AESL Question Paper

Pre-NEET-2025

Complete Syllabus of Class XI & XII

Question 1:

The moment of inertia of a uniform thin rod of length 4 m about an axis passing through point *A* and perpendicular to the rod as shown in figure is 63 kg–m^2. The mass of rod is

1)

47.25 kg

2)

27 kg

3)

11.81 kg

4)

54 kg

Question 2:

In the following circuit, the equivalent capacitance between terminal *A* and terminal *B* is

1)

1 μF

2)

2 μF

3)

3 μF

4)

4 μF

Question 3:

A 100 V, 50 W bulb is connected to the secondary of a step-down transformer, whose primary is connected to ac mains of 200 V. Assuming the transformer to be ideal, what is the current in the primary winding?

1)

0.5 A

2)

0.25 A

3)

1 A

4)

2 A

Question 4:

For Young's double slit experiment, two statements are given below:

Statement I: If slit separation increases, then angular width of central bright fringes remains constant.

Statement II: If the monochromatic source is replaced by another monochromatic source of smaller wavelength, the angular width of central bright fringes decreases.

In the light of the above statements, choose the most appropriate answer from the options given below:

1)

Both statement I and statement II are false

2)

Both statement I and statement II are true

3)

Statement I is true but statement II is false

4)

Statement I is false but statement II is true

Question 5:

A 10 mH inductor is connected to a 220 V, 50 Hz source as shown in figure. The peak current in the circuit is nearly

1)

90.98 A

2)

98.98 A

3)

70 A

4)

49.50 A

Question 6:

The acceleration(*a*) - time(*t*) plot of the motion of a body moving in one dimension is shown below:

The velocity (*v*) - time(*t*) graph that best suits this motion is

1) 

2) 

3) 

4) 

Question 7:

Two bodies *A* and *B* of masses *m* and 2*m* undergo elastic one dimensional collision. The body *A* moves with velocity *v* while body *B* is at rest before collision. The velocity of ball *B* after collision will be

1)

$\frac{v}{3}$

2)

$\frac{2v}{3}$

3)

$2v$

4)

$\frac{v}{2}$

Question 8:

An object of mass 2 kg moving along horizontal *x*-direction with initial speed 2 m s^{-1} is displaced through $x = (3\hat{i})$ m by the force $\vec{F} = (2\hat{i} - 3\hat{j})$ N . The kinetic energy of the object at the end of the displacement $x = (3\hat{i})$ m is

1)

4 J

2)

10 J

3)

6 J

4)

2 J

Question 9:

Consider the following statements.

A. The average distance a molecule can travel without colliding is called the mean free path

B. The law of equipartition of energy states that if a system is in equilibrium at absolute temperature *T*, the total energy is equally distributed in all possible energy modes, with each modes having an average energy equal to $\frac{1}{2}K_B T$.

C. The average energy of a molecule of monoatomic gas at temperature *T* is $\frac{3}{2}K_B T$.

Choose the set of correct statements from the options given below

1)

A and B only

2)

A and C only

3)

B and C only

4)

All A, B and C

Question 10:

Interference pattern can be observed due to superposition of the following waves

a. $y = a\sin\omega t$

b. $y = a\cos\omega t$

c. $y = a\sin\frac{\omega t}{2}$

d. $y = a\cos\omega t + \frac{\pi}{2}$

Choose the correct answer from the options given below.

1)

a and c

2)

b and c

3)

a, b and c

4)

a, b and d

Question 11:

A solid sphere is charged uniformly by some source. The magnitude of potential difference between the two points *A* and *B* (in V) as shown in the figure is

[Take $\frac{1}{4\pi\varepsilon_0} = 9 \times 10^9$ SI units]

1)

10^7 V

2)

3×10^7 V

3)

10^5 V

4)

3×10^5 V

Question 12:

A thermodynamic system is taken through a cycle *abcda*. The work done by the gas along the path *ab* is

1)

Zero

2)

30 J

3)

–30 J

4)

60 J

Question 13:

The correct relation for a paramagnetic material (All the symbols carry their meaning and ε is a small positive number) is

1)

$\mu < \mu_0$

2)

$1 < \mu_r < 1 + \varepsilon$

3)

$-1 \leq \chi < 0$

4)

$0 \leq \mu_r < 1$

Question 14:

A bob is whirled in a horizontal circle by means of a string at a uniform speed of 20 m s^{-1}. If the tension in the string is quadrupled while keeping the radius constant, the new speed is

1)

10 m s^{-1}

2)

20 m s^{-1}

3)

40 m s^{-1}

4)

5 m s^{-1}

Question 15:

The terminal voltage of the battery of emf 20 V and internal resistance 2 Ω connected to circuit as shown in figure is

1)

20 V

2)

10 V

3)

16 V

4)

18 V

Question 16:

Consider the following statements *A* and *B* and identify the correct answer

A. For LED, the *I-V* characteristics lies in the I quadrant of the given graph.

B. In a reverse biased *pn* junction diode, the current measured in (μA), is due to minority charge carriers.

1)

A is correct but B is incorrect

2)

A is incorrect but B is correct

3)

Both A and B are correct

4)

Both A and B are incorrect

Question 17:

A current carrying wire is bent as shown in the figure. The magnetic field at centre *O* of the semicircle will be. (Take $R_1 = 6\pi$ m and $R_2 = 4\pi$ m)

1)

$\frac{I}{12} \times 10^{-7}$ T into the plane of paper

2)

$\frac{I}{12} \times 10^{-7}$ T out of the plane of paper

3)

$\frac{I}{4} \times 10^{-7}$ T into the plane of paper

4)

$\frac{I}{3} \times 10^{-7}$ T out of the plane of paper

Question 18:

Assertion (A): The self-inductance of a circular coil depends on the number of turns and the core material.

Reason (R): A coil with more turns and a ferromagnetic core has a lower self-inductance.

In the light of the above statements, choose the correct answer from the options given below.

1)

Both (A) and (R) are true and (R) is the correct explanation of (A)

2)

Both (A) and (R) are true but (R) is not the correct explanation of (A)

3)

(A) is true but (R) is false

4)

Both (A) and (R) are false

Question 19:

A Carnot engine has an efficiency of 60% when its sink is at a temperature 27°C. The temperature of the source is

1)

500°C

2)

500 K

3)

477°C

4)

477 K

Question 20:

The amount of elastic potential energy stored per unit volume (in SI unit) in a steel wire of length 50 cm when it is stretched by 2 mm is

(If Young's modulus of the wire = 2.0×10^{11} N m^{-2})

1)

10^6

2)

2×10^8

3)

1.6×10^6

4)

2×10^7

Question 21:

If a dielectric material is inserted between the plates of a parallel plate capacitor connected to a battery, then

(A) the charge stored in it, increases.

(B) its capacitance increases.

(C) the energy stored in it, decreases.

(D) the product of charge and voltage decreases.

(E) the ratio of charge to its potential increases.

Choose the most appropriate answer from the options given below.

1)

(A), (B) and (E) only

2)

(A), (C) and (E) only

3)

(B), (D) and (E) only

4)

(A), (B) and (C) only

Question 22:

The output (*Y*) of the logic gate is similar to the output of an/a

1)

NAND gate

2)

NOR gate

3)

OR gate

4)

AND gate

Question 23:

A microscope has an objective of focal length 5 cm and an eye piece of focal length 10 cm. The magnifying power of microscope, if object is placed at a distance 8 cm from objective lens and eye is in relaxed condition, is

1) $\frac{5}{6}$

2) $\frac{25}{6}$

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

4) $\frac{35}{6}$

Question 24:

A thin flat circular ring of radius 5 cm is placed gently over the surface of water. If surface tension of water is 0.07 N m^{-1}, then the excess force required to take it away from the surface is

1)

22 mN

2)

22 N

3)

44 mN

4)

44 N

Question 25:

Match List-I with List-II.

List-I **(Spectral lines of hydrogen for transitions from)**		**List-II** **(frequencies)**	
(A)	$n_2 = 5$ to $n_1 = 2$	(i)	Lowest frequency
(B)	$n_2 = 4$ to $n_1 = 2$	(ii)	Second lowest frequency
(C)	$n_2 = 3$ to $n_1 = 2$	(iii)	Second highest frequency
(D)	$n_2 = 6$ to $n_1 = 2$	(iv)	Highest frequency

1)

(A)-(i); (B)-(ii); (C)-(iii); (D)-(iv)

2)

(A)-(ii); (B)-(i); (C)-(iv); (D)-(iii)

3)

(A)-(iii); (B)-(ii); (C)-(i); (D)-(iv)

4)

(A)-(iii); (B)-(i); (C)-(ii); (D)-(iv)

Question 26:

The mechanical quantity, which has dimensions of reciprocal of length (L^{-1}) is

1)

Torque

2)

Gravitational constant

3)

Power

4)

Coefficient of viscosity

Question 27:

At steady state charge stored in the capacitor is

1)

4 μC

2)

2 μC

3)

12 μC

4)

16 μC

Question 28:

The amount of energy required to blow a soap bubble of radius 2 cm to 4 cm is nearly (surface tension of soap solution = 0.03 N m^{-1})

1)

9.04×10^{-4} J

2)

4.52×10^{-4} J

3)

18.09×10^{-4} J

4)

4.52×10^{-3} J

Question 29:

An electric dipole is placed at an angle 60º with an uniform electric field of intensity 2×10^4 N C^{-1}. It has a potential energy equal to –4 J. Calculated the magnitude of charge on the dipole, if the dipole length is 2 cm.

1)

10 mC

2)

20 mC

3)

30 mC

4)

50 mC

Question 30:

In hydrogen spectrum, the shortest wavelength in the Brackett series is λ_0. The shortest wavelength of Lyman series is

1)

$\frac{\lambda_0}{4}$

2)

$4\lambda_0$

3)

$16\lambda_0$

4)

$\frac{\lambda_0}{16}$

Question 31:

The property which is not of an electromagnetic wave travelling in free space is that:

1)

They are longitudinal in nature

2)

The magnetic field and electric field vibrate with a phase difference of $\frac{\pi}{2}$

3)

The energy density in electric field is equal to twice the energy density in magnetic field

4)

All of these

Question 32:

If $x = 8\sin(2\pi t)$ m $+ 6\sin 2\pi t + \frac{\pi}{2}$ m represents the motion of a particle executing simple harmonic motion, the amplitude and time period of motion, respectively are

1)

10 m, 1 s

2)

10 m, 2 s

3)

8 m, 1 s

4)

6 m, 2 s

Question 33:

Two bodies of mass 4*m* and 9*m* are placed at a distance *R*. The gravitational potential on the line joining the bodies where the gravitational field equals to zero, will be (*G* = gravitational constant)

1)

$\frac{-12Gm}{R}$

2)

$\frac{-25Gm}{R}$

3)

$\frac{-20Gm}{R}$

4)

$\frac{-8Gm}{R}$

Question 34:

A particle is moving with uniform speed in a circular path, then direction of angular momentum is

1)

Along the axis of rotation

2)

Towards the centre

3)

Away from centre

4)

Along the circumference

Question 35:

$$^{290}_{82}X \xrightarrow{2\alpha} Y \xrightarrow{\beta^+} Z \xrightarrow{\beta^-} P \xrightarrow{\alpha} Q$$

In the nuclear emission stated above, the mass number and atomic number of the product *Q* respectively, are

1)

276, 78

2)

278, 80

3)

278, 76

4)

276, 76

Question 36:

A uniform electric field and a uniform magnetic field are acting along the same direction in a certain region. If an electron is projected in the region such that its velocity is pointed along the opposite direction of fields, then the electron

1)

Speed will decrease continuously

2)

Speed will increase continuously

3)

Speed first decrease then increase

4)

Speed first increase then decrease

Question 37:

A certain wire *A* has resistance 36 Ω. The resistance of another wire *B* of same material and length is twice of *A* and diameter is thrice the diameter of *A*, will be

1)

4 Ω

2)

2 Ω

3)

8 Ω

4)

18 Ω

Question 38:

A bullet is fired from a gun at the speed of 200 m s^{-1} in the direction 37° above the horizontal. The maximum height attained by the bullet is (g = 10 m s^{-2})

1)

1280 m

2)

1440 m

3)

640 m

4)

720 m

Question 39:

Shubham is moving eastward and suddenly turns southward with the same speed to avoid a pothole. The force that acts on the Shubham while turning is

1)

Along northward

2)

Along north-east

3)

Along south-west

4)

Along southward

Question 40:

The force *F* acting on a particle of mass *m* = 2 kg is indicated by the force-time graph shown below. The change in momentum of the particle over the time interval zero to 6 s is

1)

10 N s

2)

–40 N s

3)

–30 N s

4)

Zero

Question 41:

The threshold frequency of a photoelectric metal is v_0. If light of frequency $3v_0$ is incident on this metal, then the maximum kinetic energy of emitted electrons will be

1)

hv_0

2)

$2hv_0$

3)

$3hv_0$

4)

$\frac{3}{2}\,hv_0$

Question 42:

An organ pipe filled with a gas at 27°C resonates at 200 Hz in its fundamental mode. If it is filled with the same gas at 127°C, the resonance frequency at the same mode will be

1)

$400\sqrt{3}$ Hz

2)

$\frac{400}{\sqrt{3}}$ Hz

3)

$\frac{200}{\sqrt{3}}$ Hz

4)

$200\sqrt{3}$ Hz

Question 43:

In a gravitational field (in SI unit) the gravitational potential is given by $V = -kx^2y$ (J/kg). The gravitational field intensity at point (2, 1, 0) m is

1)

$4k\hat{i} + 4k\hat{j}$

2)

$4k\hat{i} - 4k\hat{j}$

3)

$-4k\hat{i} - 4k\hat{j}$

4)

$-4k\hat{i}$

Question 44:

The position-time *x*-*t* graph of a particle performing simple harmonic motion is shown in the figure. The velocity of the particle at t = 4 s is

1)

$-\frac{\pi}{2}$ m s^{-1}

2)

$\frac{\pi}{8}$ m s^{-1}

3)

$\frac{\pi}{4}$ m s^{-1}

4)

$-\frac{\pi}{4}$ m s^{-1}

Question 45:

Calculate the maximum acceleration of a moving car so that a body lying on the floor of the car remains stationary. The coefficient of static friction between the body and the floor is 0.25 (g = 10 m s^{-2})

1)

25 m s^{-2}

2)

2.5 m s^{-2}

3)

1.5 m s^{-2}

4)

0.75 m s^{-2}

Question 46:

28.0 g of N_2 has same number of atoms as in:

1)

22 g of CO_2

2)

16 g of O_2

3)

32 g of O_3

4)

46 g of NO_2

Question 47:

Arrange the following species in their decreasing order of radii of second Bohr orbit

1)

$r_H > r_{He^+} > r_{Li^{2+}}$

2)

$r_{He^+} > r_{Li^{2+}} > r_H$

3)

$r_{Li^{2+}} > r_{He^+} > r_H$

4)

$r_H = r_{He^+} = r_{Li^{2+}}$

Question 48:

Given below are two statements.

Statement I: The energy of orbital represented by quantum numbers n = 2, l = 1 is higher than the energy of orbital represented by quantum numbers n = 2, l = 0 in case of hydrogen atom.

Statement II: The energy of orbital represented by quantum numbers n = 2, l = 1 for sodium atom is higher than the potassium atom for the same quantum numbers.

In the light of above statements, choose the **correct** answer.

1)

Both statements I and II are correct

2)

Both statements I and II are incorrect

3)

Statement I is correct but statement II is incorrect

4)

Statement I is incorrect but statement II is correct

Question 49:

Match list-I with list-II.

List-I (IUPAC Name)		**List-II (IUPAC Official Name)**
a. Unnilquadium	(i)	Bohrium
b. Unnilseptium	(ii)	Darmstadtium
c. Unnilennium	(iii)	Rutherfordium
d. Ununnillium	(iv)	Meitnerium

The correct match is

1)

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

2)

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

3)

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

4)

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

Question 50:

Select the incorrect statement among the following.

1)

Electronegativity of the elements increases from sodium to chlorine in 3rd period of periodic table

2)

Electronegativity of the elements decreases from fluorine to iodine in 17th group of the periodic table

3)

Negative electron gain enthalpy of the elements decreases from lithium to caesium in the 1st group of periodic table.

4)

Atomic radius of the elements decreases from lithium to caesium in the 1st group of periodic table

Question 51:

Match list-I with list-II.

List-I (Molecule)		**List-II (Shape)**
a. XeF_2	(i)	Bent T-shape
b. ClF_3	(ii)	See-saw
c. SF_4	(iii)	Pyramidal
d. XeO_3	(iv)	linear

The correct match is

1)

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

2)

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

3)

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

4)

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

Question 52:

The pair of species with the same bond order is

1)

N_2 and O_2^-

2)

N_2^+ and B_2

3)

CO and C_2^{2-}

4)

CO and O_2^+

Question 53:

Which of the following is an odd electron species?

1)

CH_4

2)

SF_6

3)

NO

4)

BF_3

Question 54:

For the reaction, $3A(g) + 3B(s) \rightarrow 3C(g)$, if $\Delta U° = -20$ kJ and $\Delta S° = -80\ JK^{-1}$, then value of $\Delta G°$ at 298 K will be

1)

2.87 kJ

2)

3.84 kJ

3)

5.67 kJ

4)

1.28 kJ

Question 55:

The enthalpy of formation of XY is –100 kJ mol^{-1}. If the bond dissociation enthalpy of X_2 and Y_2 are 20 and 40 kJ mol^{-1} respectively then bond dissociation enthalpy of XY (in kJ mol^{-1}) is

1)

70

2)

200

3)

50

4)

130

Question 56:

Given below are two statements

Statement I: For the reaction in equilibrium,

$N_2\ (g) + 3H_2\ (g) \rightleftharpoons 2NH_3\ (g)$; $\Delta_r H = -ve$, reaction is favoured in backward direction by low pressure, high temperature and high concentration of ammonia.

Statement II: For the reaction in equilibrium

$2NO_2\ (g) \rightleftharpoons N_2O_4\ (g)$; $\Delta_r H = -ve$, dimerization of $NO_2(g)$ is favoured by high pressure and low temperature.

In the light of above statements, choose the correct answer from the options given below.

1)

Both statement I and statement II are correct

2)

Both statement I and statement II are incorrect

3)

Statement I is correct but statement II is incorrect

4)

Statement I is incorrect but statement II is correct

Question 57:

Oxidation number of central bromine atom in Br_3O_8 is

1)

+6

2)

+4

3)

0

4)

+7

Question 58:

Identify the incorrect statement

1)

Carbon monoxide is a colourless, odourless and almost water insoluble gas

2)

Silicon dioxide is a covalent, three-dimensional network solid

3)

Both SiO_2 and SnO are acidic in nature

4)

In +4 oxidation state, lead compounds are strong oxidising agent

Question 59:

The correct order of stability of given carbocations is

1)

(b) > (a) > (d) > (c)

2)

(b) > (d) > (a) > (c)

3)

(a) > (c) > (b) > (d)

4)

(c) > (b) > (a) > (d)

Question 60:

Given below are two statements

Statement I: Aniline and pyridine are heterocyclic aromatic compounds

Statement II: Kjeldahl's method is applicable to both aniline and pyridine

In the light of above statements, choose the correct answer from the options given below

1)

Both statement I and statement II are correct

2)

Both statement I and statement II are incorrect

3)

Statement I is correct but statement II is incorrect

4)

Statement I is incorrect but statement II is correct

Question 61:

The correct order of decreasing priority of given functional groups in IUPAC nomenclature is

1)

–COCl> – $CONH_2$ > – COOR > – CN

2)

–COOR > –$CONH_2$ > –COCl > – CN

3)

– COOR > –COCl > – $CONH_2$ > –CN

4)

–CN > –COCl > –COOR > –$CONH_2$

Question 62:

In the following reaction sequence

$$CH_3 - (CH_2)_4 - CH_3 \xrightarrow[773\ K,\ 10-20\ atm]{Mo_2O_3} \underset{\text{Major}}{(A)} \xrightarrow[\text{Anhyd. } AlCl_3]{CH_3CH_2CH_2Cl} \underset{\text{Major}}{(B)}$$

The product (B) is

1) 

2) 

3) 

4) 

Question 63:

The product (B) will be

1)

Ethanal

2)

Ethanoic acid

3)

Propan-2-one

4)

Propanal

Question 64:

0.2 molal aqueous solution of weak base (BOH) is 20% ionised. If K_b for water is 0.52 K kg mol^{-1}, then the boiling point of the solution is

1)

100.16°C

2)

100.12°C

3)

100.42°C

4)

100.14°C

Question 65:

In an aqueous solution of urea, the mole fraction of urea is 0.1. The molality of the urea solution is

1)

5.25 m

2)

2.34 m

3)

9.25 m

4)

6.17 m

Question 66:

The standard Gibbs energy of the given cell reaction will be

$3Fe(s) + 2Au^{3+}(aq) \rightarrow 3Fe^{2+}(aq) + 2Au(s)$

(Given: $E^{\circ}_{Au^{3+}/Au} = 1.40$ V and $E^{\circ}_{Fe^{2+}/Fe} = -0.44$ V)

1)

$-1065.36\ kJ\ mol^{-1}$

2)

$-933.5\ kJ\ mol^{-1}$

3)

$-1237.3\ kJ\ mol^{-1}$

4)

$-313.2\ kJ\ mol^{-1}$

Question 67:

How many Faraday are required to produce 2 g of hydrogen gas at cathode from the electrolysis of water?

1)

1 F

2)

2 F

3)

4 F

4)

8 F

Question 68:

If rate of appearance of O_2 is 0.4 mol L^{-1} s^{-1} then rate of disappearance of H_2O_2 during its decomposition is

(given : $H_2O_2 \rightarrow H_2O + \frac{1}{2}O_2$)

1)

0.8 mol L^{-1} s^{-1}

2)

0.2 mol L^{-1} s^{-1}

3)

0.1 mol L^{-1} s^{-1}

4)

0.6 mol L^{-1} s^{-1}

Question 69:

Following data is for a reaction between reactants A and B:

Rate mol L^{-1} s^{-1}	[A]	[B]
4×10^{-3}	0.2 M	0.2 M
2×10^{-3}	0.2 M	0.4 M
1.6×10^{-2}	0.4 M	0.4 M

The order of the reaction with respect to A and B, respectively are

1)

2, 3

2)

0, 1

3)

3, –1

4)

1, 2

Question 70:

Identify the incorrect statements about 3*d* series elements

1)

Cr^{2+} and Fe^{2+} have same spin only magnetic moment in solution

2)

First ionisation enthalpy of Zn is maximum in 3*d* series

3)

Enthalpy of atomisation of vanadium is maximum in 3*d* series

4)

Copper and scandium do not exhibit variable oxidation states

Question 71:

Given below are two statements.

Statement I: Both Neptunium and Americium show +7 oxidation states.

Statement II: Both Neptunium and Americium are transuranium elements.

In the light of above statements, choose the correct answer from the options given below.

1)

Both Statement I and Statement II are correct

2)

Both Statement I and Statement II are incorrect

3)

Statement I is correct but Statement II is incorrect

4)

Statement I is incorrect but Statement II is correct

Question 72:

Match List-I with List-II.

List-I	**List-II**
Complex ion	**Spin only Magnetic moment (BM)**
(a) $[Co(NH_3)_6]^{3+}$	(i) $\sqrt{8}$
(b) $[NiCl_4]^{2-}$	(ii) $\sqrt{3}$
(c) $[CoF_6]^{3-}$	(iii) 0
(d) $[Fe(CN)_6]^{3-}$	(iv) $\sqrt{24}$

The correct match is

1)

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

2)

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

3)

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

4)

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

Question 73:

Consider the following statements.

(a) $[V(CO)_6]^-$ has higher metal carbon bond strength than that of $[Mn(CO)_6]^+$

(b) Total possible isomers of $[CrCl_2(ox)_2]^{3-}$ is three

(c) The coordination number of Fe and Co in $[Fe(C_2O_4)_3]^{3-}$ and $[Co(en)_3]^{3+}$ are 6 and 3 respectively

The correct statement(s) is/are

1)

(a) and (b) only

2)

(b) and (c) only

3)

(a), (b) and (c)

4)

(b) only

Question 74:

Consider the following statements.

(a) Phosphorus trichloride is obtained by the action of thionyl chloride with white phosphorus.

(b) N_2O_5 molecule does not contain N – N bond.

(c) Orthophosphorus acid on heating disproportionates to give orthophosphoric acid and phosphine.

The correct statement(s) is/are

1)

(b) and (c) only

2)

(a), (b) and (c)

3)

(a) and (c) only

4)

(b) only

Question 75:

Given below are two statements:

Statement I: For the hydrides of group 16 elements, acidic character increases from H_2O to H_2Te.

Statement II: For the hydrides of group 16 elements, thermal stability decreases from H_2O to H_2Te

In the light of the above statements, choose the most appropriate answer from the options given below.

1)

Both statement I and statement II are correct

2)

Both statement I and statement II are incorrect

3)

Statement I is correct but statement II is incorrect

4)

Statement I is incorrect but statement II is correct

Question 76:

Choose the incorrect statement among the following

1)

I_2O_5 is used in the estimation of carbon monoxide

2)

Fluorine is a stronger oxidising agent than chlorine in an aqueous solution

3)

Bond dissociation enthalpy of F_2 is higher than Cl_2

4)

IF_5 undergoes hydrolysis to give fluoride ion and iodate ion

Question 77:

Which of the following is a basic essential amino acid?

1)

Isoleucine

2)

Tyrosine

3)

Lysine

4)

Asparagine

Question 78:

Consider the following statements

a. Ribose is an aldohexose.

b. Glucose does not form the hydrogensulphite addition product with $NaHSO_3$.

c. Lactose is composed of β-D-Galactose and β-D-Glucose.

The correct statement(s) is/are

1)

a, b and c

2)

b only

3)

a and c only

4)

b and c only

Question 79:

Which of the following amines is not prepared by Gabriel phthalimide synthesis but gives isocyanide test?

1)

2)

3)

4)

Question 80:

In the following reaction sequence

The product (B) will be

1)

Benzene

2)

Phenol

3)

Amine

4)

Nitrobenzene

Question 81:

Arrange the following carboxylic acids in their decreasing order of acidic strength.

1)

(a) > (b) > (c) > (d)

2)

(b) > (d) > (c) > (a)

3)

(d) > (a) > (b) > (c)

4)

(a) > (b) > (d) > (c)

Question 82:

Select the incorrect reaction among the following.

1) 

2) 

3) 

4) 

Question 83:

In the following reaction sequence

The product (B) will be

1) 

2) 

3) 

4) 

Question 84:

Which of the following reactions does not give primary alcohol as a major product?

1)

$$CH_3CH_2COOH \xrightarrow[(ii)\ H_2O]{(i)\ LiAlH_4}$$

2)

$$CH_3CH_2CHO \xrightarrow{NaBH_4}$$

3)

$$CH_3 - CHO \xrightarrow[(ii)\ H_2O]{(i)\ CH_3MgCl}$$

4)

$$CH_3 - CH = CH_2 \xrightarrow[(ii)\ H_2O_2,\ OH^-]{(i)\ B_2H_6,\ THF}$$

Question 85:

In the following reaction

The product (A) will be

1) 

2) 

3) 

4) 

Question 86:

Which of the following does not give haloform reaction?

1)

Pentan-2-one

2)

Butan-2-one

3)

Ethanol

4)

Propan-1-ol

Question 87:

The correct reactivity order of the following compounds towards S_N1 reaction is

1)

(c) > (b) > (a)

2)

(b) > (a) > (c)

3)

(a) > (b) > (c)

4)

(c) > (a) > (b)

Question 88:

In the following reaction

The product (A) will be

1) 

2) 

3) 

4)