SHIKSHA NATION

JEE MAIN-2026

Test Date: 23rd Jan 2026 (First Shift)

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

IMPORTANT INSTRUCTIONS

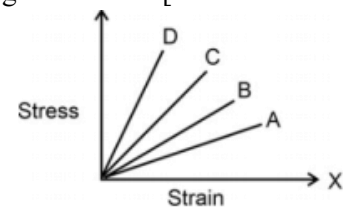
- The test is of **3 hours** duration.
- This test paper consists of 75 questions. Each subject (PCM) has 25 questions. The maximum marks are 300.
- This question paper contains Three Parts. Part-A is Physics, Part-B is Chemistry and Part-C is Mathematics. Each part has only two sections: Section-A and Section-B.
- Section - A: Attempt all questions.
- Section - B: Attempt all questions.
- Section - A (01–20) contains 20 multiple choice questions which have only one correct answer. Each question carries +4 marks for correct answer and –1 mark for wrong answer. Section - B (21–25) contains 5 Numerical value based questions. The answer to each question should be rounded off to the nearest integer. Each question carries +4 marks for correct answer and -1 mark for wrong answer.

SHIKSHA NATION

Memory Based Questions

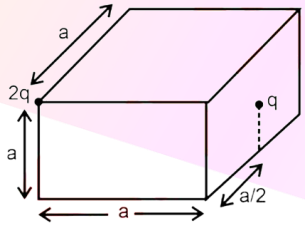
PHYSICS

1. Which graph has the maximum Young's modulus? [



Ans: (Graph D)

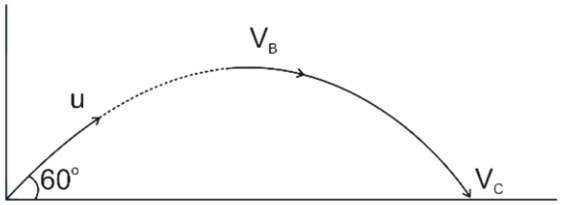
2. There are two-point charges, one at the vertex and other at the face of a cube as shown in the figure. Find electric flux through the cube.



(1) $3q/\epsilon_0$ (2) q/ϵ_0 (3) $3q/4\epsilon_0$ (4) $5q/\epsilon_0$

Ans: (3)

3. If a projectile is being launched with speed u and angle of projection is 60° with horizontal. Find the ratio of speed at highest point to the speed at final point.



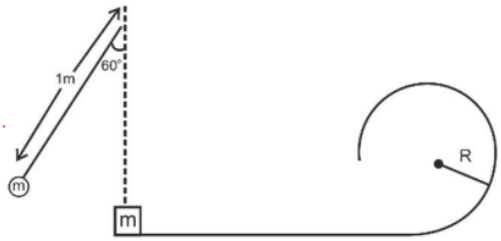
Ans: (1:2)

4. Find de-Broglie wavelength of O_2 molecule.

Given mass of O_2 molecule is m and the Temp is $27^\circ C$.

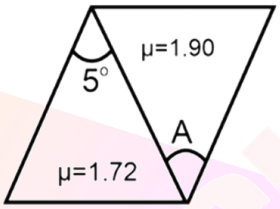
Ans: $\left(\frac{h}{\sqrt{900mk_B}}\right)$

5. A bob of mass m is released as shown when it was making 60° with the vertical. Another identical mass 'm' is kept at rest. Elastic collision occurs. Find R for completing circle. [Diagram: Pendulum of length 1m released from 60 degrees. Hits a block of mass m at the bottom, which then enters a vertical loop of radius R.]



Ans: (0.2 m)

6. What is the value of A, if the combination of prism shows dispersion without deviation.



Ans: (4)

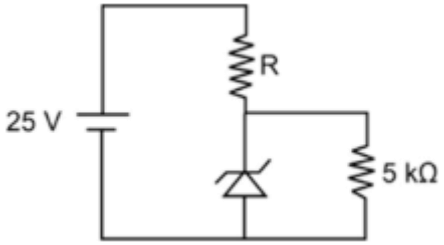
7. Two bodies, one of mass 'm', and the other of mass 2m are connected by a massless rod of length D. If the angular momentum of the system about an axis passing through the com of the system & perpendicular to the rod is L, find the angular velocity of the system.

Ans: $\left(\frac{3L}{2mD^2}\right)$

8. A rod of mass m and length l falls from rest in horizontal magnetic field B. Find the value of induced emf when it falls through height 'h'.

Ans: $(Bl\sqrt{2gh})$

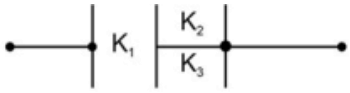
9. For the given circuit the breakdown voltage of Zener diode is $V_z = 5$ volts. And it can withstand maximum current of $I_z = 5$ mA. Find the value of R.



Ans: $\left(\frac{10}{3}k\Omega\right)$

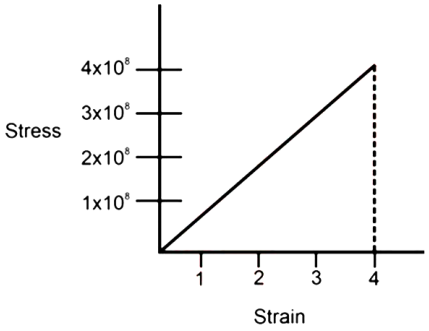
10. If $k_1 = 2$, $k_2 = 3$, $k_3 = 5$.

If $C = \frac{\epsilon_o A}{d}$ then equivalent capacitance is nC. Find n.



Ans: $\left(\frac{92}{35}\right)$

11. The stress is taken on Y axis and Strain is taken on x-axis then Youngs modulus of the object



(1) $10^8 \frac{N}{m^2}$ (2) $2\times10^8 N/m^2$ (3) $4\times10^8 \frac{N}{m^2}$ (4) $5\times10^8 N/m^2$

Ans: (1)

12. In YDSE the fringe width for two monochromatic light waves are equal. If the ratio of wavelengths is $\frac{\lambda_1}{\lambda_2} = \frac{1}{2}$ and ratio of distance b/w slits is 2: 1, find the ratio of Distance between the slit plane and screen.

Ans: (4:1)

13. Simple pendulum of length 3 m completes 20 oscillations in 10 seconds. If one another pendulum completes 40 oscillations in same 10 seconds, then what will be the length of that pendulum?

Ans: $\left(\frac{3}{4}m\right)$

14. A 25 kg mass moving with $30\,m/s$ collides perfectly inelastically with another mass 15 kg of same material moving with $10\,m/s$ in opposite direction. Find the rise in temperature of the system. (Given $C = 5\,cal/g^\circ C$ & $1\,cal = 4.2J$)

Ans: $(0.0089^\circ C)$

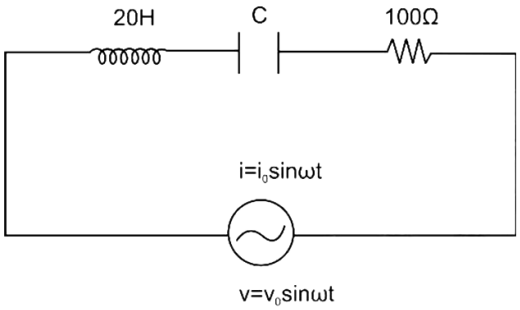
15. Four identical solid cylinders having mass (M), radius (R), length (L) $(R < L)$ arranged in a square loop. Find the moment of inertia along the axis passing through two opposite Sides.

(1) $\frac{3}{4}MR^2 + \frac{7}{12}ML^2$ (2) $\frac{3}{8}MR^2 + \frac{7}{12}ML^2$

(3) $\frac{3}{2}MR^2 + \frac{2}{3}ML^2$ (4) $\frac{3}{8}MR^2 + \frac{1}{6}ML^2$

Ans: (3)

16. If $\omega_{\circ} = 100\,\text{rad/s}$, find the resonant frequency ω, and the capacitance C.



Ans: $(\omega_r = 100\,\text{rad/s}; C = 5\mu F)$

CHEMISTRY

1. The correct order of ionisation energy of Cl, S, P, Al, Si is

(1) $Cl > P > S > Si > Al$ (2) $P > Cl > S > Al > Si$

(3) $Cl > S > P > Si > Al$ (4) $Cl > Al > Si > P > S$

Ans: (1)

2. Given below are two statements

S-I: $[CoBr_4]^{2-}$ absorbs less energy than $[CoCl_4]^{2-}$

S-II: $[CoCl_4]^{2-}$ has higher crystal field splitting energy then $[CoBr_4]^{2-}$

(1) Both S-I and S-II are correct

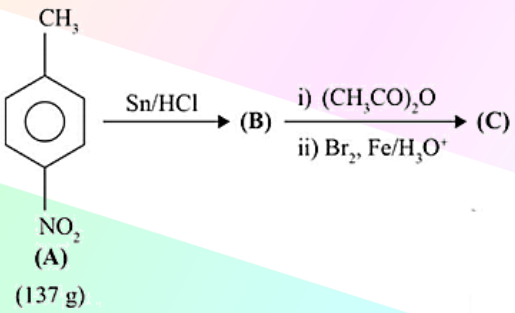
(2) Both S-I and S-II are incorrect

(3) S-I is correct and S-II are incorrect

(4) S-I is incorrect and S-II are correct

Ans: (1)

3. In the reaction sequence, what is the mass (in grams) of product (C) formed?



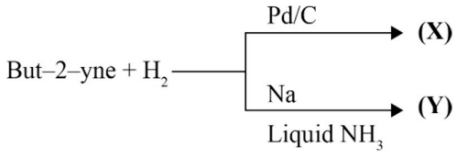
Ans: (186)

4. But-2-yne and hydrogen (one mole each) are separately treated with

(i) Pd / C

(ii) Na / Liquid NH_3 to give products 'X' and 'Y' respectively.

Identify the incorrect statements:



A. X and Y are stereoisomers

B. Dipole moment of X is zero.

C. Boiling point of X is higher than Y.

D. X and Y react with O_3 / $Zn + H_2O$ to give different products.

Choose the correct answer from the options given below:

(1) B and C only (2) A and C only (3) B and D only (4) A and B only.

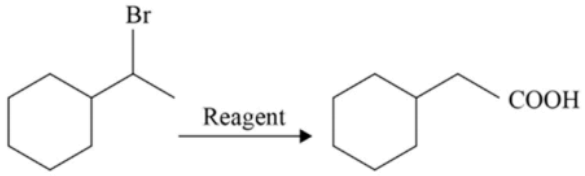
Ans: (2)

5. Which of the following undergo nitration at fastest rate?

(1) $C_6H_5NO_2$ (2) $C_6H_5CH_3$ (3) C_6H_5COOH (4) C_6H_5Br

Ans: (2)

6. Correct Sequence of reagent for given conversion:



(1) $(CH_3)_3CO^-$, Hydro Boration Oxidation, CrO_3 / H_2SO_4

(2) $(CH_3)_3CO^-$, Oxymercuration-Demercuration, CrO_3 / H_2SO_4

(3) EtO^-, Hydro Boration Oxidation, PCC

(4) EtO^-, H^+ / H_2O, $KMnO_4$

Ans: (1)

7. For the following change, $H_2O(l) \xrightarrow[5°C]{} H_2O(g)$ at $100^\circ C$.

Select the correct answer:

(1) $q = +ve, w = +ve, \Delta H = +ve$ (2) $q = -ve, w = -ve, \Delta H = +ve$

(3) $q = +ve, w = -ve, \Delta H = +ve$ (4) $q = -ve, w = -ve, \Delta H = -ve$

Ans: (3)

8. Given below are statements about Group 13 elements:

A) Ionic radii of trivalent cations of Group 13 elements decrease down the group.

B) Electronegativity of Group 13 elements decreases down the group.

C) Among the Group 13 elements, boron has the highest first ionisation enthalpy.

D) The trichlorides and triiodides of Group 13 elements are covalent in nature.

Choose the correct answer from the options given below:

(1) B and D only (2) A and D only

(3) C and D only (4) A and C only

Ans: (4)

9. Given below are two statements.

Statement I: Sublimation is used for the separation and purification of compounds with low melting point.

Statement II: The boiling point of a liquid increases as the external pressure is reduced.

In the light of the above statements, which is the correct option.

(1) Both statement-I and statement-II are correct

(2) Both statement-I and statement-II are incorrect

(3) Statement-I is correct and statement-II is incorrect

(4) Statement-I is incorrect and statement-II is correct

Ans: (1)

10. Given,

(A) $n = 5, m_l = -1$

(B) $n = 3, l = 2, m_l = -1, m_s = +1/2$

The maximum number of electrons in an atom that can have the given quantum numbers in (A) and (B) respectively are:

(1) 6 and 1 (2) 4 and 1 (3) 8 and 1 (4) 2 and 4

Ans: (1)

11. Correct order of +3 ionic radius among B, Al, Ga, In, Tl.

(1) $B^{3+} < Al^{3+} < Ga^{3+} < In^{3+} < Tl^{3+}$

(2) $B^{3+} < Al^{3+} < Ga^{3+} < Tl^{3+} < In^{3+}$

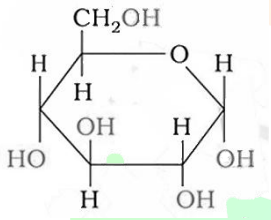
(3) $B^{3+} < Ga^{3+} < Al^{3+} < Tl^{3+} < In^{3+}$

(4) $Al^{3+} < B^{3+} < Ga^{3+} < In^{3+} < Tl^{3+}$

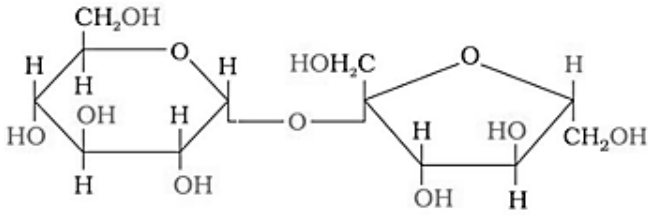
Ans: (1)

12. Which one gives positive Tollen's test?

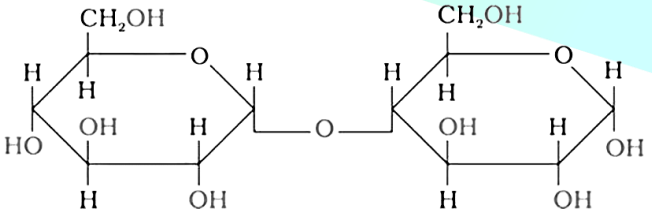
(1)



(2)



(3)



(4) Cellulose

Ans: (1)

13. Which of the following is correct?

(1) $+2.18\times10^{-18}$ J is the energy of the second orbit of He^+

(2) -1.09×10^{-18} J is the energy of the second orbit of H

(3) -2.18×10^{-18} J is the energy of the third orbit of Li^{2+}

(4) $+8.72\times10^{-18}$ J is the energy of the first orbit of He

Ans: (3)

14. 'X' is the product which is obtained from propanenitrile and stannous chloride in the presence of hydrochloric acid, followed by hydrolysis.
'Y' is the product which is obtained from but-2-ene by ozonolysis followed by hydrolysis. From the following, which product is NOT obtained when one mole of X and one mole of Y react with each other in the presence of alkali followed by heating?

(1) 2-Methylpent-2-enal
(2) 3-Methylbut-2-enal
(3) Pent-2-enal
(4) 2-Methylbut-2-enal

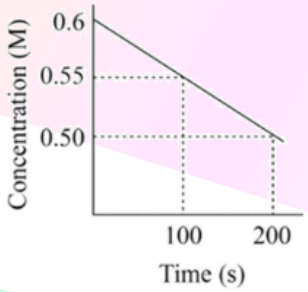
Ans: (2)

15. An element from the first transition series and another element from the third transition series belonging to the same group do not liberate H_2 gas from dilute acids like HCl. Both form halides. The hybridisation state of the metal ion halides, respectively, are:

(1) Both sp^3
(2) Both dsp^2
(3) sp^3 and dsp^2
(4) dsp^2 and sp^3

Ans: (4)

16. Consider the following graph of concentration vs time.

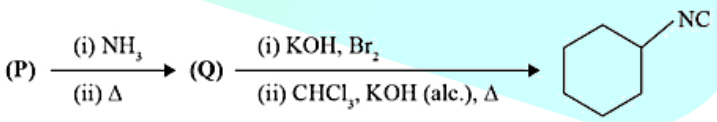


Find half-life of reaction.

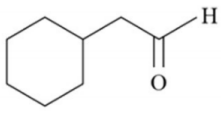
(1) 600 s
(2) 200 s
(3) 300 s
(4) 100 s

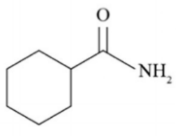
Ans: (1)

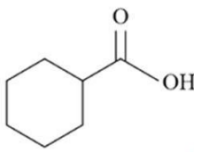
17. Compound 'P' undergoes the following sequence of reactions are :-

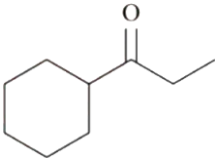


'P' is?

(1) 

(2) 

(3) 

(4) 

Ans: (3)

18. Regarding the complex $[Ni(CN)_4]^{2-}$ the incorrect statements are:

A) It is a red colored solid

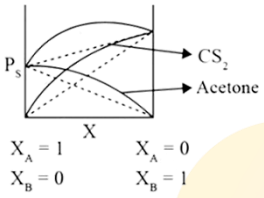
B) Number of unpaired electrons are 2

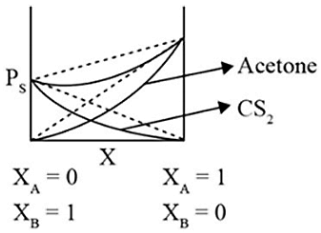
C) It will contain two five-membered rings

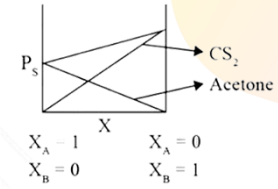
(1) A, B (2) B, C (3) A, C (4) A, B, C

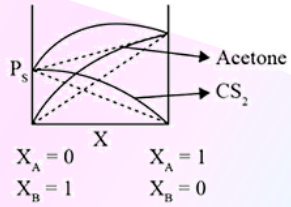
Ans: (4)

19. A binary solution is formed by mixing Acetone (A) and CS_2 (B). The variation of vapor pressure Vs mole fraction will be

(1) 

(2) 

(3) 

(4) 

Ans: (1)

MATHEMATICS

1. A rectangle is formed by lines $x=0$, $y=0$, $x=3$, $y=4$. A line perpendicular to $3x+4y+6=0$ divides the rectangle into two equal parts, then the distance of the line from $(-1,\frac{3}{2})$ is

(1) 2 (2) $\frac{17}{10}$ (3) 6 / 5 (4) $\frac{8}{5}$

Ans: (2)

2. Let $A=\{-2,-1,0,1,2,3,4\}$ and R be a relation defined on the set A, such that $R=\{(x,y):(2x+y)\le -2, x\in A, y\in A\}$. Let l be the number of elements in R. Let m be the minimum number of elements to be added in R to make it reflexive. Let n be the number of elements to be added in R to make it symmetric. Value of $l+m+n$:

(1) 10 (2) 17 (3) 11 (4) 14

Ans: (2)

3. Two persons A and B can complete the work together in **22.5 days**. If person A alone can complete the work in **24 days less** than person B alone, find the time taken by person A alone to complete the work.

Ans: (36)

4. $50.100_{C_{50}}+52.100_{C_{51}}+...100.100_{C_{100}}=$

Ans: $(100\cdot 2^{98})$

5. Number of 4-letter words with or without meaning formed from the letters of the word PQRSSSTTUVV is

(1) 1232 (2) 1400 (3) 1422 (4) 1162

Ans: (3)

6. $$f(x)=\begin{cases}\frac{ax^2+2ax+3}{4x^2+4x-3} & \text{if } x\neq\frac{-3}{2},\frac{1}{2}\\ b & \text{if } x=\frac{-3}{2},\frac{1}{2}\end{cases}$$

$f(x)$ is continuous at $x=\frac{-3}{2}$. $f\circ f(x)=\frac{7}{5}$ then $x=$

(1) 1.4 (2) 0 (3) 1 (4) 2

Ans: (3)

7. $\int_{\frac{\pi}{24}}^{\frac{5\pi}{24}}\frac{dx}{1+\sqrt[3]{\tan 2x}}=$

Ans: $\left(\frac{\pi}{12}\right)$

8. $\int \frac{(2-x^2)e^x}{\sqrt{1+x}\cdot(\sqrt{1-x})^3}dx =$

Ans: $\left(e^x\sqrt{\frac{1+x}{1-x}}+c\right)$

9. $x^4dy+(4x^3y+2\sin x)dx=0, y(0)=0$. Find $y(\frac{\pi}{3})\times\pi^4$

Ans: (81)

10. Consider an ellipse $\frac{x^2}{2}+\frac{y^2}{1}=1$ and a line L: $y-x=1$ where L intersects the ellipse at 2 points A and B. Find the angle subtended by points A and B at the centre of the ellipse.

Ans: $(\theta=\tan^{-1}(-4))$

11. Let z be a complex number such that, $3\leq|2z-(3+3i)|\leq 7$. Then the minimum value of $|z+\frac{1}{2}(5+3i)|$

Ans: $\left(\frac{3}{2}\right)$

12. Area Bounded by curves $y=\max[\sin x,\cos x]$ at $x=0, x=\frac{3\pi}{2}$ is A then $A+A^2=$

Ans: $(8-2\sqrt{2})$

13. For given vectors $\bar{a}=-\hat{i}+\hat{j}+2\hat{k}$ and $\bar{b}=2\hat{i}-\hat{j}+\hat{k}$ where $\bar{c}=\bar{a}\times\bar{b}$ and $\bar{d}=\bar{c}\times\bar{b}$. Then the value of $(\bar{a}-\bar{b})\cdot\bar{d}$

(1) -35 (2) 53 (3) -52 (4) 25

Ans: (1)

14. In set $S=\{1,2,\ldots,100\}$, select two different numbers m, n such that $n-m\geq 10$ is having a probability a / b. Find $a+b$, where a and b are co-primes.

Ans: (201)

15. Find the number of possible values of n such that the coefficient of x, x^2, x^3 are in A.P. in expansion $(1+x^2)^2(1+x)^n$.

(1) 12 (2) 9 (3) 3 (4) 7

Ans: (3)

16. Domain of $f(x)=\log_3(\log_5\log_7(13-x^2-9x))$ is (m, n) such that Hyperbola $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$ with eccentricity $\frac{n}{5}$ & length of latus rectum is $\frac{m}{3}$. Find a^2-b^2

(1) 16 (2) 9 (3) 13 (4) 7

Ans: (3)

17. $f(x)$ is a twice differentiable function such that $(f(x))^2=25+\int_0^x((f(t))^2+(f'(t))^2)dt$. then find the mean of $f(\log_e 1), f(\log_e 2),\ldots f(\log_e 625)$.

Ans: (1565)

18. The number of solutions of $13\cos 2\theta+8\cos\theta-3\sqrt{3}=0$, if $\theta\in[-3\pi,2\pi]$

Ans: (5)

19. Mean and variance of the 8 observations -10, -7, -1, x, y, 16, 2, 9 are $\frac{7}{2}$ and $\frac{293}{4}$ respectively. Then, the mean of x, y, $x+y+1$, $|x-y|$ is

Ans: (11)

*****