FIITJEE - JEE (Main)

PHYSICS, CHEMISTRY & MATHEMATICS
BATCH: NWCM2125O1S
PHASE TEST – I
Q.P. CODE: 100176

Time Allotted: 3 Hours **Maximum Marks: 300**

- Do not open this Test Booklet until you are asked to do so.
- Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

Important Instructions

Caution: Question Paper CODE as given above MUST be correctly marked in the answer OMR sheet before attempting the paper. Wrong CODE or no CODE will give wrong results.

A. General Instructions

1. Attempt ALL the questions. Answers have to be marked on the OMR sheets.
2. This question paper contains **Three Sections.**
3. **Section-I** is Physics, **Section-II** is Chemistry and **Section-III** is Mathematics.
4. Each **Section** is further divided into **Two Parts**: **Part-A & B** in the OMR.
5. Rough spaces are provided for rough work inside the question paper. No additional sheets will be provided for rough work.
6. No candidate is allowed to carry any textual material, printed or written, bits of papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices ext. except the Admit Card inside the examination hall / room.

B. Filling of OMR Sheet:

1. Ensure matching of OMR sheet with the Question paper before you start marking your answers on OMR sheet.
2. On the OMR sheet, darken the appropriate bubble with ***Blue/Black Ball Point Pen*** for each character of your Enrolment No. and write in ink your Name, Test Centre and other details at the designated places.
3. OMR sheet contains alphabets, numerals & special characters for marking answers.
4. **Do not fold or make any stray marks on the Answer Sheet.**

C. Marking Scheme for All Two Parts:

(i) **Part-A (01-20) –** Contains Twenty (20) multiple choice objective questions which have four (4) options each and only one correct option. Each question carries **+4 marks** which will be awarded for every correct answer and **-1 mark** will be deducted for every incorrect answer.

(ii) **Part-B (01-05)** contains five (05) Numerical based questions, the answer of which maybe positive or negative numbers or decimals to **Two decimal Places** (e.g. 6.25, 7.00, -0.33, -.30, 30.27, -127.30) and each question carries **+4 marks** for correct answer and **there will be no negative marking.**

Name of the Candidate :_____

Batch :_____ **Date of Examination :**_____

Enrolment Number :_____

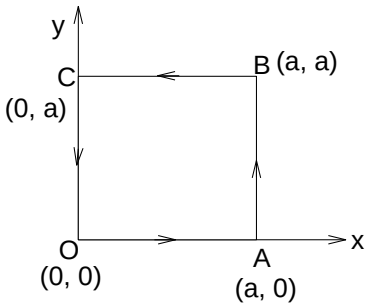
Physics

PART – A

Straight Objective Type

This part contains **20 multiple choice questions.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

1. The work done by the force $\vec{F} = x^2\hat{i} + y^2\hat{j}$ around the path OABCO shown in the figure is



(A) $\frac{2}{3}a^3$ (B) zero

(C) a^3 (D) $\frac{4}{3}a^3$

2. An object of mass m is hanging by a string from the ceiling of an elevator. The elevator is moving upward but slowing down. What is the tension in the sting

(A) less than mg (B) exactly mg

(C) greater than mg (D) zero

3. To a person walking at the rate of 3km/hour, the rain appears to fall vertically. When he increases his speed to 6 km/hr it appears to meet him at angle of 45^0 with vertical. The actual speed of rain is

(A) $3\sqrt{2}$ km/hr (B) $\frac{3}{\sqrt{2}}$ km/hr

(C) $6\sqrt{2}$ km/hr (D) $2\sqrt{3}$ km/hr

4. The unit vector perpendicular to $\vec{i} - 2\hat{j} + \hat{k}$ and $3\vec{i} + \hat{j} - 2\hat{k}$ is

(A) $\frac{5\vec{i} + 3\hat{j} + 7\hat{k}}{\sqrt{83}}$ (B) $\frac{3\vec{i} + 5\hat{j} + 7\hat{k}}{\sqrt{83}}$

(C) $\frac{5\vec{i} + 3\hat{j} - 7\hat{k}}{\sqrt{83}}$ (D) $\frac{3\vec{i} - 5\hat{j} + 7\hat{k}}{\sqrt{83}}$

Space For Rough Work

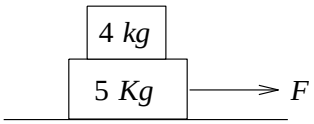
5. A car accelerates from rest at a constant rate α for some time after which it decelerates at a constant rate β to come to rest. If the total time elapsed is t, the distance travelled by the car is given by

(A) $\frac{1}{2}\left(\frac{\alpha\beta}{\alpha+\beta}\right)t^2$ (B) $\frac{1}{2}\left(\frac{\alpha+\beta}{\alpha\beta}\right)t^2$ (C) $\frac{1}{2}\frac{\left(\alpha^2+\beta^2\right)}{\alpha}t^2$ (D) $\frac{1}{2}\left[\frac{\alpha^2-\beta^2}{\beta}\right]t^2$

6. An insect starts crawling up a hemispherical bowl of radius R from its lowest point. If the coefficient of friction is $\frac{1}{3}$, the insect will be able to go up to height h from bottom equal to (take $\frac{3}{\sqrt{10}}=0.95$)

(A) $\frac{R}{5}$ (B) $\frac{R}{10}$ (C) $\frac{R}{20}$ (D) $\frac{R}{30}$

7. The coefficient of friction between 4 kg and 5 kg blocks is 0.2 and between 5 kg block and ground is 0.1 respectively. Choose the correct statements.

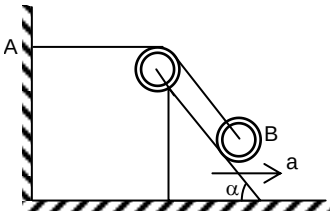


(A) minimum force needed to cause system to move on ground is 17 N
(B) When force F = 4N, static friction at all surfaces is 4 N to keep system at rest.
(C) Maximum acceleration of 4 kg block is 2 m/s^2
(D) Slipping between 4 kg and 5 kg block starts when F is 17 N.

8. Average velocity of a particle in projectile motion between its starting point and the highest point of its trajectory is (u = projection speed, θ = angle of projection from horizontal).

(A) $u\cos\theta$ (B) $\frac{u}{2}\sqrt{1+3\cos^2\theta}$ (C) $\frac{u}{2}\sqrt{2+\cos^2\theta}$ (D) $\frac{u}{2}\sqrt{1+\cos^2\theta}$

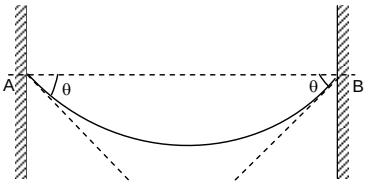
9. A weightless inextensible rope rests on a stationary wedge forming an angle α with the horizontal. One end of the rope is fixed to the wall at point A. A small load is attached to the rope at point B. The wedge starts moving to the right with a constant acceleration a. The magnitude of acceleration of the load is given by:



(A) a (B) $2a\sin\frac{\alpha}{2}$ (C) $a\sin\alpha$ (D) $g\sin\alpha$

Space For Rough Work

10. A heavy string of mass m hangs between two fixed points A and B at an angle θ with the horizontal as shown in the figure. The tension at the lowest point in the string is



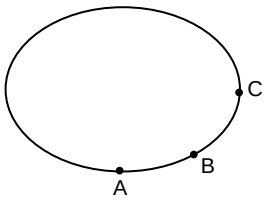
(A) mg/(2 sin θ) (B) mg/(2 cos θ)
(C) mg/(2 tan θ) (D) mg/(2 cot θ)

11. A particle is projected vertically upwards with a velocity of 20 m/sec. The time at which the distance travelled is 5/3 times the displacement
(A) 2 + $\sqrt{4/3}$ sec (B) 1 sec
(C) 2 + $\sqrt{3/4}$ sec (D) 3 sec

12. The minimum and maximum magnitude which is possible by adding four forces of magnitudes 1N, 3N, 9N and 10N is
(A) 0 and 23 N (B) 1N and 23 N
(C) 2N and 23 N (D) 3N and 23 N

13. A particle moves with a velocity $\vec{v} = 6\hat{i} - 4\hat{j} + 3\hat{k}\ m/s$ under the influence of a constant force, $\vec{F} = 20\hat{i} + 15\hat{j} - 5\hat{k}$, the instantaneous power applied to the particle is
(A) 35 Js^{-1} (B) 45 Js^{-1}
(C) 25 Js^{-1} (D) 195 Js^{-1}

14. A particle is moving on an elliptical path as shown, speed of the particle is constant. Its acceleration is minimum at
(A) A (B) B
(C) C (D) same everywhere



15. A particle moving with uniform acceleration along a straight line covers distances a and b in successive intervals of p and q seconds. The acceleration of the particle is
(A) $\frac{pq(p+q)}{2(bp-aq)}$ (B) $\frac{2(aq-bp)}{pq(p-q)}$
(C) $\frac{2(bp-aq)}{pq(p-q)}$ (D) $\frac{2(bp-aq)}{pq(p+q)}$

Space For Rough Work

16. A force $\vec{F} = -k(y\hat{i} + x\hat{j})$ where k is a positive constant acts on a particle moving in the x-y plane. Starting form the origin, the particle is taken along positive x-axis to the point (a, 0) and then parallel to the y-axis to the point (a, a). The total work done by the force $\vec{F}$ on the particle is

(A) $-2ka^2$ (B) $2ka^2$

(C) $-ka^2$ (D) ka^2

17. A body is moved along a straight line by a machine delivering constant power. The distance moved by the body in time t is proportional to

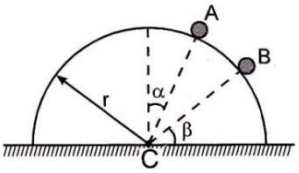
(A) $t^{1/2}$ (B) $t^{3/4}$

(C) $t^{3/2}$ (D) t^2

18. A car accelerate from rest at constant rate α for some time and then Decelerate at constant rate β to come to rest. Find maximum velocity reached if total time elapsed is ' t '.

(A) $\frac{(\alpha+\beta)}{2}$ t (B) $\frac{\alpha\beta t}{\alpha+\beta}$ (C) $\frac{2\alpha\beta t}{\alpha+\beta}$ (D) $\frac{(\alpha^2+\beta^2)}{\alpha\beta}t$

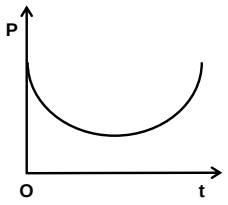
19. A particle initially at rest starts moving from point A on the surface of a fixed smooth hemisphere of radius r as shown. The particle looses its contact with hemisphere at point B. C is centre of the hemisphere. The equation relating α and β is

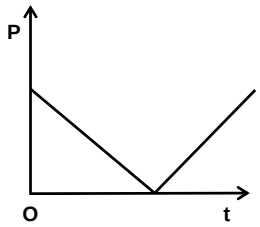


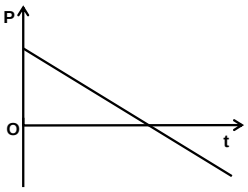
(A) $3\sin\alpha = 2\cos\beta$ (B) $2\sin\alpha = 3\cos\beta$

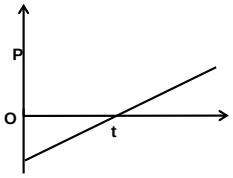
(C) $3\sin\beta = 2\cos\alpha$ (D) $2\sin\beta = 3\cos\alpha$

20. A stone is projected at time t = 0 with a speed v_0 at an angle θ with the horizontal in a uniform gravitational field. The rate of work done (P) by the gravitational force plotted against time (t) will be as

(A)


(B)


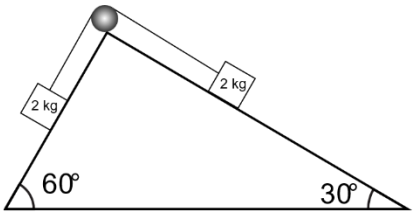
(C)


(D)


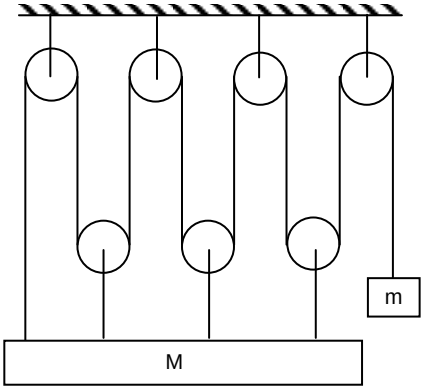
Space For Rough Work

PART-B
Numerical Type

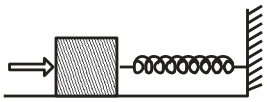
1. In the figure shown two blocks each of mass 2 kg are connected though a massless inextensible string, which passes over a frictionless pulley. The coefficient of friction between any two surface is $\mu = 0.1$. The acceleration of the blocks is $\frac{2.2}{K} m/s^2$. Find the value of K.



2. The system shown in figure is in equilibrium. The ratio of $\frac{M}{m}$ is 5 n. Find the value of 'n'.



3. A block of mass 0.18 kg is attached to a spring of force-constant 2 N/m. The coefficient of friction between the block and the floor is 0.1. Initially the block is at rest and the spring is unstretched. An impulse is given to the block as shown in figure. The block slides a distance of 0.06 m and comes to rest for the first time. The initial velocity of the block in m/s is _____



4. A body of mass 3 kg is acted upon by a force which causes a displacement of body given by $x = \frac{t^2}{4}$ metre where t is the time in second. The work done (in Joules) by the force in 2 seconds is

5. If a man is swimming perpendicular to the river with speed v = 25 m/s. If velocity of river is varying as u = a + by. Here y is distance of bank perpendicular to flow of river and a = 0.5 m/s and b = 0.02 s^{-1} and width of river is 100 meter. Find drift of man after crossing the river (in cm).

Space For Rough Work

Chemistry

PART – A

Straight Objective Type

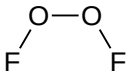
This part contains **20 multiple choice questions.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

1. For a metal M
x = First ionization energy
y = Second ionization energy and
(x + y) = Third ionization energy in kJ mol^{-1} unit
How many electrons are lost from the metal if (x + y)kJ of energy is supplied to it?
(A) 6.022×10^{23} (B) $2 \times 6.022 \times 10^{23}$
(C) $3 \times 6.022 \times 10^{23}$ (D) $6 \times 6.022 \times 10^{23}$

2. What is the equivalent mass of calcium in CaO in g eq^{-1} unit?
(A) 28 (B) 20
(C) 40 (D) 56

3. The radius(r_1) of the first orbit of hydrogen atom is a_0 unit. What is the value of $\left(\frac{r_5 - r_4}{r_3 - r_2}\right)$?
(A) 0.5 (B) 1.8
(C) 1 (D) 4

4. The pressure of a certain mass of an ideal gas will increase, if it is transferred from a larger container to a smaller container at constant temperature, because in the smaller container
(A) the number of collisions between the molecules will increase.
(B) the number of collisions between the molecules and the container wall will decrease.
(C) the number of collisions per unit surface area of the container wall will increase.
(D) collision between the gas and the air particles will increase.

5. What is the hybridization of oxygen in the molecule 
(A) sp^2 (B) sp
(C) sp^3 (D) p^2d^2

6. Which can decompose readily?
(A) H_2O (B) H_2O_2
(C) D_2O (D) H_2

Space For Rough Work

7. $Li_2CO_3 \xrightarrow{Heat} Li_2O + CO_2$

$Na_2CO_3 \xrightarrow{Heat}$ No decomposition

The reason behind above reactions is that

(A) the polarizing power of Li^+ is higher than Na^+.

(B) ionization energy of Li is higher than Na.

(C) melting point of Li_2CO_3 is higher than that of Na_2CO_3.

(D) lattice energy of Na_2CO_3 is higher than that of Li_2CO_3.

8. $Mg + 2HCl \longrightarrow MgCl_2 + H_2$

What volume of H_2 is produced at STP by complete reaction between one mole each of Mg and HCl?

(A) 11.2 L (B) 22.4 L

(C) 5.6 L (D) 44.8 L

9. Which emission spectral line of hydrogen has the longest wavelength?

(A) First line of Lyman series (B) Second line of Balmer series

(C) First line of Paschen series (D) Second line of Lyman series

10. Which has the largest ionic radius?

(A) O^{2-} (B) C^{4-}

(C) N^{3-} (D) F^-

11. The ionization energy of atom(M) of the third period and gr-2 of periodic table is x kJ/atom so

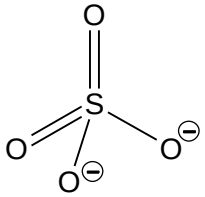
(A) when that atom(M) is supplied with x kJ energy, the electron is removed from its lowest energetic orbital.

(B) x kJ heat is evolved when the cation(M^+) of the atom gains an electron.

(C) the excitation energy of the atom is always x kJ.

(D) the atom will lose all the valence electrons by absorbing x kJ heat.

12. The structure of sulphate ion is given below



Choose the incorrect statement

(A) hybridization of sulphur is sp^3

(B) it contains sigma as well as pi bonds

(C) all the electrons of the ion are delocalized

(D) the oxidation number of sulphur is +6

Space For Rough Work

13. In van der Waal's equation for gases, the pressure correction term p_i is directly proportional to
(A) van der Waal's constant(b)
(B) the intermolecular force of attraction
(C) the volume of container
(D) the universal gas constant(R)

14. Which two species contains the highest number of unpaired electrons?
(A) O_2^+ and O_2^{2-}
(B) O_2 and O
(C) O_2 and O_2^+
(D) O and O^{2-}

15. According molecular orbital theory, which electronic transition produces colour in F_2 molecule?
LUMO : Lowest unoccupied molecular orbital
HOMO: Highest occupied molecular orbital
HUMO: Highest unoccupied molecular orbital
LOMO: Lowest occupied molecular orbital
(A) HOMO $\rightarrow$ LUMO
(B) HUMO $\rightarrow$ LUMO
(C) LOMO $\rightarrow$ LUMO
(D) LUMO $\rightarrow$ HOMO

16. In which option the left side compound can easily gain free electron than the right side compound?
(A) F, Cl
(B) N, S
(C) S, O
(D) N, C

17. $NO_2^- + H_2O_2 \longrightarrow$ Products
The products of above reaction are
(A) NH_3 and O_2
(B) NO_3^- and H_2O
(C) NH_2^- and H_3O^+
(D) NO_3^- and H_2

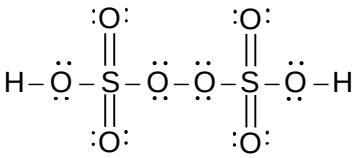
18. Which gas is easily absorbed by NaOH?
(A) $NH_3(g)$
(B) HCl(g)
(C) $CO_2(g)$
(D) $Cl_2(g)$

19. The incorrect statement regarding $BeSO_4$ is
(A) it is most soluble in water among the gr-2 metal sulphates
(B) in aqueous solution it exists as $[Be(H_2O)_4]SO_4$
(C) it is a polymer
(D) it is more covalent than $CaSO_4$

Space For Rough Work

20. Which is most soluble in water?
(A) LiF (B) NaF
(C) KF (D) RbF

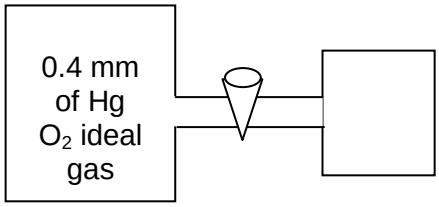
PART-B
Numerical Type

1. 

If x = number of oxygen atoms showing -1 oxidation state
y = number of oxygen atom(s) showing -2 oxidation state
z = number of oxygen atoms that can be reduced as well as oxidized
then the sum (x + y + z) is

2. 100 mL of 0.1 M aqueous $FeSO_4$ solution required 20 mL of $KMnO_4$ solution for complete reaction. What is the normality of $KMnO_4$ solution?

3. The set of quantum numbers for an atomic orbital is n = 5, ℓ = 2, m = -1, s = +½.
If a = the number of radial nodes of the orbital
b = the number of electrons that can placed in that orbital
and the orbital angular momentum of the orbital is expressed as $\sqrt{c}\,\frac{h}{d\pi}$, what is the value of (a + b + c + d)?

4. 

If the stop-cock is opened at constant temperature, what will be the pressure in the smaller container in mm of Hg unit?

5. For N_2 molecules
x = the number of electrons present in the highest occupied molecular orbital.
y = the bond order of N_2
then (x + y) is ?

Space For Rough Work

Mathematics

PART – A

Straight Objective Type

This part contains **20 multiple choice questions.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

1. Maximum and minimum values of $\sin^4\theta + \cos^4\theta$ are

   (A) 0, 2 (B) 1, $\frac{1}{2}$

   (C) –1, 1 (D) none of these

2. $\frac{\sin(n+1)A + 2\sin A + \sin(n-1)A}{\cos(n-1)A - \cos(n+1)A}$ equals

   (A) $\sin\frac{A}{2}$ (B) $\cos\frac{A}{2}$

   (C) $\tan\frac{A}{2}$ (D) $\cot\frac{A}{2}$

3. Minimum value of $\frac{1}{3\sin\theta - 4\cos\theta + 7}$ is

   (A) $\frac{1}{12}$ (B) $\frac{5}{12}$

   (C) $\frac{7}{12}$ (D) $\frac{1}{6}$

4. Two tangents to the circle $x^2 + y^2 = 4$ at the points A and B meet at P (–4, 0). The area of the quadrilateral PAOB, where O is the origin, is

   (A) 4 (B) $6\sqrt{2}$

   (C) $4\sqrt{3}$ (D) none of these

5. The line L has intercepts a and b on the coordinate axes. The coordinate axes are rotated through a fixed angle, keeping the origin fixed. If p and q are the intercepts of the line L on the new axes, then $\frac{1}{a^2} - \frac{1}{p^2} + \frac{1}{b^2} - \frac{1}{q^2}$ is equal to

   (A) –1 (B) 0

   (C) 1 (D) none of these

Space For Rough Work

6. If $3\sin\beta = \sin(2\alpha+\beta)$, then $\tan(\alpha+\beta) - 2\tan\alpha$ is
(A) independent of α (B) independent of β
(C) independent of both α and β (D) independent of none of them

7. If $y = (x^2+1)^{\sin x}$, then $y'(0)$ is equal to
(A) 0 (B) 1
(C) 2 (D) –1

8. If $y = |x+1| + |x+2| \ldots\ldots\ldots\ldots |x+100|$ then y minimum is
(A) 2450 (B) 2500
(C) 2550 (D) 2600

9. Value of $\log_3 2.\log_4 3.\log_5 4.\log_6 5.\log_7 6.\log_8 7$
(A) $\frac{1}{2}$ (B) $\frac{1}{4}$
(C) $\frac{1}{3}$ (D) $\frac{1}{5}$

10. The largest negative integer which satisfies $\frac{x^2-1}{(x-2)(x-3)} > 0$, is
(A) –4 (B) –3
(C) –1 (D) –2

11. Value of $\cos\frac{\pi}{7}\cos\frac{2\pi}{7}\cos\frac{4\pi}{7}$ be
(A) $\frac{1}{8}$ (B) $\frac{-1}{16}$
(C) $\frac{1}{16}$ (D) $\frac{-1}{8}$

12. If x = 2 ln cot t and y = tan t + cot t, the value of $\frac{dy}{dx}$ is
(A) $\cot 2t$ (B) $\tan 2t$
(C) $\cos 2t$ (D) $\sec 2t$

Space For Rough Work

13. The integral $\int \frac{\log x}{x} dx$ will be

(A) $(\log x)^2$ (B) $\frac{(\log x)^2}{2}$

(C) $\log x$ (D) $\frac{1}{x}$

14. If $3a-2b+5c=0$, family of straight lines $ax+by+c=0$ are always concurrent at a point whose co – ordinates are

(A) $\left(\frac{3}{5}, \frac{2}{5}\right)$ (B) $\left(-\frac{3}{5}, \frac{2}{5}\right)$

(C) $\left(\frac{3}{5}, -\frac{2}{5}\right)$ (D) $\left(-\frac{3}{5}, -\frac{2}{5}\right)$

15. The equation of the line bisecting the obtuse angle between $y-x=2$ and $2y+x=5$ is

(A) $\frac{y-x-2}{\sqrt{2}} = \frac{2y-x-5}{\sqrt{5}}$ (B) $\frac{y-x-2}{\sqrt{2}} = \frac{-2y-x+5}{\sqrt{5}}$

(C) $\frac{y-x-2}{\sqrt{2}} = \frac{2y+x-5}{\sqrt{5}}$ (D) none of these

16. If angle B of the triangle ABC is 45°, then $(1+\cot A)(1+\cot C)$ is equal to

(A) –1 (B) 0

(C) 1 (D) 2.

17. Tangents drawn from the point P (1, 8) to the circle $x^2+y^2-6x-4y-11=0$ touch the circle at the points A& B. The eq. of the circum circle of the triangle PAB is

(A) $x^2+y^2+4x-6y+19=0$ (B) $x^2+y^2-4x-10y+19=0$

(C) $x^2+y^2-2x+6y-29=0$ (D) $x^2+y^2-6x-4y+19=0$

18. The extremities of the diagonal of a square are (3, 5) and (6, 4). The coordinate of the other two vertices are

(A) (5, 6), (4, 3) (B) (8, 2), (1, 7)

(C) (2, 8), (7, 1) (D) None of these

Space For Rough Work

19. $\lim\limits_{x\to 0}\dfrac{\sin(3\sin 2x)}{x}$ is

(A) 6 (B) 4

(C) 1 (D) 5

20. If $y = a^{\frac{1}{1-\log_a x}}$ and $z = a^{\frac{1}{1-\log_a y}}$, then x is equal to

(A) $a^{\frac{1}{1+\log_a z}}$ (B) $a^{\frac{1}{2+\log_a z}}$

(C) $a^{\frac{1}{1-\log_a z}}$ (D) $a^{\frac{1}{2-\log_a z}}$

PART-B
Numerical Type

1. Number of solutions of the equation $\log_2\left(3^{2x-2}+7\right) = 2+\log_2\left(3^{x-1}+1\right)$ is

2. If the line joining origin to the intersection of the line y=mx+2 and curve $x^2+y^2=1$ are at right angle .Then the value of m^2 equal to

3 The number of real roots of the equation $x^2 - 7|x| + 12 = 0$ is

4 The line $4y - 3x + \lambda = 0$ touches the circle $x^2 + y^2 - 4x - 8y - 5 = 0$. The value of λ is

5 If p and r are the length of the perpendiculars from origin to the straight lines $x\sec\theta + y\,\mathrm{cosec}\,\theta = 3$ and $x\cos\theta - y\sin\theta = 3\cos 2\theta$ then $4p^2 + r^2$ is equal to

Space For Rough Work

FIITJEE INTERNAL TEST

BATCHES: Two Year CRP(2224) C-lot_JEEM

PHASE TEST – I

PHYSICS, CHEMISTRY & MATHEMATICS

ANSWER KEY

Paper Code 100176

SECTION – I

(PHYSICS)

PART – A

1.	B	2.	A	3.	A	4.	B
5.	A	6.	C	7.	C	8.	B
9.	B	10.	C	11.	D	12.	A
13.	B	14.	A	15.	D	16.	C
17.	C	18.	B	19.	C	20.	D

PART – B

1.	2	2.	1.40	3.	0.40	4.	1.50
5.	600						

SECTION – II
(CHEMISTRY)

PART – A

1.	B	2.	B	3.	B	4.	C
5.	C	6.	B	7.	A	8.	A
9.	C	10.	B	11.	B	12.	C
13.	B	14.	B	15.	A	16.	C
17.	B	18.	B	19.	C	20.	D

PART – B

1.	10	2.	0.5	3.	11	4.	0.32
5.	5						

SECTION – III
(MATHEMATICS)

PART – A

1.	B	2.	D	3.	A	4.	C
5.	B	6.	C	7.	A	8.	B
9.	C	10.	D	11.	D	12.	A
13.	B	14.	C	15.	C	16.	D
17.	B	18.	A	19.	A	20.	C

PART – B

1.	2	2.	7	3	4	4	–35
5	9						