



Padalsalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padalsalai's NEWS - Group
https://t.me/joinchat/NIfCqVRBNj9hhV4wu6_NqA
- Padalsalai's Channel - Group
<https://t.me/padasalaichannel>
- Lesson Plan - Group
<https://t.me/joinchat/NIfCqVWwo5iL-21gpzrXLw>
- 12th Standard - Group
https://t.me/Padalsalai_12th
- 11th Standard - Group
https://t.me/Padalsalai_11th
- 10th Standard - Group
https://t.me/Padalsalai_10th
- 9th Standard - Group
https://t.me/Padalsalai_9th
- 6th to 8th Standard - Group
https://t.me/Padalsalai_6to8
- 1st to 5th Standard - Group
https://t.me/Padalsalai_1to5
- TET - Group
https://t.me/Padalsalai_TET
- PGTRB - Group
https://t.me/Padalsalai_PGTRB
- TNPSC - Group
https://t.me/Padalsalai_TNPSC

RAJA NATIONAL MAT. HR. SEC. SCHOOL

ONE MARK TEST

STD: XI

UNIT: - IV and V

Max. Marks: 50

SUB: BUSINESS MATHEMATICS

Choose the correct answer

50X1=50

- The degree of measure $\frac{\pi}{8}$ is —
a) $20^{\circ} 60'$ b) $22^{\circ} 30'$ c) $22^{\circ} 60'$ d) $20^{\circ} 30'$
- $\left(\frac{\cos x}{\operatorname{cosec} x}\right) - \sqrt{1 - \sin^2 x} \times \sqrt{1 - \cos^2 x}$ is —
a) $\cos^2 x - \sin^2 x$ b) $\sin^2 x - \cos^2 x$ c) 1 d) 0
- $\tan\left(\frac{\pi}{4} - x\right)$ is —
a) $\frac{1 + \tan x}{1 - \tan x}$ b) $\frac{1 - \tan x}{1 + \tan x}$ c) $1 - \tan x$ d) $1 + \tan x$
- The value of $\cos^2 45^{\circ} - \sin^2 45^{\circ}$ is —
a) $\frac{\sqrt{3}}{2}$ b) $\frac{1}{2}$ c) 0 d) $\frac{1}{\sqrt{2}}$
- If $\sin A + \cos A = 1$ then $\sin 2A$ is equal to —
a) 1 b) 2 c) 0 d) $\frac{1}{2}$
- If $p \sec 50^{\circ} = \tan 50^{\circ}$ then p is —
a) $\cos 50^{\circ}$ b) $\sin 50^{\circ}$ c) $\tan 50^{\circ}$ d) $\sec 50^{\circ}$
- $\sin\left(\cos^{-1} \frac{3}{5}\right)$ is — a) $\frac{3}{5}$ b) $\frac{5}{3}$ c) $\frac{4}{5}$ d) $\frac{5}{4}$
- The value of $1 - 2 \sin^2 45^{\circ}$ is —
a) 1 b) $\frac{1}{2}$ c) $\frac{1}{4}$ d) 0
- The radian measure of $37^{\circ} 30'$ is —
a) $\frac{5\pi}{24}$ b) $\frac{3\pi}{24}$ c) $\frac{7\pi}{24}$ d) $\frac{9\pi}{24}$
- The value of $\sec A \cdot \sin(270^{\circ} + A)$ is —
a) -1 b) $\cos^2 A$ c) $\sec^2 A$ d) 1
- If $\tan A = \frac{1}{2}$ and $\tan B = \frac{1}{3}$ then $\tan(2A + B)$ is equal to —
a) 1 b) 2 c) 3 d) 4

[P.T.O.]

12. The value of $\frac{1}{\operatorname{cosec}(-45^\circ)}$ is —

- a) $-\frac{1}{\sqrt{2}}$ b) $\frac{1}{\sqrt{2}}$ c) $\sqrt{2}$ d) $-\sqrt{2}$

13. If α and β be between 0 and $\frac{\pi}{2}$ and

if $\cos(\alpha + \beta) = \frac{12}{13}$ and $\sin(\alpha - \beta) = \frac{3}{5}$ then $\sin 2\alpha$ is —

- a) $\frac{16}{15}$ b) 0 c) $\frac{56}{65}$ d) $\frac{64}{65}$

14. The value of $4\cos^3 40^\circ - 3\cos 40^\circ$ is —

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

15. The value of $\sin 15^\circ \cos 15^\circ$ is —

- a) 1 b) $\frac{1}{2}$ c) $\frac{\sqrt{3}}{2}$ d) $\frac{1}{4}$

16. If $\tan \theta = \frac{1}{\sqrt{5}}$ and θ lies in the first quadrant

then $\cos \theta$ is — a) $\frac{1}{\sqrt{6}}$ b) $-\frac{1}{\sqrt{6}}$ c) $\frac{\sqrt{5}}{\sqrt{6}}$ d) $-\frac{\sqrt{5}}{\sqrt{6}}$

17. $\sec^{-1} \frac{2}{3} + \operatorname{cosec}^{-1} \frac{2}{3} =$ —

- a) $-\frac{\pi}{2}$ b) $\frac{\pi}{2}$ c) π d) $-\pi$

18. The value of $\frac{2 \tan 30^\circ}{1 + \tan^2 30^\circ}$ is —

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

19. The value of $\sin 28^\circ \cos 17^\circ + \cos 28^\circ \sin 17^\circ$ is —

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

20. The value of $\operatorname{cosec}^{-1} \left(\frac{2}{\sqrt{3}} \right)$ is —

- a) $\frac{\pi}{4}$ b) $\frac{\pi}{2}$ c) $\frac{\pi}{3}$ d) $\frac{\pi}{6}$

21. The value of $\cos(-480^\circ)$ is —

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

22. The value of $\frac{3 \tan 10^\circ - \tan^3 10^\circ}{1 - 3 \tan^2 10^\circ}$ is —

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

23. The value of $\sin 15^\circ$ is —

- a) $\frac{\sqrt{3}+1}{2\sqrt{2}}$ b) $\frac{\sqrt{3}-1}{2\sqrt{2}}$ c) $\frac{\sqrt{3}}{\sqrt{2}}$ d) $\frac{\sqrt{3}}{2\sqrt{2}}$

[P.T.O.]

24. If $\sin A = \frac{1}{2}$ then $4 \cos^3 A - 3 \cos A$ is —
 a) 1 b) 0 c) $\frac{\sqrt{3}}{2}$ d) $\frac{1}{\sqrt{2}}$
25. The value of $\sin(-420^\circ)$ is —
 a) $\frac{\sqrt{3}}{2}$ b) $-\frac{\sqrt{3}}{2}$ c) $\frac{1}{2}$ d) $-\frac{1}{2}$
26. If $f(x) = x^2 - x + 1$ then $f(x+1)$ is —
 a) x^2 b) x c) 1 d) $x^2 + x + 1$
27. $\frac{d}{dx}(a^x) =$ — a) $\frac{1}{x \log_e a}$ b) a^x c) $x \log_e a$ d) $a^x \log_e a$
28. Which of the following function is neither even nor odd?
 a) $f(x) = x^3 + 5$ b) $f(x) = x^5$ c) $f(x) = x^{10}$ d) $f(x) = x^2$
29. If $f(x) = 2^x$ and $g(x) = \frac{1}{2^x}$, then $(fg)(x)$ is —
 a) 1 b) 0 c) 4^x d) $\frac{1}{4^x}$
30. $\frac{d}{dx}\left(\frac{1}{x}\right)$ is equal to — a) $-\frac{1}{x^2}$ b) $-\frac{1}{x}$ c) $\log x$ d) $\frac{1}{x^2}$
31. If $y = \log_e x$ then $y_2 =$ — a) $\frac{1}{x}$ b) $-\frac{1}{x^2}$ c) $-\frac{2}{x^2}$ d) e^2
32. Let $f(x) = \begin{cases} x^2 - 4x, & \text{if } x \geq 2 \\ x + 2, & \text{if } x < 2 \end{cases}$ then $f(5)$ is —
 a) -1 b) 2 c) 5 d) 7
33. Which one of the following functions has the property $f(x) = f\left(\frac{1}{x}\right)$,
 a) $f(x) = \frac{x^2 - 1}{x}$ b) $f(x) = \frac{1 - x^2}{x}$ c) $f(x) = x$ d) $f(x) = \frac{x+1}{x}$
34. $f(x) = -5$, for all $x \in \mathbb{R}$ is a —
 a) an identity function b) modulus function
 c) exponential function d) constant function.
35. A function $f(x)$ is continuous at $x = a$ if $\lim_{x \rightarrow a} f(x)$ is equal to — a) $f(-a)$ b) $f\left(\frac{1}{a}\right)$ c) $2f(a)$ d) $f(a)$
36. If $y = e^{2x}$ then $\frac{d^2 y}{dx^2}$ at $x = 0$ is —
 a) 4 b) 9 c) 2 d) 0
37. $\lim_{x \rightarrow 0} \frac{e^x - 1}{x} =$ — a) e b) $n x^{n-1}$ c) 1 d) 0

[P.T.O.]

38. The range of $f(x) = |x|$, for all $x \in \mathbb{R}$ is —
 a) $(0, \infty)$ b) $[0, \infty)$ c) $(-\infty, \infty)$ d) $[1, \infty)$
39. The minimum value of the function $f(x) = |x|$ is —
 a) 0 b) -1 c) +1 d) $-\infty$
40. If $f(x) = \frac{1-x}{1+x}$ then $f(-x)$ is equal to —
 a) $-f(x)$ b) $\frac{1}{f(x)}$ c) $-\frac{1}{f(x)}$ d) $f(x)$
41. For what value of x , $f(x) = \frac{x+2}{x-1}$ is not continuous?
 a) -2 b) 1 c) 2 d) -1
42. $\frac{d}{dx} (5e^x - 2 \log x)$ is equal to —
 a) $5e^x - \frac{2}{x}$ b) $5e^x - 2x$ c) $5e^x - \frac{1}{x}$ d) $2 \log x$
43. The graph of $f(x) = e^x$ is identical to that of —
 a) $f(x) = a^x$, $a > 1$ b) $f(x) = a^x$, $a < 1$
 c) $f(x) = a^x$, $0 < a < 1$ d) $y = ax + b$, $a \neq 0$
44. The graph of $y = e^x$ intersect the y-axis at —
 a) $(0, 0)$ b) $(1, 0)$ c) $(0, 1)$ d) $(1, 1)$
45. $\lim_{\theta \rightarrow 0} \frac{\tan \theta}{\theta} =$ — a) 1 b) ∞ c) $-\infty$ d) 0
46. If $f(x) = x^2$ and $g(x) = 2x + 1$ then $(fg)(x)$ is —
 a) 0 b) 2 c) 1 d) 4
47. $\lim_{x \rightarrow 0} \frac{\sin 3x}{\sin 5x} =$ — a) 0 b) $\frac{2}{5}$ c) $\frac{3}{5}$ d) $\frac{5}{3}$
48. A function $f(x)$ is continuous at $x = a$ if $\lim_{x \rightarrow a} f(x) =$ —
 a) $f(a)$ b) $f'(a)$ c) $f(0)$ d) $f'(0)$
49. $f'(x) =$ — a) $\lim_{x \rightarrow a} \frac{f(x) - f(a)}{x - a}$ b) $\lim_{x \rightarrow a} \frac{f(a) - f(x)}{x - a}$
 c) $\lim_{x \rightarrow 0} f(x)$ d) $\lim_{x \rightarrow a} \frac{f(x) - f(a)}{a - x}$
50. If $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ then find $\frac{dy}{dx} =$ —
 a) $\frac{ax + hy + g}{hx + by + f}$ b) $-\frac{(ax + hy + g)}{bx + by + f}$ c) $\frac{ax + hy}{hx + by}$ d) $\frac{g}{f}$

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