

## Yakeen NEET 2.0 2026

## Practice Sheet

## Physics by Saleem Sir

## Basic Maths and Calculus (Mathematical Tools)

Q1 Find the value of  $(64)^{2/3}$ 

- (1) 4 (2) 16  
(3) 32 (4) 64

Q2 If  $\cos \theta = \frac{4}{5}$  then find the value of  $\tan \theta$ 

- (1)  $\frac{4}{5}$  (2)  $\frac{3}{5}$   
(3)  $\frac{4}{3}$  (4)  $\frac{3}{4}$

Q3 If  $y = \sin 2\theta$  then find ' $\theta$ ' where  $y$  will be maximum:

- (1)  $90^\circ$  (2)  $60^\circ$   
(3)  $45^\circ$  (4)  $32^\circ$

Q4 Find the values of:

- (i)  $\tan(-30^\circ)$   
(ii)  $\cos 150^\circ$   
(iii)  $\sin 210^\circ$   
(1)  $\frac{1}{\sqrt{3}}, \frac{\sqrt{3}}{2}, \frac{1}{2}$  (2)  $-\frac{1}{\sqrt{3}}, -\frac{\sqrt{3}}{2}, -\frac{1}{2}$   
(3)  $-\frac{1}{\sqrt{3}}, \frac{\sqrt{3}}{2}, \frac{1}{2}$  (4)  $-\frac{1}{\sqrt{3}}, \frac{\sqrt{3}}{2}, -\frac{1}{2}$

Q5 Find value of  $\frac{10^{-4}}{8}$ 

- (1)  $1.25 \times 10^{-5}$   
(2)  $1.25 \times 10^{-4}$   
(3)  $1.25 \times 10^{-3}$   
(4)  $1.25 \times 10^{-6}$

Q6 Calculate  $\frac{9/8}{6/5}$ 

- (1)  $\frac{16}{15}$  (2)  $\frac{15}{16}$   
(3)  $\frac{5}{16}$  (4)  $\frac{27}{20}$

Q7  $\int_0^1 e^x dx$ 

- (1)  $e^x$  (2) 1  
(3) 0 (4)  $e - 1$

Q8 Find the value of  $(1+x)^3$ , if  $x \ll 1$ .

- (1)  $1+x$

(2)  $1-3x$ (3)  $1+3x$ (4)  $1-3x+3x^2+x^3$ Q9 The slope of straight line  $\sqrt{3}y = 3x + 4$  is

- (1) 3 (2)  $\sqrt{3}$   
(3)  $\frac{1}{\sqrt{3}}$  (4)  $\frac{1}{3}$

Q10 Find the value of integral  $\int_0^{\pi/2} \cos x dx$ 

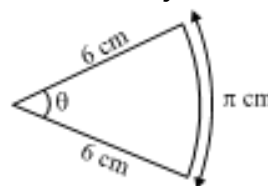
- (1) 0 (2) 1  
(3) -1 (4) 2

Q11 Convert the following angles from radian to degree

- (a)  $\frac{3\pi}{4}$  rad  
(b)  $\frac{7\pi}{6}$  rad  
(1)  $135^\circ, 210^\circ$   
(2)  $210^\circ, 135^\circ$   
(3)  $225^\circ, 240^\circ$   
(4)  $135^\circ, 225^\circ$

Q12  $\frac{d}{dx}(e^{100}) = \dots$ 

- (1)  $e^{100}$   
(2) 0  
(3) 100  
(4) 1

Q13 A circular arc is of length  $\pi$  cm. Find angle subtended by it at the centre.

- (1)  $60^\circ$  (2)  $30^\circ$   
(3)  $90^\circ$  (4)  $15^\circ$



**Q14** Evaluate  $\int \frac{dx}{\sqrt[3]{x}}$

- (1)  $\frac{3}{2}x^{-2/3} + c$   
 (2)  $\frac{2}{3}x^{-3/2} + c$   
 (3)  $\frac{2}{3}x^{3/2} + c$   
 (4)  $\frac{3}{2}x^{2/3} + c$

**Q15**  $\log 25 + \log 4 - \log 5$  is equal to

- (1)  $\log 20$  (2)  $\log 25$   
 (3)  $\log 15$  (4)  $\log 10$

**Q16** If  $y = \frac{1}{2}\sin(x^2)$ ,  $\frac{dy}{dx}$  will be:

- (1)  $\frac{1}{2}\cos(x^2)$   
 (2)  $x \cos(x^2)$   
 (3)  $\cos(x^2)$   
 (4)  $\sin(x)$

**Q17** If acceleration due to gravity  $g$  at height  $h \ll R$  (where  $R$  is radius of earth) is

$g_h = g_0 \left(1 + \frac{h}{R}\right)^{-2}$ , then using binomial theorem which is **correct** ?

- (1)  $g_h = g_0$   
 (2)  $g_h = g_0 \left(1 - \frac{2h}{R}\right)$   
 (3)  $g_h = g_0 \left(1 + \frac{2h}{R}\right)$   
 (4)  $g_h = g_0 \left(1 - \frac{h}{2R}\right)$

**Q18** If  $x+y=8$ , then what will be the maximum value of  $xy$  ?

- (1) 8 (2) 16  
 (3) 20 (4) 24

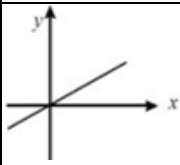
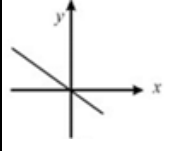
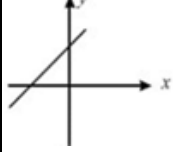
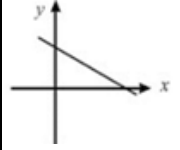
**Q19** The area of the region between the given curve  $y = 4x^3$  and the  $x$ -axis on the interval  $[0, 1]$  is:

- (1) 2 unit (2) 0  
 (3) 3 unit (4) 1 unit

**Q20** If  $y = \log_e x + \sin x + e^x$ , then  $\frac{dy}{dx}$  is:

- (1)  $\frac{1}{x} + \sin x + e^x$   
 (2)  $\frac{1}{x} - \cos x + e^x$   
 (3)  $\frac{1}{x} + \cos x + e^x$   
 (4)  $\frac{1}{x} - \sin x$

**Q21** Match the graph in List-II corresponding to the equations given in List I

	List I		List II
(i).	$y = 4x$	(a)	
(ii).	$y = -6x$	(b)	
(iii).	$y = x + 4$	(c)	
(iv).	$y = -2x + 4$	(d)	

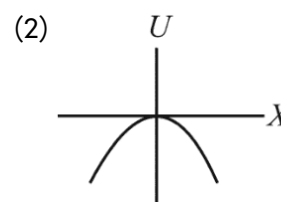
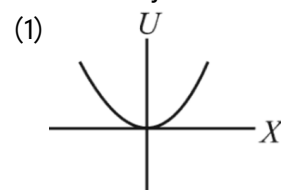
Choose the **correct** option from the codes given below

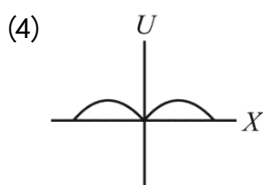
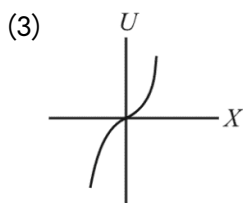
- (1) i-(b), ii-(c), iii-(d), iv-(a)  
 (2) i-(a), ii-(d), iii-(b), iv-(c)  
 (3) i-(b), ii-(c), iii-(a), iv-(d)  
 (4) i-(a), ii-(b), iii-(c), iv-(d)

**Q22** Evaluate  $\int (x^2 - \cos x + \frac{1}{x}) dx$

- (1)  $x^3 - \sin x + \ln(x) + c$   
 (2)  $2x - \sin x + \ln(x) + c$   
 (3)  $\frac{x^3}{3} + \sin x + \ln(x) + c$   
 (4)  $\frac{x^3}{3} - \sin x + \ln(x) + c$

**Q23** A body is attached to a spring whose other end is fixed. If the spring is elongated by  $x$ , its potential energy is  $U = 5x^2$ , where  $x$  is in metre and  $U$  is in joule.  $U - x$  graph is





**Q24** If  $y^2 - 2y - 3 = 0$ , then find the value of  $y$ .

- (1) 3, 1  
(2) -3, -1  
(3) 3, -1  
(4) -3, 1

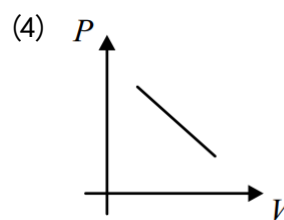
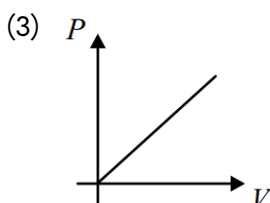
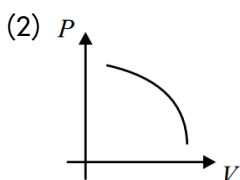
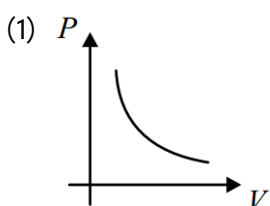
**Q25** Find  $1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \frac{1}{16} - \frac{1}{32} + \dots \infty$

- (1) 2  
(2) 1  
(3)  $\frac{2}{3}$   
(4)  $\infty$

**Q26** The equation of a curve is given as  $y = x^2 + 2 - 3x$ . The curve intersects the  $y$ -axis at:

- (1) (0, 1)  
(2) (2, 0)  
(3) (0, 2)  
(4) (1, 0)

**Q27** P-V graph for ideal gas at constant temperature (T) is [Given ideal gas equation  $PV = nRT$ ]



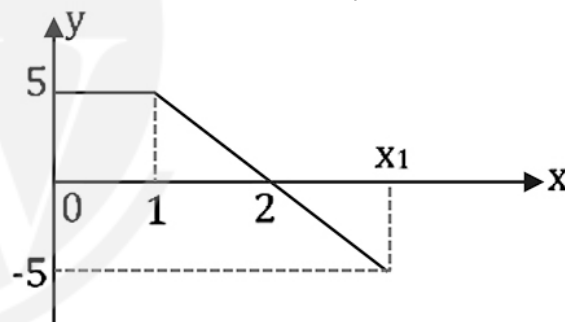
**Q28** Choose the **correct** statement(s) among the following.

- (I) The integral  $\int_1^5 x^2 dx$  is equal to  $\frac{124}{3}$   
(II) The value of  $(\sin 180^\circ + \cos 90^\circ)^2$  is 1  
(III) Slope of straight line  $\frac{x}{2} - \frac{y}{4} = 1$  is 2.  
(1) Only I  
(2) I and II  
(3) I, II and III  
(4) I and III

**Q29** Find the value of  $\log_{10} 1000 - \log_{10} 100 = \_\_\_\_?$

- (1) 3  
(2) 2  
(3) 1  
(4) 10

**Q30** Find the value of  $x_1$ , so that  $\int_0^{x_1} y dx = 5$



- (1) 2  
(2) 7  
(3) 3  
(4) 5

**Q31** Match the List I with List II to find out the **correct** option

	List I		List II
(i).	$\log_e 125 + \log_e 4 - 2 \log_e 5$	(a)	1
(ii).	$\log_e 16$	(b)	$\log_e 20$
(iii).	$\log_{10} 10$	(c)	$4 \log_e 2$
(iv).	$\log_2 16$	(d)	4

Choose the **correct** option from the codes given below

- (1) i-(b), ii-(a), iii-(c), iv-(d)



- (2) i-(a), ii-(b), iii-(c), iv-(d)  
 (3) i-(b), ii-(c), iii-(a), iv-(d)  
 (4) i-(d), ii-(a), iii-(b), iv-(c)

**Q32 Assertion :** Distance between two points (1, 2, 3) and (1, 6, 6) is 5 units.

**Reason :** The distance between two points  $(x_1, y_1, z_1)$  and  $(x_2, y_2, z_2)$  is given by the formula :  $r =$

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$$

- (1) Both Assertion and Reason are correct and Reason is the correct explanation of Assertion.  
 (2) Both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.  
 (3) Assertion is correct, but Reason is incorrect.  
 (4) Assertion is incorrect, but Reason is correct.

**Q33** If  $B_{\text{axis}} = B_{\text{centre}} \left( \frac{R^3}{(R^2 + x^2)^{3/2}} \right)$ , then find

$\frac{B_{\text{axis}}}{B_{\text{centre}}}$  if  $x \ll R$

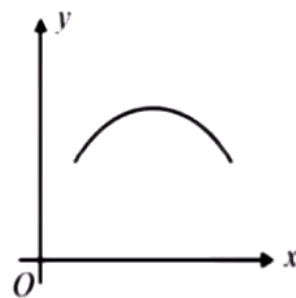
- (1)  $\left[ 1 - \frac{3}{2} \frac{x^2}{R^2} \right]$  (2)  $\left[ 1 + \frac{3}{2} \frac{x^2}{R^2} \right]$   
 (3)  $\left[ 1 + \frac{3}{2} \frac{x}{R} \right]$  (4)  $\left[ 1 - \frac{3}{2} \frac{x}{R} \right]$

**Q34 Statement I-** As  $\theta$  increases, the value of  $\cos \theta$  also increases ( $0^\circ \leq \theta \leq 90^\circ$ )

**Statement II -** For a very small angle  $\theta$ ,  $\sin \theta \simeq \theta$

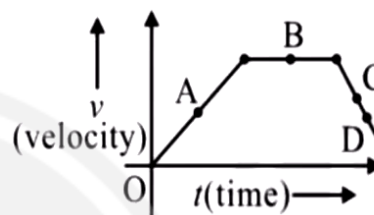
- (1) Statement I is correct but Statement II is incorrect.  
 (2) Statement I is incorrect but Statement II is correct.  
 (3) Both Statement I and Statement II are correct.  
 (4) Both Statement I and Statement II are incorrect.

**Q35** Magnitude of slope i.e., steepness of graph shown in figure



- (1) First increase and then decreases  
 (2) First decreases and then increases  
 (3) Decreases continuously  
 (4) Increases continuously

**Q36** The slope of  $v - t$  is zero at point



- (1) A (2) B  
 (3) C (4) D

**Q37** The radius  $r$  of spherical bubble is changing with time  $t$ . The rate of change of its volume is given by:

- (1)  $4\pi r^2 \frac{dr}{dt}$   
 (2)  $\frac{4}{3}\pi r^2$   
 (3)  $\frac{8}{3}\pi r^2$   
 (4)  $\frac{8}{3}\pi r \frac{dr}{dt}$

**Q38** Sound intensity level (in decibel) is given by the formula,  $\beta = 10 \log \frac{I}{I_0}$ . Here given that

$$I = 2 \times 10^2 \text{ W/m}^2 \text{ and}$$

$$I_0 = 2 \times 10^{-12} \text{ W/m}^2. \text{ Calculate } \beta$$

- (1) 10 (2) 140  
 (3) 14 (4) 130

**Q39** Find approximate value of:  $(1.005)^{12}$

- (1) 1.005 (2) 1.060  
 (3) 1.025 (4) 1.020

**Q40**  $\sqrt{1 + \sin \theta}$  is equal to

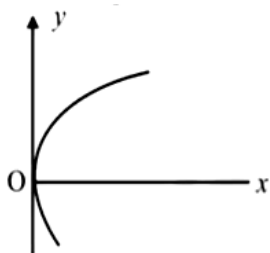
- (1)  $(\sin \theta + \cos \theta)$   
 (2)  $\sin \theta - \cos \theta$



$$(3) \sin \frac{\theta}{2} + \cos \frac{\theta}{2}$$

$$(4) \sin \frac{\theta}{2} - \cos \frac{\theta}{2}$$

**Q41** At  $x = 0$ , the value of slope is



$$(1) 0$$

$$(2) 1$$

$$(3) -1$$

$$(4) \text{Infinite}$$

**Q42** The minimum value of  $y = 5x^2 - 2x + 1$  is

$$(1) 1/5$$

$$(2) 2/5$$

$$(3) 4/5$$

$$(4) 3/5$$

**Q43** If  $\frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta} = \frac{7}{3}$  then find  $\tan \theta$ ?

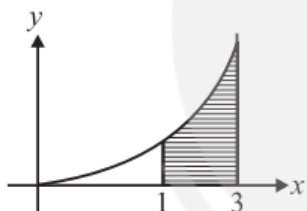
$$(1) \frac{3}{5}$$

$$(2) \frac{5}{2}$$

$$(3) \frac{5}{3}$$

$$(4) \frac{2}{5}$$

**Q44** Find the area under the shaded region for curve  $y = 3x^2$ .



$$(1) 80$$

$$(2) 26$$

$$(3) 20$$

$$(4) 40$$

**Q45**  $y = 2u^3$ ,  $u = 8x - 1$ . Find  $\frac{dy}{dx}$

$$(1) 48(8x - 1)^2$$

$$(2) 48(8x + 1)^2$$

$$(3) 48(8x - 1)$$

$$(4) 48(8x + 1)$$



## Answer Key

Q1 (2)  
Q2 (4)  
Q3 (3)  
Q4 (2)  
Q5 (1)  
Q6 (2)  
Q7 (4)  
Q8 (3)  
Q9 (2)  
Q10 (2)  
Q11 (1)  
Q12 (2)  
Q13 (2)  
Q14 (4)  
Q15 (1)  
Q16 (2)  
Q17 (2)  
Q18 (2)  
Q19 (4)  
Q20 (3)  
Q21 (4)  
Q22 (4)  
Q23 (1)

Q24 (3)  
Q25 (3)  
Q26 (3)  
Q27 (1)  
Q28 (4)  
Q29 (3)  
Q30 (3)  
Q31 (3)  
Q32 (1)  
Q33 (1)  
Q34 (2)  
Q35 (2)  
Q36 (2)  
Q37 (1)  
Q38 (2)  
Q39 (2)  
Q40 (3)  
Q41 (4)  
Q42 (3)  
Q43 (2)  
Q44 (2)  
Q45 (1)



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