"UTSAAH" Test Series

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IIT-JEE TOPIC –Trigonometry

Maths Trigonometry Answer Keys Paper on 10.09.2022

1. If sin θ and cos θ are the roots of $ax^2 - bx + c = 0$, then the relation between a, b and c will be
   (a) $a^2 + b^2 + 2ac = 0$
   (b) $a^2 - b^2 + 2ac = 0$
   (c) $a^2 + c^2 + 2ab = 0$
   (d) $a^2 - b^2 - 2ac = 0$
2. If tan A = 1/2 and tan B = 1/3, then the value of A + B is
   (a) π/6
   (b) π
   (c) 0
   (d) π/4
3. The value of cos 1° cos 2° cos 3° ... cos 179° is
   (a) 1/√2
   (b) 0
   (c) 1
   (d) –1
4. The value of sin 50° – sin 70° + sin 10° is equal to
   (a) 1
   (b) 0
   (c) ½
   (d) 2
5. The value of sin (45° + θ) – cos (45° – θ) is
   (a) 2 cosθ
   (b) 2 sinθ
   (c) 1
   (d) 0
6. The value of tan 1° tan 2° tan 3° ... tan 89° is
   (a) 0
   (b) 1
   (c) ½
   (d) Not defined
7. If α + β = π/4, then the value of (1 + tan α) (1 + tan β) is
   (a) 1
   (b) 2
   (c) – 2
   (d) Not defined
8. If A lies in the second quadrant and 3 tan A + 4 = 0, then the value of (2 cot A – 5 cos A + sin A) is equal to
   (a) -53/10
   (b) 23/10
   (c) 37/10
   (d) 7/10
9. If for real values of x, cos θ = x + (1/x), then
   (a) θ is an acute angle
   (b) θ is right angle
   (c) θ is an obtuse angle
   (d) No value of θ is possible
10. Number of solutions of the equation tan x + sec x = 2 cos x lying in the interval [0, 2π] is
    (a) 0
    (b) 1
    (c) 2
    (d) 3
11. If a×cos x + b × cos x = c, then the value of $(a \times \sin x - b^2 \cos x)^2$ is
    (a) $a^2 + b^2 + c^2$
    (b) $a^2 - b^2 - c^2$
    (c) $a^2 - b^2 + c^2$
    (d) $a^2 + b^2 - c^2$
12. The value of cos 5π is
    (a) 0

(b) 1
(c) -1
(d) None of these

13. In a triangle ABC, cosec A (sin B cos C + cos B sin C) equals
(a) none of these
(b) c/a
(c) 1
(d) a/c

14. The value of cos 180° is
(a) 0
(b) 1
(c) -1
(d) infinite

15. The perimeter of a triangle ABC is 6 times the arithmetic mean of the sines of its angles. If the side b is 2, then the angle B is
(a) 30°
(b) 90°
(c) 60°
(d) 120°

16. If the sides of a triangle are 13, 7, 8 the greatest angle of the triangle is
(a) π/3
(b) π/2
(c) 2π/3
(d) 3π/2

17. The value of tan 20×tan 40×tan 80 is
(a) tan 30
(b) tan 60
(c) 2 tan 30
(d) 2 tan 60

18. If the radius of the circumcircle of an isosceles triangle PQR is equal to PQ(= PR), then the angle P is
(a) 2π/3
(b) π/3
(c) π/2
(d) π/6

19. The value of Sin 15^0 + Cos 15^0 is
(a) 1
(b) ½
(c) $\frac{\sqrt{3}}{2}$
(d) $\sqrt{3}$

20. The value of tan A/2 – cot A/2 + 2CotA is
(a) 0
(b) 1
(c) -1
(d) None of the above

21. In a Triangle ABC, SinA-CosB=Cos C, then angle B is
(a) $\frac{\pi}{2}$
(b) $\frac{\pi}{3}$
(c) $\frac{\pi}{4}$
(d) $\frac{\pi}{6}$

22. The value of Cos 420^0 is
(a) 0
(b) 1
(c) ½
(d) $\frac{\sqrt{3}}{2}$

23. When the length of the shadow of a pole is equal to height of the pole, then the elevation of source of light is
(a) 30^0
(b) 60^0
(c) 75^0
(d) 45^0

24. The least values of $\cos^2\theta + \sec^2\theta$ is
(a) 0
(b) 1
(c) 2
(d) More than 2

25. The value of Sin 180° is
(a) 0
(b) 1
(c) -1
(d) infinite