FIITJEE

ALL INDIA TEST SERIES

JEE (Advanced)-2025

FULL TEST – IX

PAPER –2

TEST DATE: 04-05-2025

Time Allotted: 3 Hours **Maximum Marks: 180**

General Instructions:

- The test consists of total 51 questions.
- Each subject (PCM) has 17 questions.
- This question paper contains **Three Parts.**
- **Part-I** is Physics, **Part-II** is Chemistry and **Part-III** is Mathematics.
- Each **Part** is further divided into **Three Sections**: **Section-A, Section-B & Section-C**.
  Section – A *(01 – 04, 18 – 21, 35 – 38):* This section contains **TWELVE (12)** questions. Each question has **FOUR** options. **ONLY ONE** of these four options is the correct answer.
  Section – A *(05 –07, 22 – 24, 39 – 41):* This section contains **NINE (09)** questions. Each question has **FOUR** options. **ONE OR MORE THAN ONE** of these four option(s) is(are) correct answer(s).
  Section – B *(08 – 13, 25 – 30, 42 – 47):* This section contains **EIGHTEEN (18)** numerical based questions. The answer to each question is a **NON-NEGATIVE INTEGER VALUE**.
  Section – C *(14 –17, 31 – 34, 48 – 51):* This section contains **SIX (06) paragraphs.** Based on each paragraph, there are **TWO (02)** questions of numerical answer type. The answer to each question is a **NUMERICAL VALUE (XXXXX.XX).** If the numerical value has more than two decimal places, truncate/round-off the value to **TWO** decimal places.

MARKING SCHEME

Section – A (Single Correct): Answer to each question will be evaluated according to the following marking scheme:

Full Marks	:	+3	If ONLY the correct option is chosen.
Zero Marks	:	0	If none of the options is chosen (i.e. the question is unanswered);
Negative Marks	:	–1	In all other cases.

Section – A (One or More than One Correct): Answer to each question will be evaluated according to the following marking scheme:

Full Marks	:	+4	If only (all) the correct option(s) is (are) chosen;
Partial Marks	:	+3	If all the four options are correct but ONLY three options are chosen;
Partial marks	:	+2	If three or more options are correct but ONLY two options are chosen and both of which are correct;
Partial Marks	:	+1	If two or more options are correct but ONLY one option is chosen and it is a correct option;
Zero Marks	:	0	If none of the options is chosen (i.e. the question is unanswered);
Negative Marks	:	–2	In all other cases.

Section – B: Answer to each question will be evaluated according to the following marking scheme:

Full Marks	:	+4	If ONLY the correct integer is entered;
Zero Marks	:	0	Question is unanswered;
Negative Marks	:	0	In all other cases.

Section – C: Answer to each question will be evaluated according to the following marking scheme:

Full Marks	:	+3	If ONLY the correct integer is entered;
Zero Marks	:	0	Question is unanswered;
Negative Marks	:	0	In all other cases.

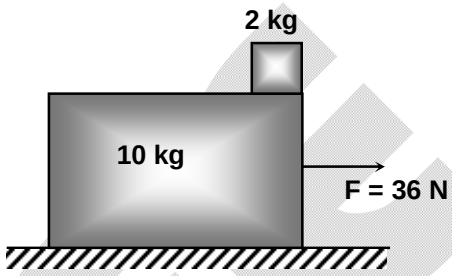
Physics

PART – I

SECTION – A
(One Options Correct Type)

*This section contains **FOUR (04)** questions. Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.*

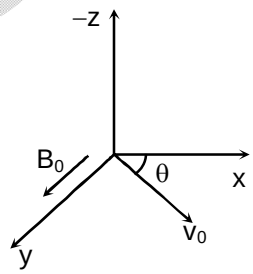
1. A cube of side length 1 m and mass 10 kg is placed on a smooth horizontal surface. A small block of mass 2 kg and negligible size is placed on the front corner of the cube. Coefficient of friction between the cube and the block is $\mu = 0.2$. The cube is pulled with a constant horizontal force F = 36 N. The kinetic energy of the block just before it reaches the ground is



(A) $\frac{90}{3}$J (B) $\frac{80}{3}$J

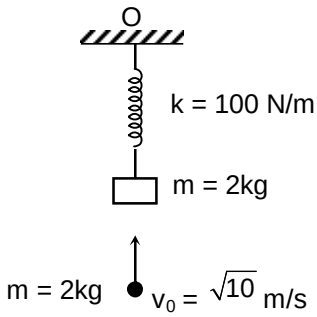
(C) $\frac{20}{3}$J (D) $\frac{7.2}{3}$J

2. A uniform magnetic field exists in region along y-axis. A charge +q is projected at origin in xy plane with velocity v_0 at t = 0 as shown. Choose the correct option for motion of charge. ($\theta \neq 0$)



(A) x and z coordinate of position of charge can not be zero at same time (t > 0)
(B) If speed v_0 is increased, charge will take more time to have its x-coordinate to be zero for the first time after t = 0.
(C) If θ is increased keeping speed v_0 constant, charge will take same time to meet y-axis after t>0.
(D) all of the above

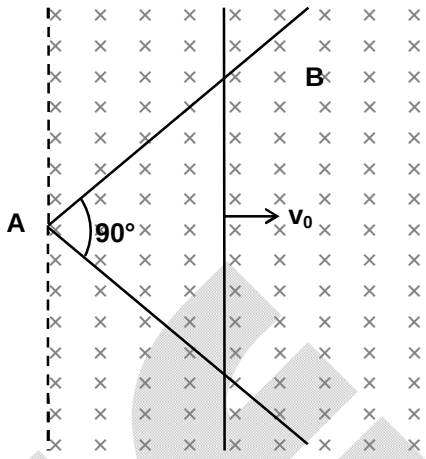
3. A massless spring of spring constant k = 100 N/m hangs in a vertical plane from point 'O', its other end is attached with a block of mass m = 2kg and system is in equilibrium. Now another small spherical ball of same mass moving with a velocity $v_0 = \sqrt{10}$ m/s collides with the block and gets stuck to it as shown in the figure. The new amplitude of oscillation will be



(A) $\frac{\sqrt{34}}{5}$ m (B) $\frac{\sqrt{14}}{10}$ m

(C) $\frac{\sqrt{17}}{2}$ m (D) $\frac{\sqrt{13}}{4}$ m

4. A conducting uniform wire bent into the shape of a right angle is held stationary on a horizontal frictionless surface. A very long uniform thin conducting rod of mass m projected with velocity v_0 from the apex A of the bend wire. The resistance per unit length of the wire and the rod is λ. The entire arrangement is placed in a uniform magnetic field B perpendicular to the plane formed by the wire and the rod. Find the distance travelled by the rod before it becomes stationary.



(A) $\sqrt{\frac{m\lambda v_0(\sqrt{2}+1)}{B}}$

(B) $\frac{\sqrt{m\lambda v_0(\sqrt{2}+1)}}{2B}$

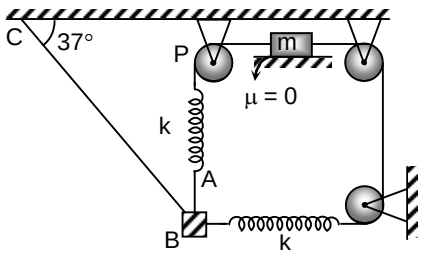
(C) $\frac{\sqrt{m\lambda v_0(\sqrt{2}+1)}}{B}$

(D) $\sqrt{\frac{m\lambda v_0(\sqrt{2}+1)}{2B}}$

SECTION – A
(One or More than one correct type)

*This section contains **THREE (03)** questions. Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is (are) correct answer(s).*

5. In the shown figure a block of mass m = $\frac{1}{2}$kg is suspended in equilibrium with the help of ideal string and two ideal spring of force constant k = 100 N/m. Now string AP is cut. Pullies are massless, frictionless, AP is vertical and other spring is horizontal. Just after cutting the string ($g = 10\ m/s^2$)



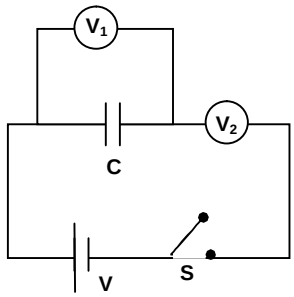
(A) Tension in string BC is 3N

(B) Tension in string BC is $\frac{37}{7}$N

(C) Acceleration of the suspended block is $\frac{32}{7}\ m/s^2$.

(D) Acceleration of the suspended block is $8\ m/s^2$.

6. An uncharged capacitor of capacitance 'C' is connected to two voltmeters V_1 and V_2. The resistances of voltmeter V_1 and V_2 are 2R and R respectively. If switch 'S' is closed at t = 0, then



(A) At t = 0, reading of voltmeter V_2 is V

(B) Reading of V_2 varies from $\frac{4V}{3}$ and $\frac{V}{2}$

(C) Reading of voltmeters will be equal at t = $\frac{2RC}{3}\ell n2$

(D) Reading of voltmeter will be equal at t = $\frac{4RC}{3}\ell n2$

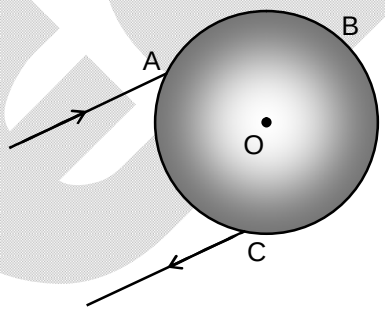
7. A tube of certain diameter of length 97 cm is open at both ends. Its fundamental frequency of resonance is found to be 160 Hz. The velocity of sound in air is 320 m/s. Then choose the correct statement (s)
(A) Diameter of the tube is 5 cm
(B) When one end of the tube is closed, the lowest frequency of resonance for the tube is 81.22 Hz (approximately upto two decimal)
(C) When one end of the tube is closed the frequency of 3rd harmonic is 243.65 Hz (approximately upto two decimal)
(D) When both end are open the frequency of 3rd harmonic is 480 Hz

SECTION – B

(Numerical Answer Type)

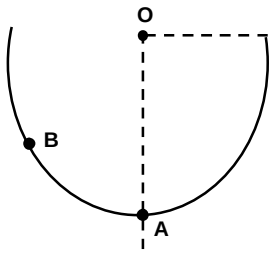
*This section contains **SIX (06)** Numerical based questions. The answer to each question is a **NON-NEGATIVE INTEGER VALUE**.*

8. A sphere of refractive index $\sqrt{2}$ is kept in a space whose centre is O. A ray is incident at point 'A' of the sphere and after refraction at A it is internally reflected at point 'B' then refracted at 'C' and finally comes out from the sphere. It is given that the total deviation produced in the incident ray is minimum, if the angle of incidence is given by $i = \sin^{-1}\left(\sqrt{\frac{2}{\lambda}}\right)$, then find the value of λ.

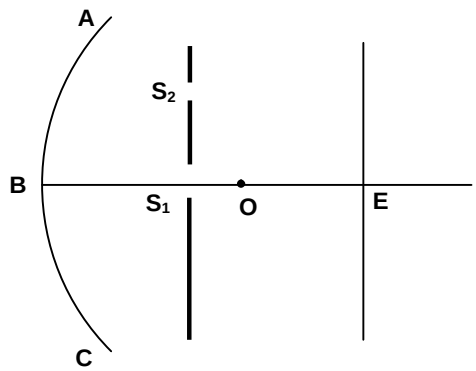


9. Consider a planet whose density is half of the earth and its radius is double of the earth. What will be the time period (in sec) of oscillation of the pendulum on this planet if it is a second pendulum of the earth.

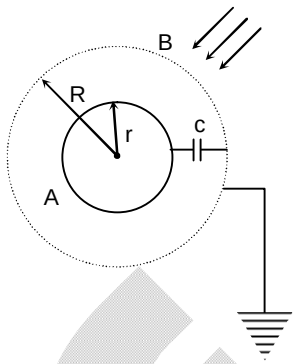
10. In a fixed hemispherical smooth bowl of Radius R, a particle is dropped at point B somewhere else other than point A. Collision with the bowl is perfectly elastic. For second collision to take place at point A, the maximum value of $\angle BOA$ is $\frac{\pi}{K}$ radian. Find the value of K.



11. ABC is a spherical wavefront centered at O is incident on slits S_1 and S_2. $BS_1 = 3\lambda, S_1S_2 = 4\lambda$, $BO = 6\lambda, S_1E = 128\lambda$, here λ is the wavelength of incident wave. A mica sheet of refractive index 1.5 is pasted on S_2. If the minimum value of thickness of mica sheet for which central maxima is formed at E is $\frac{31\lambda}{N}$. Find the value of N.



12. A conducting solid sphere of radius r = 2 cm is surrounding by a conducting shell which is made up of fine wire mesh with radius R = 4 cm are shown in the figure. The shell and sphere are joined by a capacitor of capacitance C = 2μF. Work function of the material of shell A and B is 1eV and 4eV respectively. Light falls on this system have frequency $\nu = 7.27 \times 10^{14}$ Hz. The energy stored in the capacitor C in steady condition (in μJ) is



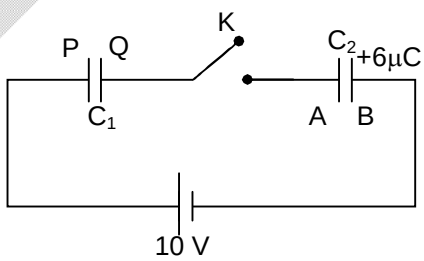
13. Opening of a glass bottle containing an ideal monoatomic gas is tightly closed with a cork fitted with a thin frictionless glass tube of cross-section area S. Inner volume of the tube is negligibly small as compared to volume V of the bottle. A small glass marble of mass m, when dropped in the tube, it starts oscillating up and down in the tube without friction. The marble exactly fits inside the tube so that there is no leakage of air. The atmospheric pressure is P_0 and consider the glass, the cork and the material of the marble as perfect insulator of heat. If the time period of oscillations of the marble is $2\pi\sqrt{\frac{kmV}{15S(P_0S+mg)}}$. The value of k is……..

SECTION – C
(Numerical Answer Type)

*This section contains **TWO (02) paragraphs.** Based on each paragraph, there are **TWO (02)** questions of numerical answer type. The answer to each question is a **NUMERICAL VALUE (XXXXX.XX).** If the numerical value has more than two decimal places, truncate/round-off the value to **TWO** decimal places.*

Paragraph for Question Nos. 14 and 15

Two capacitor C_1 = 3μF and C_2 = 6 μF are connected as shown in the figure. When K is open C_1 is unchanged while plate B of C_2 is given charge 6 μC. After key is closed, magnitude of charge on plate P of capacitor C_1 is X μC and magnitude of charge on plate B of C_2, is Y μC.

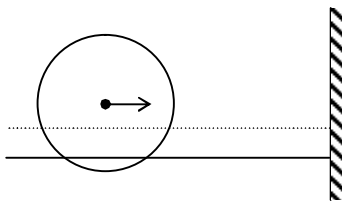


14. The value of X is ……..

15. The value of Y is ……..

Paragraph for Question Nos. 16 and 17

A sphere of radius R = 5 cm is rolling without slipping with a velocity 10 m/s on two parallel, horizontal fixed rods as shown in the figure. The separation between the rods is $\ell = 2\sqrt{24}$ cm. There is friction between the rods and sphere and coefficient of friction μ = 0.3. The sphere collides with a smooth vertical wall elastically. It returns back and again collides with a velocity v_2. Similarly it collides with the wall again with a velocity v_3.



16. The value of v_2 (in m/s) is ……

17. The value of v_3 (in m/s) is ……

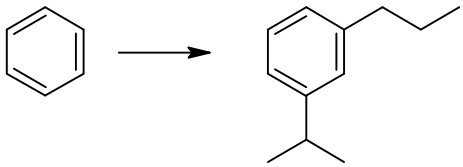
Chemistry

PART – II

SECTION – A
(One Options Correct Type)

*This section contains **FOUR (04)** questions. Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.*

18. Correct sequence for the following conversion, is



(A) (i) Friedal-Craft's alkylation (ii) reduction (iii) Friedal-Craft's alkylation
(B) (i) Friedal-Craft's acylation, (ii) reduction (iii) Friedal-Craft's alkylation
(C) (i) Friedal-Craft's alkylation, (ii) Friedal-Craft's acylation (iii) reduction
(D) (i) Friedal-Craft's acylation (ii) Friedal-Craft's alkylation (iii) reduction

19. For the reaction, $CH_4(g) + 2O_2(g) \longrightarrow CO_2(g) + 2H_2O(g)$; $\Delta H^o = -802.8$ kJ

The value of $\Delta H_{C=0}$ from the following bond energy data will be

$\Delta H_{C-H} = 416.2$ kJ / mol

$\Delta H_{O=O} = 493.7$ kJ / mol

$\Delta H_{O-H} = 464.4$ kJ / mol

(A) 1263.1 kJ/mol (B) 798.7 kJ/mol
(C) 1292.4 kJ/mol (D) 987.8 kJ/mol

20. Among the oxides of nitrogen, the compound(s) in which of the following N atom is not directly attached with N atom
(A) N_2O (B) N_2O_3
(C) N_2O_4 (D) N_2O_5

21. Consider the following two equilibria at temperature T.

(i) $CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$ $K_p = 4 \times 10^{-2}$ atm

(ii) $C(s) + CO_2(g) \rightleftharpoons 2CO(g)$ $K_p = 2.0$ atm

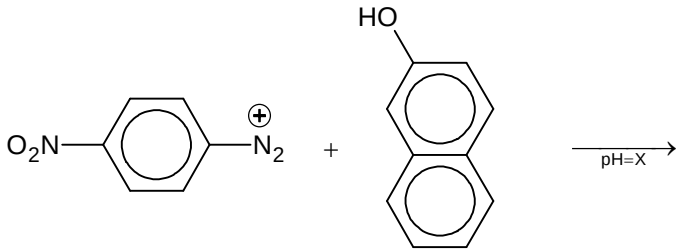
Solid carbon, CaO, $CaCO_3$ are mixed and allowed to attain equilibrium at temperature T. The partial pressure of CO, when equilibrium is achieved, is
(A) 0.08 atm (B) 2.8 atm
(C) 0.56 atm (D) 0.28 atm

SECTION – A
(One or More than one correct type)

*This section contains **THREE (03)** questions. Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is (are) correct answer(s).*

22. A non-reacting dry gas, (say N_2) is bubbled through some liquids separately and samples of emergent gas are collected at the same temperature and pressure. If definite volume of the emergent gas weighs more than the same volume of dry gas under identical conditions of temperature and pressure, the liquid(s) may be
(A) Heavy water (D_2O)
(B) Methanol
(C) Acetone
(D) 1 : 1 molar mixture of H_2O and D_2O

23.



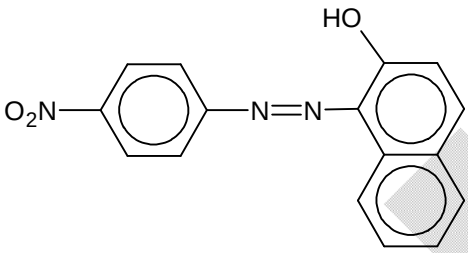
The incorrect statement (s) is/are

(A) 'X' should be greater than 7 so that phenolic group $(-OH)$ convert into  and it activate the aromatic ring towards electrophilic aromatic substitution

(B) 'X' should be less than 7 so that more positive charge present on N_2 and electrophilic power of electrophile increases in the reaction

(C) The above reaction is an example of electrophilic aromatic substitution

(D) If medium is basic in above reaction then product is



24. Select the correct statement(s) of the following:

(A) If the critical micelle concentration of a soap is 10^{-3} M, then osmotic pressure of 1×10^{-4} M solution will be almost equal to that of 1×10^{-4} M NaCl solution

(B) When some oil soluble dye is added to water-in-oil emulsion, the background appears coloured

(C) In cataphoresis of a sol formed by peptization of freshly obtained SnO_2 by somewhat excess of NaOH, the sol particles move towards anode

(D) Coagulating power of the following electrolytes in the sol obtained in option (C) will be in the order
$Na_3PO_4 > MgSO_4 > AlCl_3$

SECTION – B

(Numerical Answer Type)

*This section contains **SIX (06)** Numerical based questions. The answer to each question is a **NON-NEGATIVE INTEGER VALUE**.*

25. How many salts from given below form precipitate of hydroxide and also soluble in excess of NaOH
$FeCl_3$, $HgCl_2$, $ZnSO_4$, $MnSO_4$, $AlCl_3$, $SnCl_4$

26. How many given below metal nitrates on heating gives metal oxide and NO_2 gas
Sr, Ba, Na, Ag, Zn, Rb, Li

27. Find the pH of solution, if 0.1 M CH_3COOH freezes at – 0.205°C if (K_f of water is 1.86 kg/mole/K).

28. 'x' moles of B_2H_6 reacts completely with CH_3OH and 6 moles of Boron containing product is formed. Find the value of 'x'

29. An electron belongs to an orbit of H-atom whose angular momentum is 4.2178×10^{-34} kg – m^2 / sec. Find the number of visible line emitted when electron falls from this energy level to ground state.

30. How many of the following substance are more acidic than phenol?
O-Cresol, P-Cresol, Ethyl Alcohol, 2,4-dimethyl phenol, m-methoxy phenol, p-ethyl phenol, m-amino phenol.

SECTION – C
(Numerical Answer Type)

*This section contains **TWO (02) paragraphs.** Based on each paragraph, there are **TWO (02)** questions of numerical answer type. The answer to each question is a **NUMERICAL VALUE (XXXXX.XX).** If the numerical value has more than two decimal places, truncate/round-off the value to **TWO** decimal places.*

Paragraph for Question Nos. 31 and 32

One mole each of ammonium di-chromate, ammonium nitrate and mercuric nitrate are heated strongly and the gases evolved are collected. If 'X' is the total volume of diatomic gas/gases (in litres at S.T.P.) and 'Y' is the total volume of triatomic gas/gases (in litres at S.T.P.), (molar volume of a gas at STP is 22.4 L), then

31. The value of 'X' is_____

32. The value of 'Y' is_____

Paragraph for Question Nos. 33 and 34

When NO and NO_2 are mixed together, following equilibria were established in a closed vessel.

$2NO_2 \rightleftharpoons N_2O_4$ $\qquad K_{P_1} = 6.8\ atm^{-1}$

$NO_2 + NO \rightleftharpoons N_2O_3$ $\qquad K_{P_2} = 'X'$

In an experiment , when NO and NO_2 are mixed in molar ratio of 1 : 2, final pressure was found to be 5.05 atm. When the partial pressure of N_2O_4 (at equilibrium) was 1.7 atm.

33. Calculate the equilibrium pressure of NO (in atm)?

34. What is the value of $K_{P_2}(X)$?

Mathematics

PART – III

SECTION – A
(One Options Correct Type)

*This section contains **FOUR (04)** questions. Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.*

35. A variable plane cuts off intercepts from the co-ordinate axes which are equal to the roots of the equation $x^3 + 5x = p - qx^2$ (p, q are real numbers). The locus of the foot of the perpendicular from the origin to the plane is
(A) $(x^2 + y^2 + z^2)^2 (xy + yz + zx) = 5$
(B) $(x^2 + y^2 + z^2)^4 (1/xy + 1/yz + 1/zx) = 5$
(C) $(x^2 + y^2 + z^2)^2 (1/xy + 1/yz + 1/zx) = 5$
(D) $(x^2 + y^2 + z^2)^4 (xy + yz + zx) = 5$

36. The fuel charges for running a train are proportional to the square of the speed generated in km per hour, and the cost is Rs. 48 at 16 km per hour. If the fixed charges amount to Rs. 300 per hours, the most economical speed is
(A) 60 kmph
(B) 40 kmph
(C) 48 kmph
(D) 36 kmph

37. A curve $y = 2x - 3x^3$ is intersected by a line $y = c$ at A(a, c) and B(b , c), (where $b > a$), in the first quadrant. If area bounded by y–axis, the curve and line $y = c$ is equal to area bounded by the line $y = c$ and curve (both in first quadrant), then
(A) $\int_0^b (2x - 3x^3)\,dx > bc$
(B) $c = \frac{4}{9}$
(C) $c = \frac{2}{3}$
(D) $(3c)^2 + b^2 = 1$

38. If $(1 + x + x^2)^{20} = \sum_{r=0}^{40} a_r \cdot x^r$ then $\sum_{r=0}^{39} (-1)^r \cdot a_r \cdot a_{r+1}$ equal to
(A) 79
(B) $2^{39} \cdot {}^{78}C_{39}$
(C) $3^{39} \cdot {}^{78}C_{39}$
(D) 0

SECTION – A
(One or More than one correct type)

*This section contains **THREE (03)** questions. Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is (are) correct answer(s).*

39. Let there be two circles with one touching x–axis at A(2, 0) and has radius 1 unit and other touching x–axis at B(6, 0). Let C and D be the centres of first and second circles respectively; Again let P(6, 2) be a point on a line perpendicular to CD and bisecting AB. If PA and PB intersect circles at E and F respectively, then
(A) $\frac{PE}{PF} = \frac{1}{\sqrt{5}}$
(B) $\frac{PE}{PF} = \sqrt{5}$
(C) $PE = \frac{8}{\sqrt{5}}$
(D) $PF = 8$

40. Let $\alpha = e^{\frac{i2\pi}{11}}$ and $\lambda = \alpha^6$, $\mu = \alpha^7$, $\beta = \alpha^2$ then

(A) $\text{Re}(\lambda + \lambda^2 + \lambda^3 + \lambda^4 + \lambda^5) = -\frac{1}{2}$

(B) $(\mu - \beta)(\mu - \beta^2) \ldots\ldots (\mu - \beta^{10}) = 0$

(C) $(i - \beta)(i - \beta^2) \ldots\ldots (i - \beta^{10}) = i$

(D) $(\mu - \beta)(\mu - \beta^2) \ldots\ldots (\mu - \beta^{10}) = 1$

41. Solution of equation $y\,dx(1 + x^2 \cdot \ln xy) + x\,dy(1 + y^2 \ln(xy)) = 0$ is

(A) $\ln(\ln xy) + x^2 + y^2 + c = 0$

(B) $\ln xy = ce^{\frac{(x^2+y^2)}{2}}$

(C) $2\ln(\ln xy) + x^2 + y^2 + c = 0$

(D) $\ln xy = ce^{-\frac{(x^2+y^2)}{2}}$

SECTION – B

(Numerical Answer Type)

*This section contains **SIX (06)** Numerical based questions. The answer to each question is a **NON-NEGATIVE INTEGER VALUE**.*

42. If $a_1, a_2, a_3, \ldots\ldots, a_{12}$ are in A.P. and $\Delta_1 = \begin{vmatrix} a_1a_5 & a_1 & a_2 \\ a_2a_6 & a_2 & a_3 \\ a_3a_7 & a_3 & a_4 \end{vmatrix}$, $\Delta_2 = \begin{vmatrix} a_2a_{10} & a_2 & a_3 \\ a_3a_{11} & a_3 & a_4 \\ a_3a_{12} & a_4 & a_5 \end{vmatrix}$ then $\Delta_1 : \Delta_2$ is equal to _____

43. Let f(x) be a function defined on R such that $f'(x) = f'(3 - x)\ \forall\ x \in [0, 3]$ with $f(0) = -32$ and $f(3) = 46$, then find the value of $\frac{1}{3}\int_0^3 f(x)dx$ _____

44. Let $f_k(x) = \frac{1}{x^k - 1}$ and its nth derivative $f_k^n(x) = \frac{p_k^n(x)}{(x^k - 1)^{n+1}}$. Then unit digit of $p_4^4(1)$ is _____

45. On an ellipse $\frac{x^2}{64} + \frac{y^2}{9} = 1$, tangents drawn at $P_1, P_2, P_3 \ldots\ldots P_n$ intersects the major axis at $T_1, T_2, T_3 \ldots\ldots T_n$ respectively. if the value of $\sum_{i=1}^{n} \frac{\text{Area}(\Delta P_iT_iS) \cdot \text{Area}(\Delta P_iT_iS')}{(P_iT_i)^2} = 18$, then n is equal to_____

46. If point P(9, 2) on the hyperbola $x^2 - y^2 - 4x - 6y - 30 = 0$ and S and S′ are its foci, then $\frac{PS \cdot PS'}{74}$ is equal to _____

47. $\left| \lim_{x \to \frac{\pi}{2}^-} (1 + \tan x)\left\{(1 + \tan x)\ln\left(\frac{1 + \tan x}{2 + \tan x}\right) + 1\right\} \right|$ is equal to _____

SECTION – C
(Numerical Answer Type)

*This section contains **TWO (02) paragraphs.** Based on each paragraph, there are **TWO (02)** questions of numerical answer type. The answer to each question is a **NUMERICAL VALUE (XXXXX.XX).** If the numerical value has more than two decimal places, truncate/round-off the value to **TWO** decimal places.*

Paragraph for Question Nos. 48 and 49

Let A be a n $\times$ n matrix. Suppose the linear transformation Y = AX transforms X into a scalar multiple of itself i.e. AX = Y = λX i.e. X is an invariant vector. Then the unknown scalar λ is known as an eigen value of matrix A and corresponding non zero vector X as eigen vector. Thus eigen values satisfy the equation AX = λX

48. $A = \begin{bmatrix} 8 & -4 \\ 2 & 2 \end{bmatrix}$ then possible eigen values is/are

49. Let, $A = \begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$ then value of λ for which eigen vector so formed is orthogonal is

Paragraph for Question Nos. 50 and 51

Let a real valued function f defined on real number satisfies $\int_0^{2x} t^2 f(2x-t)\,dt = 2e^{2x} - 4x^2 + 2x - 2$ and

g(x) + g′(x) = f(–x) with $g(1) = \frac{1}{e}$

50. $f^{-1}(e)$ is equal to

51. Area bounded by y = g(x) and x-axis will be