



14. In a triangle  $ABC$ ,  $\cos A + \cos B + \cos C =$
- a)  $1 + \frac{r}{R}$                       b)  $1 - \frac{r}{R}$                       c)  $1 - \frac{R}{r}$                       d)  $1 + \frac{R}{r}$
15. The number of solutions of  $\sin x = \sin 2x$  between  $-\frac{\pi}{2}$  and  $\frac{\pi}{2}$  is
- a) 3                                  b) 2                                  c) 1                                  d) 0
16. If  $\cos \theta = -\frac{1}{\sqrt{2}}$  and  $\tan \theta = 1$ , then the general value of  $\theta$  is
- a)  $2n\pi + \frac{\pi}{4}$                       b)  $2(n+1)\pi + \frac{\pi}{4}$                       c)  $n\pi + \frac{\pi}{4}$                       d)  $n\pi \pm \frac{\pi}{4}$
17. The set of values of  $\theta$  satisfying the inequation  $2 \sin^2 \theta - 5 \sin \theta + 2 > 0$ , where  $0 < \theta < 2\pi$ , is
- a)  $(0, \frac{\pi}{6}) \cup (\frac{5\pi}{6}, 2\pi)$                       b)  $[0, \frac{\pi}{6}] \cup [\frac{5\pi}{6}, 2\pi]$                       c)  $[0, \frac{\pi}{3}] \cup [\frac{2\pi}{3}, 2\pi]$                       d) None of these
18. If  $A + B + C = 180^\circ$ , then  $\sum \tan \frac{A}{2} \tan \frac{B}{2}$  is
- a) 0                                  b) 1                                  c) 2                                  d) 3
19. The maximum value of  $1 + 8 \sin^2 x^2 \cos^2 x^2$ , is
- a) 3                                  b) -1                                  c) -8                                  d) 9
20. The minimum value of  $9 \tan^2 \theta + 4 \cot^2 \theta$  is
- a) 13                                  b) 9                                  c) 6                                  d) 12
21. In a  $\Delta ABC$ , if  $c = 2, A = 120^\circ, a = \sqrt{6}$ , then  $C =$
- a)  $30^\circ$                                   b)  $60^\circ$                                   c)  $45^\circ$                                   d) None of these
22. The sides of a triangle are 13, 14, 15 then the radius of its in-circle is
- a)  $\frac{67}{8}$                                   b)  $\frac{65}{4}$                                   c) 4                                  d) 24
23. The value of  $\sin 20^\circ \sin 40^\circ \sin 60^\circ \sin 80^\circ$  is equal to
- a)  $-\frac{3}{16}$                                   b)  $\frac{5}{16}$                                   c)  $\frac{3}{16}$                                   d)  $-\frac{5}{16}$
24. If  $\cos A = \frac{3}{4}$ , then the value of  $\sin \frac{A}{2} \sin \frac{5A}{2}$  is
- a)  $\frac{1}{32}$                                   b)  $\frac{11}{8}$                                   c)  $\frac{11}{32}$                                   d)  $\frac{11}{16}$
25. The value of  $\cos^2 \frac{\pi}{16} + \cos^2 \frac{3\pi}{16} + \cos^2 \frac{5\pi}{16} + \cos^2 \frac{7\pi}{16}$
- a) 2                                  b) 1                                  c) 0                                  d) None of these
26. The value of  $\cos \frac{\pi}{7} \cos \frac{2\pi}{7} \cos \frac{3\pi}{7}$ , is
- a)  $\frac{1}{8}$                                   b)  $-\frac{1}{8}$                                   c) 1                                  d) 0
27. If  $A + B = \frac{\pi}{4}$ , then  $(\tan A + 1)(\tan B + 1)$  is equal to
- a) 1                                  b) 2                                  c)  $\sqrt{3}$                                   d) -1
28. The value of  $\frac{\cot 54^\circ}{\tan 36^\circ} + \frac{\tan 20^\circ}{\cot 70^\circ}$  is
- a) 0                                  b) 2                                  c) 3                                  d) 1
29. The value of  $\sqrt{3} \operatorname{cosec} 20^\circ - \sec 20^\circ$  is equal to
- a) 2                                  b) 1                                  c) 4                                  d) -4
30. The area of the triangle  $ABC$ , in which  $a = 1, b = 2, \angle C = 60^\circ$ , is
- a) 4 sq. units                      b)  $\frac{1}{2}$  sq. unit                      c)  $\frac{\sqrt{3}}{2}$  sq. unit                      d)  $\sqrt{3}$  sq. units

## ANSWER- KEY

1. B 2. B 3. A 4. A 5. C 6. C 7. A  
8. D 9. B 10. B 11. C 12. D 13. D 14. A  
15. A 16. B 17. A 18. B 19. A 20. D 21. C  
22. C 23. C 24. C 25. A 26. A 27. B 28. B  
29. C 30. C