11th chapter 3 - 1 mark

11th Standard

Maths

Reg.No. : | | | | | | |

Exam Time : 01:12:00 Hrs

Total Marks : 72

72 x 1 = 72

1) $\frac{1}{cos80^0} - \frac{\sqrt{3}}{sin80^0} =$

(a) $\sqrt{2}$ (b) $\sqrt{3}$ (c) 2 (d) 4

2) If $cos28^0+sin28^0=k^3$, then cos 17^0 is equal to

(a) $\frac{k^3}{\sqrt{2}}$ (b) $-\frac{k^3}{\sqrt{2}}$ (c) $\pm\frac{k^3}{\sqrt{2}}$ (d) $-\frac{k^3}{\sqrt{3}}$

3) The maximum value of $4sin^2x+3cos^2x+sin\frac{x}{2}+cos\frac{x}{2}$ is

(a) $\frac{1}{8}$ (b) $\frac{1}{2}$ (c) $\frac{1}{\sqrt{3}}$ (d) $\frac{1}{\sqrt{2}}$

4) $\left(1+cos\frac{\pi}{8}\right)\left(1+cos\frac{3\pi}{8}\right)\left(1+cos\frac{5\pi}{8}\right)\left(1+cos\frac{7\pi}{8}\right) =$

(a) $\frac{1}{8}$ (b) $\frac{1}{2}$ (c) \frac { 1 }{ \sqrt { 3 } } (d) \frac { 1 }{ \sqrt { 2 } }

5) If \pi < 2\theta < \frac { 3\pi }{ 2 } , then \sqrt { 2+\sqrt { 2+2\quad cos4\theta } } equals to

(a) -2 cosθ (b) -2 sinθ (c) 2 cosθ (d) 2 sinθ

6) If $tan40^0=\lambda$, then \frac { tan{ 140 }^{ 0 }-tan{ 130 }^{ 0 } }{ 1+tan{ 140 }^{ 0 }.tan{ 130 }^{ 0 } } =

(a) \frac { 1-\lambda ^{ 2 } }{ \lambda } (b) \frac { 1+{ \lambda }^{ 2 } }{ { \lambda } } (c) \frac { 1+{ \lambda }^{ 2 } }{ 2\lambda } (d) \frac { 1-{ \lambda }^{ 2 } }{ 2\lambda }

7) $cos1^0+cos2^0+cos3^0+: : :+cos179^0 =$

(a) 0 (b) 1 (c) -1 (d) 89

8) Let $f_k(x)=\frac{1}{k}[sin^kx+cos^kx]$ where x\in R and k≥1. Then $f_4(x)-f_6(x) =$

(a) \frac { 1 }{ 4 } (b) \frac { 1 }{ 12 } (c) \frac { 1 }{ 6 } (d) \frac { 1 }{ 3 }

9) Which of the following is not true?

(a) sinθ=-\frac { 3 }{ 4 } (b) cosθ=-1 (c) tanθ=25 (d) secθ=\frac { 1 }{ 4 }

10) cos2θ cos2ϕ+sin2(θ-ϕ)-sin2(θ+ϕ) is equal to

(a) sin2(θ-\phi) (b) cos2(θ+\phi) (c) sin2(θ-\phi) (d) cos2(θ-\phi)

11) \frac { sin(A-B) }{ cosAcosB } +\frac { sin(B-C) }{ cosBcosC } +\frac { sin(C-A) }{ cosCcosA } is

(a) sinA+sinB+sinC (b) 1 (c) 0 (d) cosA+cosB+cosC

12) If cospθ+cosqθ=0 and if p≠q, then θ is equal to (n is any integer)

(a) \frac { \pi (3n+1) }{ p-q } (b) \frac { \pi (2n+1) }{ p-q } (c) \frac { \pi (n\pm 1) }{ p\pm q } (d) \frac { \pi (n+2) }{ p+q }

13) If tan α and tan β are the roots of tan x2+atanx+b=0; then \frac { sin(\alpha +\beta) }{ sin\alpha sin\beta } is equal to

(a) \frac { b }{ a } (b) \frac { a }{ b } (c) \frac { a }{ b } (d) \frac { b}{ a }

14) In a triangle ABC, $sin^2A+sin^2B+sin^2C=2$, then the triangle is

(a) equilateral triangle (b) isosceles triangle (c) right triangle (d) scalene triangle

15) If f(θ)=|sinθ|+|cosθ|, θ\in R, then f(θ) is in the interval

(a) [0,2] (b) [1,\sqrt { 2 }] (c) [1,2] (d) [0,1]

16) \frac { cos6x+6cos4x+15cos2x+10 }{ cos5x+5cos3x+10cosx } equal to

(a) cos2x (b) cosx (c) cos3x (d) 2cosx

17) The triangle of maximum area with constant perimeter 12m

(a) is an equilateral triangle with side 4m (b) is an isosceles triangle with sides 2m;5m;5m (c) is a triangle with sides 3m;4m;5m (d) Does not exist

18) A wheel is spinning at 2 radians/second. How many seconds will it take to make 10 complete rotations?

(a) 10\pi seconds (b) 20\pi seconds (c) 5\pi seconds (d) 15\pi seconds

19) If sinα+cosα=b, then sin2α is equal to

(a) b^2-1, if b≤\sqrt { 2 } (b) b^2-1, if b > \sqrt { 2 } (c) b^2-1, if b≥\sqrt { 2 } (d) b^2-1, if b≥\sqrt { 2 }

20) In aΔABC, if (i) sin\frac { A }{ 2 } sin\frac { B }{ 2 } sin\frac { C }{ 2 } (ii) sinA sinB sinC > 0

(a) Both (i) and (ii) are true (b) Only (i) is true (c) Only (ii) is true (d) Neither (i) nor (ii) is true

21) If the angles of a triangle are in A.P., then the measure of one of the angles in radians is

(a) \frac { \pi }{ 6 } (b) \frac { \pi }{ 3 } (c) \frac { \pi }{ 2 } (d) \frac { 2\pi }{ 3 }

22) The angle between the minute and hour hands of a clock at 8.30 is

(a) 80^0 (b) 75^0 (c) 60^0 (d) 105^0

23) If tanx=\frac { -1 }{ \sqrt { 5 } } and x lies in the IV quadrant, then the value of cosx is

(a) \sqrt { \frac { 5 }{ 6 } } (b) \frac { 2 }{ \sqrt { 6 } } (c) \frac { 1 }{ 2 } (d) \frac { 1 }{ \sqrt { 6 } }

24) Which of the following is incorrect?

(a) sinx=\frac { -1 }{ 5 } (b) cosx=1 (c) secx=\frac { 1 }{ 2 } (d) tanx=20

25) If cosec x+cotx=\frac { 11 }{ 2 } then tanx=

(a) \frac { 21 }{ 22 } (b) \frac { 15 }{ 16 } (c) \frac { 44 }{ 117 } (d) \frac { 117 }{ 44 }

26) If tanA=\frac { a }{ a+1 } and B=\frac { 1 }{ 2a+1 } then the value of A+B is

(a) 0 (b) \frac { \pi }{ 2 } (c) \frac { \pi }{ 3 } (d) \frac { \pi }{ 4 }

27) The value of $\sin^2$\frac { 5\pi }{ 12 } -sin^{ 2 }\frac { \pi }{ 12 } is

(a) \frac { 1 }{ 2 } (b) \frac { \sqrt { 3 } }{ 2 } (c) 1 (d) 0

28) cosp=\frac { 1 }{ 7 } and cosQ=\frac { 13 }{ 14 } where P,Q are angles, then P-Q is

(a) \frac { \pi }{ 6 } (b) \frac { \pi }{ 3 } (c) \frac { \pi }{ 4 } (d) \frac { 5\pi }{ 12 }

29) $\cos35^0+\cos85^0+\cos155^0$=

(a) 0 (b) \frac { 1 }{ \sqrt { 3 } } (c) \frac { 1 }{ \sqrt { 2 } } (d) $\cos 275^0$

30) 2 sin 5x cos x

(a) sin 6x+cos 4x (b) sin6x+sin4x (c) cos6x+sin4x (d) cos6x+cos4x

31) cos6x-cos8x=

(a) 2 sin 7x sinx (b) sin 7x sinx (c) \frac { 1 }{ 2 } sin7x+sinx (d) \sqrt { 2 } sin7x sinx

32) \frac { cos3x }{ 2cos2x-1 } is

(a) cos x (b) sin x (c) tan x (d) cot x

33) In any ΔABC, a(b cosC-c Cos B)=

(a) a^2 (b) b^2-c^2 (c) 0 (d) b^2+c^2

34) If cos x=\frac { -1 }{ 2 } 0 < x < 2\piand , then the solutions are

(a) x=\frac { \pi }{ 3 } ,\frac { 4\pi }{ 3 } (b) x=\frac { 2\pi }{ 3 } ,\frac { 4\pi }{ 3 } (c) x=\frac { 2\pi }{ 3 } ,\frac { 7\pi }{ 6 } (d) x=\frac { 2\pi }{ 3 } ,\frac { 5\pi }{ 3 }

35) $2\tan^{-1}$\left(\frac { 1 }{ 5 } \right) is equal to

(a) tan\left(\frac { 5 }{ 12 } \right) (b) \frac { 5 }{ 12 } (c) \tan^{-1}\left({5 \over 12}\right) (d) $\tan^{-1}$\frac { 2 }{ 5 }

36) If sin\theta + cos\theta = 1 then $\sin^6$\theta + $\cos^6$\theta is

(a) 1 (b) 0 (c) -1 (d) 2

37) If the arcs of same lengths in two circles sustend central angles 30° and 40° find the ratio of their radii

(a) 3:4 (b) 4:3 (c) 7:12 (d) none of these

38) If sin(45 ° + 10°) - sin(45° -10°) =\sqrt{2}sin x then x is

(a) 0° (b) 5° (c) 10° (d) 15°

39) The quadratic equation whose roots are tan75° and cot75° is:

(a) x^2+4x+ 1 =0 (b) $4x^2$-x+ 1 =0 (c) $4x^2$+ 4x - 1 = 0 (d) x^2 - 4x + 1 = 0

40) If tanx ={1\over 7} ,tan y = {1\over 3} then x + y is:

(a) {\pi\over 4} (b) {\pi\over 3} (c) {\pi\over 2} (d) {\pi}

41) $\sin^2$ (22{1\over 2}^o)is

(a) {\sqrt{2-\sqrt{2}}}\over2 (b) {2\sqrt{2}-1\over 4\sqrt{2}} (c) {\sqrt{2-\sqrt{2}\over 2}} (d) none of these

42) If A + B = 45° then tan A - tan B + tan A tan B is
(a) 2 (b) 0 (c) 1 (d) -1

43) The value of sin{\pi\over 48}cos {\pi \over 48} cos {\pi \over 24}cos {\pi \over 12}cos{\pi \over 6}cos {\pi \over 3} is
(a) \sqrt{3}\over32 (b) \sqrt{3}\over64 (c) {3}\over32 (d) {3}\over64

44) In a \triangle ABC, C = 90° then the value of sin A + sin B-2\sqrt{2} cos{A\over2}cos {B\over 2}is
(a) -1 (b) 1 (c) 0 (d) {1\over 2}

45) The general solution of cosec\theta = -2 is
(a) 2n\pi +(-1)^n({\pi\over 6}) (b) n\pi +(-1)^n({-\pi\over 6}) (c) 2n\pi \pm({\pi\over 6}) (d) -{\pi\over 6}+n\pi

46) In a \triangleABC, \hat{A} = 60°, \hat{C} = 30°, b = 2\sqrt{3} ,c = 2 then a is
(a) 0 (b) 1 (c) 4 (d) 2

47) In \triangleABC, \hat{C} = 90° then a cosA + b cosB is:
(a) 2R sinB (b) 2 sinB (c) 0 (d) 2a sinB

48) (secA+tanA-1)(secA-tanA+1)-2tanA=
(a) 0 (b) 1 (c) 2 (d) 2 tan A

49) tan 70°-tan 20°=
(a) tan 50° (b) 2 tan 50° (c) tan 70° (d) 0

50) The value of cos 20°-sin 20° is
(a) positive (b) negative (c) 0 (d) 1

51) The value of tan 1° tan 2° tan 3°...tan 89° is
(a) \infty (b) 0 (c) 1 (d) \sqrt{3}

52) The value of \frac{1-tan^215°}{1+tan^215°} is
(a) 1 (b) \sqrt{3} (c) \frac{\sqrt{3}}{2} (d) \frac{1}{2}

53) If tanθ=\frac{-4}{3}, then sinθ is
(a) \frac{-4}{5} (b) \frac{4}{5} (c) \frac{-4}{5}\quad or\quad \frac{4}{5} (d) None

54) The maximum value of 3 sinθ+4 cosθ is
(a) 1 (b) 3 (c) 4 (d) 5

55) The value of sin 20° sin40° sin60° sin18° is
(a) \frac{-3}{16} (b) \frac{3}{16} (c) \frac{5}{16} (d) \frac{-5}{16}

56) If sinθ=sin\alpha, then the angles θ and \alpha are related by
(a) \theta=n\pi\pm\alpha (b) \theta=2n\pi+(-1)^n\alpha (c) \alpha=n\pi\pm(-1)^n\theta (d) \theta=(2n+1)\pi+\alpha

57) If 2 sinθ+1=0 and \sqrt{3}tanθ=1, then the most general value of θ is
(a) n\pi\pm\frac{\pi}{6} (b) n\pi+(-1)^n\frac{7\pi}{6} (c) 2n\pi+\frac{7\pi}{6} (d) 2n\pi+\frac{11\pi}{6}

58) If cosθ+\sqrt{3}sinθ=2 and θ∈[0,2π] then θ is
(a) \frac{\pi}{3} (b) \frac{5\pi}{3} (c) \frac{2\pi}{3} (d) \frac{4\pi}{3}

59) The numerical value of $\tan^{-1}1+\tan^{-1}2+\tan^{-1}3$=
(a) \pi (b) \frac{\pi}{2} (c) 0 (d) \frac{\pi}{4}

60) If cosA=cosB and sinA=sinB then
(a) A+B=0 (b) A=B (c) A+B=2nπ (d) A=B+2nπ

61) If \alpha and \beta are two values of θ obtained from the equation a cosθ+b sinθ=c then the value of tan(\frac{\alpha+\beta}{2}) is
(a) \frac{a}{b} (b) \frac{b}{a} (c) \frac{c}{a} (d) \frac{c}{b}

62) If (A+B)=\frac{\pi}{4}, (cot A-1)(cot B-1)=
(a) 0 (b) -2 (c) 2 (d) 1

63) If ABCD is a cyclic quadrilateral then cosA+cosB+cosC+cosD=
(a) 1 (b) -1 (c) 0 (d) None

64) If A,B,C are in A.P and B=\frac{\pi}{4} then tanA tanB tan C=
(a) 1 (b) -1 (c) 0 (d) None

65) If cos \alpha=\frac{3}{5} and cos \beta=\frac{5}{13}, then

(a) $\cos(\alpha+\beta)=\frac{33}{65}$ (b) $\sin(\alpha+\beta)=\frac{56}{65}$ (c) $\sin^2\frac{(\alpha-\beta)}{2}=\frac{4}{65}$ (d) $\cos(\alpha-\beta)=\frac{66}{65}$

66) If in a triangle ABC, $\angle B=60°$, then

(a) $(a-b)^2=c^2-ab$ (b) $(b-c)^2=a^2-bc$ (c) $(c-a)^2=b^2-ac$ (d) $a^2+b^2=c^2$

67) If the area Δ of a triangle ABC is given by $\Delta=a^2-(b-c)^2$ then $\tan(\frac{A}{2})=$

(a) -1 (b) 0 (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

68) If in a triangle a=5, b=4 and $\cos(A-B)=\frac{31}{32}$ then the third side C is equal to

(a) 5 (b) 6 (c) 3 (d) 12

69) The value of $\tan^{-1}(1)+\cos^{-1}(\frac{-1}{2})+\sin^{-1}(\frac{-1}{2})$

(a) $\frac{\pi}{4}$ (b) $\frac{5\pi}{4}$ (c) $\frac{3\pi}{4}$ (d) $\frac{\pi}{2}$

70) 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

71) $\frac{1}{360}$ of a complete rotation clockwise is

(a) -1° (b) -360° (c) -90° (d) 1°

72) Area of triangle ABC is

(a) $\frac{1}{2}ab\cos C$ (b) $\frac{1}{2}ab\sin C$ (c) $\frac{1}{2}ab\cos B$ (d) $\frac{1}{2}bc\sin B$

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72 x 1 = 72

1) (d) 4
2) (a) $\frac{k^3}{\sqrt{2}}$
3) (c) $\frac{1}{\sqrt{3}}$
4) (a) $\frac{1}{8}$
5) (c) $2\cos\theta$
6) (d) $\frac{1-\lambda^2}{2\lambda}$
7) (a) 0
8) (b) $\frac{1}{12}$
9) (d) $\sec\theta=\frac{1}{4}$
10) (b) $\cos2(\theta+\phi)$
11) (c) 0
12) (b) $\frac{\pi(2n+1)}{p-q}$
13) (c) $\frac{a}{b}$
14) (c) right triangle
15) (c) [1,2]
16) (d) 2cosx
17) (a) is an equilateral triangle with side 4m
18) (a) 10π seconds
19) (a) b^2-1, if $b\leq\sqrt{2}$
20) (b) Only (i) is true
21) (b) $\frac{\pi}{3}$
22) (b) 75^0
23) (a) $\sqrt{\frac{5}{6}}$
24) (c) $\sec x=\frac{1}{2}$
25) (c) $\frac{44}{117}$
26) (d) $\frac{\pi}{4}$
27) (b) $\frac{\sqrt{3}}{2}$
28) (b) $\frac{\pi}{3}$

29) (a) 0

30) (b) sin6x+sin4x

31) (a) 2 sin 7x sinx

32) (a) cos x

33) (c) 0

34) (b) x=\frac { 2\pi }{ 3 } ,\frac { 4\pi }{ 3 }

35) (c) \tan^{-1}\left({5 \over 12}\right)

36) (a) 1

37) (b) 4:3

38) (c) 10°

39) (d) x^2 - 4x + 1 = 0

40) (a) {\pi\over 4}

41) (b) {2\sqrt{2}-1\over 4\sqrt{2}}

42) (c) 1

43) (d) {3}\over64

44) (a) -1

45) (b) n\pi +(-1)^n({-\pi\over 6})

46) (c) 4

47) (d) 2a sinB

48) (a) 0

49) (b) 2 tan 50°

50) (a) positive

51) (c) 1

52) (c) \frac{\sqrt{3}}{2}

53) (c) \frac{-4}{5}\quad or\quad \frac{4}{5}

54) (d) 5

55) (b) \frac{3}{16}

56) (c) \alpha=n\pi\pm(-1)^n\theta

57) (c) 2n\pi+\frac{7\pi}{6}

58) (a) \frac{\pi}{3}

59) (a) \pi

60) (a) A+B=0

61) (b) \frac{b}{a}

62) (c) 2

63) (c) 0

64) (a) 1

65) (b) sin(\alpha+\beta)=\frac{56}{65}

66) (c) $(c-a)^2=b^2$-ac

67) (c) \frac{1}{4}

68) (b) 6

69) (c) \frac{3\pi}{4}

70) (c) 2

71) (a) -1°

72) (b) \frac{1}{2}ab sin C