image52.pngC:\fake\image53.png = cosec θ + cot θ = RHS |  |
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| 12 | Prove that : C:\fake\image54.png= 2 sec A | 2 |
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|  | ANS:     C:\fake\image55.png |  |
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| 13 | Prove the following identities: C:\fake\image56.pngC:\fake\image57.png | 3 |
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|  | ANS:     C:\fake\image58.png C:\fake\image59.pngC:\fake\image60.png  (C:\fake\image61.png  sin2A + cos2A = 1) C:\fake\image62.png  (C:\fake\image63.png  cos2A = 1 – sin2A) |  |
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| 14 | Prove the following identity: C:\fake\image64.png | 4 |
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|  | ANS:     C:\fake\image65.png |  |
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