

## FINAL ANSWER KEY

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Exam:KEAM2024 10

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1. In the measurement of length  $6 \mu\text{m}$  is equal to  $x$  pm. Then the value of  $x$  is

- A)  $1.5 \times 10^{-5}$
- B)  $1.2 \times 10^6$
- C)  $3 \times 10^{-6}$
- D)  $6 \times 10^6$
- E)  $2 \times 10^{-12}$

Correct Answer : Option D

2. Dimensions of the physical quantity  $X$  in the equation  $\text{Force} = \frac{X}{\text{Volume}}$  are

- A)  $\text{ML}^3\text{T}^2$
- B)  $\text{MLT}$
- C)  $\text{ML}^2\text{T}^2$
- D)  $\text{MLT}^{-2}$  (E)
- E)  $\text{ML}^4\text{T}^{-2}$

Correct Answer : Option E

3. A man loses 50% of his velocity after running a distance of 100 m. If his retardation is uniform, the distance he will cover before coming to rest is

- A) 45.2 m
- B) 33.3 m
- C) 27.5 m
- D) 15.7 m
- E) 50.5 m

Correct Answer : Option B

4. A projectile is given an initial velocity of  $(\hat{i} + \hat{j}) \text{ ms}^{-1}$  where  $\hat{i}$  is along the ground and  $\hat{j}$  is along the vertical direction. The equation of its trajectory is ( $g = 10 \text{ ms}^{-2}$ )

- A)  $y^2 = 2x$
- B)  $y^2 - 1 = 5x$
- C)  $y = x - 5x^2$
- D)  $y = x^2$
- E)  $y = x^2 - 2$

Correct Answer : Option C

5. A particle is describing a uniform circular motion with certain constant speed. The INCORRECT statement is

- A) The velocity and acceleration vectors are perpendicular to each other

- B) The velocity vector is tangential to the circular path
- C) The centripetal acceleration is a variable acceleration
- D) The acceleration vector points to the centre of the circle
- E) The acceleration vector is tangential to the circular path

**Correct Answer :** Option E

6. A particle moves under the influence of a force in the  $XY$ -plane such that the components of its linear momentum  $\vec{p}$  at any time  $t$  is  $p_x = p \sin t$  and  $p_y = p \cos t$ . The angle between  $\vec{F}$  and  $\vec{p}$  at that time is

- A)  $45^\circ$
- B)  $60^\circ$
- C)  $30^\circ$
- D)  $90^\circ$
- E)  $0^\circ$

**Correct Answer :** Option D

7. In a 'tug of war' game, two persons pull each other through a massless rope. The person who wins is
- A) One whose weight is less
  - B) One who exerts more friction force (shearing force) on the ground
  - C) One who exerts more normal force (compressing force) on the ground
  - D) One who pulls the rope with a greater force
  - E) One whose weight is more

**Correct Answer :** Option B

8. When a spring of spring constant  $k$  is cut into two pieces whose lengths are  $l_1$  and  $l_2$ , then the ratio of their spring constants  $k_1$  and  $k_2$  is

- A)  $\frac{l_2}{l_1}$
- B)  $\frac{l_1}{l_2}$
- C)  $\sqrt{l_1 l_2}$
- D)  $l_1 l_2$
- E)  $\frac{1}{l_1 l_2}$

**Correct Answer :** Option A

9. If  $P$  is the pressure at which heart is pumping the blood and the volume of blood pumped per second is  $V$ , then the power of heart is given by

- A)  $\frac{P}{V}$
- B)  $\frac{P^2}{V}$
- C)  $PV$

- D)  $\frac{P}{V_2}$   
 E)  $P^2V$

**Correct Answer :** Option C

10. A block of mass  $M$  moves with a velocity  $v$  along a frictionless horizontal surface towards another block of mass  $2M$  at rest. The velocity of centre of mass of the system of blocks is

- A)  $\frac{v}{2}$   
 B)  $2v$   
 C)  $3v$   
 D)  $\frac{v}{3}$   
 E)  $\frac{v}{4}$

**Correct Answer :** Option D

11. The radius of gyration of a regular solid cylinder of radius  $R$  about its axis is

- A)  $\frac{R}{2}$   
 B)  $R$   
 C)  $\frac{R}{\sqrt{2}}$   
 D)  $2R$   
 E)  $\frac{R}{4}$

**Correct Answer :** Option C

12. When two spheres of radii  $r$  and  $r/2$  are brought in contact, the gravitational force of attraction between them is proportional to

- A)  $r^6$   
 B)  $r^4$   
 C)  $r^{-6}$   
 D)  $r^{-4}$   
 E)  $r^{-2}$

**Correct Answer :** Option E

13. The gravitational potential energy of a system of two bodies each of mass  $m$  and distance  $r$  between them is ( $G =$  gravitational constant,  $g =$  acceleration due to gravity)

- A)  $-\frac{Gm^2}{r^2}$

B)  $-\frac{Gm^2}{r}$

C)  $-\frac{gm^2}{r}$

D)  $-G\frac{gm^2}{r}$

E)  $-\frac{Ggm}{r^2}$

**Correct Answer :** Option B

**14.** Which of the following has maximum Young's modulus value?

- A) Aluminium
- B) Copper
- C) Brass
- D) Steel
- E) Iron (Wrought)

**Correct Answer :** Option D

**15.** The energy stored in a soap bubble of diameter 4 cm is nearly (surface tension of soap solution is  $0.07 \text{ Nm}^{-1}$ )

- A)  $8.5 \times 10^{-3} \text{ J}$
- B)  $2.75 \times 10^{-2} \text{ J}$
- C)  $7 \times 10^{-4} \text{ J}$
- D)  $4.5 \times 10^{-4} \text{ J}$
- E)  $3.15 \times 10^{-3} \text{ J}$

**Correct Answer :** Option C

When two different liquids of same mass but at two different temperatures  $27^\circ\text{C}$  and  $47^\circ\text{C}$  are mixed together, the resulting temperature of the mixture is  $35^\circ\text{C}$ . The ratio of their specific heat capacities is

- A) 1 : 3
- B) 5 : 3
- C) 3 : 2
- D) 4 : 1
- E) 2 : 7

**Correct Answer :** Option C

**17.** Two perfectly black bodies are at temperatures  $T$  and  $2T$ . The ratio between the wavelengths corresponding to maximum energy emission by the two black bodies is

- A) 2 : 1
- B) 1 : 2
- C) 2 : 3
- D) 3 : 2
- E) 1 : 4

Correct Answer : Option A

18. When water is heated from  $0^{\circ}\text{C}$  to  $8^{\circ}\text{C}$ , its volume

- A) first decreases upto  $4^{\circ}\text{C}$  and then increases
- B) first increases upto  $4^{\circ}\text{C}$  and then decreases
- C) increases continuously
- D) decreases continuously
- E) does not change

Correct Answer : Option A

19. The pressure of an ideal gas is proportional to the cube of its temperature (on absolute scale) in an adiabatic process. Then the value of the ratio  $C_p/C_v$  is

- A)  $\frac{7}{5}$
- B)  $\frac{5}{3}$
- C)  $\frac{4}{3}$
- D)  $\frac{3}{2}$
- E)  $\frac{7}{3}$

Correct Answer : Option D

20. The average kinetic energy per molecule of an ideal gas at  $27^{\circ}\text{C}$  is E. The temperature of the gas at which the average kinetic energy per molecule will be  $2E$  is

- A)  $127^{\circ}\text{C}$
- B)  $227^{\circ}\text{C}$
- C)  $327^{\circ}\text{C}$
- D)  $400^{\circ}\text{C}$
- E)  $527^{\circ}\text{C}$

Correct Answer : Option C

21. The instantaneous displacement of a particle executing simple harmonic motion is given by  $x = 2(\cos \pi t + \sin \pi t)$ . The amplitude of oscillation is

- A)  $3\sqrt{2}$
- B) 4
- C)  $4\sqrt{2}$

D)  $2\sqrt{2}$

E)  $8\sqrt{2}$

Correct Answer : Option D

22. The velocity of a travelling plane wave given by  $y = 10^{-2} \sin\left(200t - \frac{x}{5}\right) m$ , is

A)  $10 \text{ ms}^{-1}$

B)  $500 \text{ ms}^{-1}$

C)  $400 \text{ ms}^{-1}$

D)  $5 \text{ ms}^{-1}$

E)  $1000 \text{ ms}^{-1}$

Correct Answer : Option E

23. When a glass rod is rubbed with silk thread, it loses 1000 electrons. Then the charge on the glass rod is (electronic charge  $e = 1.6 \times 10^{-19} \text{ C}$ )

A)  $+1.6 \times 10^{-16} \text{ C}$

B)  $-1.6 \times 10^{-19} \text{ C}$

C)  $-1.6 \times 10^{-13} \text{ C}$

D)  $+1.6 \times 10^{-19} \text{ C}$

E)  $-1.6 \times 10^{-15} \text{ C}$

Correct Answer : Option A

24. In bringing a proton towards another proton, the electrostatic potential energy of the system

A) decreases

B) increases

C) becomes zero

D) first increases and then decreases

E) remains the same

Correct Answer : Option B

25. A parallel plate capacitor with a dielectric medium of dielectric constant 1.5 has a capacitance of C. If the dielectric is removed, then the capacitance of the capacitor becomes

A)  $\frac{3}{2} C$

B)  $\frac{1}{3} C$

C)  $\frac{2}{3} C$

D) C

E)  $\frac{C}{2}$

**Correct Answer :** Option C

**26.** When  $n$  identical cells are connected in parallel, they give

- A) less current
- B) more current
- C) less voltage
- D) more voltage
- E) variable voltage and variable current

**Correct Answer :** Option B

**27.** Resistivity of a conductor increases with

- A) increase in its length
- B) decrease in its length
- C) increase in its area of cross-section
- D) decrease in its area of cross-section
- E) increase in its temperature

**Correct Answer :** Option E

**28.** Kirchhoff's junction rule is based on conservation of

- A) charge
- B) energy
- C) both energy and charge
- D) angular momentum
- E) linear momentum

**Correct Answer :** Option A

**29.** The magnetic force acting on a charged particle carrying a charge  $3\mu\text{C}$  in a magnetic field of  $5\text{ T}$  acting in  $y$ -direction, when the particle velocity is  $(\hat{i} + \hat{j}) \times 10^5\text{ ms}^{-1}$  is

- A)  $0.5\text{ N}$  in  $+x$  direction
- B)  $0.2\text{ N}$  in  $+y$  direction
- C)  $2\text{ N}$  in  $-x$  direction
- D)  $1.5\text{ N}$  in  $-z$  direction
- E)  $1.5\text{ N}$  in  $+z$  direction

**Correct Answer :** Option E

**30.** The magnetic moment  $\mu$  associated with a charged particle carrying charge  $q$  moving in a circle of radius  $a$  with uniform speed  $v$  is

- A)  $qva$
- B)  $\frac{qva}{4}$
- C)  $\frac{qva}{2}$
- D)  $\frac{qva}{16}$

E)  $\frac{qva}{8}$

**Correct Answer :** Option C

**31.** For a paramagnetic material, the magnetic susceptibility  $\chi_m$  is

- A) small, positive and varies inversely with temperature
- B) small, negative and temperature independent
- C) small, positive and temperature independent
- D) very large, negative and temperature dependent
- E) very large, positive and temperature independent

**Correct Answer :** Option A

**32.** An alternating current having peak value 14.14 A is used to heat a metal wire. The value of the direct current  $i$  required to produce the same heating effect in the same wire is

- A) 0.707 A
- B) 28.28 A
- C) 7.07 A
- D) 10 A
- E) 14 A

**Correct Answer :** Option D

**33.** The number of windings in the primary and secondary of a transformer are 100 and 2000 respectively. If 50 V a.c is applied to the primary, the potential difference across the secondary is

- A) 2000 V
- B) 1000 V
- C) 500 V
- D) 1500 V
- E) 2500 V

**Correct Answer :** Option B

**34.** The correct order of arrangement of electromagnetic waves according to their wavelengths is

- A) Gamma rays < AM radio waves < FM radio waves < Micro waves
- B) Micro waves < AM radio waves < FM radio waves < Gamma rays
- C) Gamma rays < Micro waves < AM radio waves < FM radio waves
- D) Gamma rays < Micro waves < FM radio waves < AM radio waves
- E) AM radio waves < FM radio waves < Gamma rays < Micro waves

**Correct Answer :** Option D

An ink mark is made on a piece of paper and a glass slab of thickness  $t$  and refractive index

**35.**  $\mu$  is placed on it. If the image of the ink mark appears to be at a distance of  $x$  from the top surface of the slab, then the value of  $x$  is

- A)  $\mu t$
- B)  $\frac{t}{\mu}$
- C)  $\frac{\mu}{t}$
- D)  $\frac{\mu-1}{t}$



E)  $\frac{t}{\mu-1}$

**Correct Answer :** Option B

**36.** If the ratio of amplitudes of two light waves is 2 : 1, then the ratio between the intensities of the two waves is

- A) 4 : 1
- B) 1 : 1
- C) 1 : 2
- D) 1 : 4
- E) 2 : 1

**Correct Answer :** Option A

**37.** In Young's double slit experiment, to change the bandwidth from  $\beta$  to  $\frac{\beta}{4}$  without changing the experimental setup, the wavelength of light  $\lambda$  used must be changed to

- A)  $4\lambda$
- B)  $16\lambda$
- C)  $\frac{\lambda}{4}$
- D)  $\frac{\lambda}{16}$
- E)  $8\lambda$

**Correct Answer :** Option C

**38.** If the speed of a moving particle is decreased by 1%, the de Broglie wavelength of the wave associated with it

- A) decreases by 1%
- B) increases by 1%
- C) decreases by 2%
- D) increases by 2%
- E) decreases by 5%

**Correct Answer :** Option B

**39.** The photoelectric work function for a photosensitive material is 5.2 eV. The energy of the incident radiation for which the stopping potential is 6 V is

- A) 1.2eV
- B) 5.6eV
- C) 6eV
- D) 10eV
- E) 11.2eV

**Correct Answer :** Option E

**40.** When the hydrogen atom is excited from the ground state,

- A) potential energy increases but kinetic energy decreases
- B) both potential energy and kinetic energy decrease
- C) both potential energy and kinetic energy increase
- D) potential energy decreases but kinetic energy increases
- E) there is no change in the total energy

**Correct Answer :** Option A

41. In a nuclear decay, after the emission of one  $\alpha$ -particle and one  $\beta$ -particle

- A) atomic number remains unchanged
- B) mass number is reduced by 4 units
- C) mass number is reduced by 8 units
- D) mass number increases by 4 units
- E) atomic number is increased by 2 units

Correct Answer : Option B

42. If nuclear radius of  ${}_{52}^{125}\text{Te}$  is 6 fermi, then the nuclear radius of  ${}_{13}^{27}\text{Al}$  in fermi is

- A) 3.6
- B) 5
- C) 2.5
- D) 1.7
- E) 4.2

Correct Answer : Option A

43. Half-life of radon is 3.5 days. The amount of radon left out of 12 mg mass undecayed after 35 days is nearly

- A) 0.006 mg
- B) 0.012 mg
- C) 0.024 mg
- D) 0.036 mg
- E) 0.048 mg

Correct Answer : Option B

44. In a p-n junction diode, reverse biasing

- A) increases the number of majority charge carriers
- B) decreases the number of minority charge carriers
- C) increases the potential barrier
- D) decreases the potential barrier
- E) increases the number of both majority and minority charge carriers

Correct Answer : Option C

45. Which one of the following is not a semiconductor?

- A) Si
- B) Sb
- C) Ge
- D) CdS
- E) GaAs

Correct Answer : Option B

46. The number of significant figures in 0.0500L is

- A) one
- B) two
- C) three
- D) four
- E) five

Correct Answer : Option C

47. Isobars are atoms with the same

- A) atomic number

- B) mass number
- C) number of electrons
- D) number of protons
- E) number of neutrons

**Correct Answer :** Option B

**48.** The element with atomic number 111 was first named as Unununnium. What is its IUPAC name?

- A) Nobelium
- B) Bohrium
- C) Lawrencium
- D) Rontgenium
- E) Rutherfordium

**Correct Answer :** Option D

**49.** Octet rule is obeyed in

- A)  $\text{SCl}_2$
- B)  $\text{PF}_5$
- C)  $\text{SF}_6$
- D)  $\text{BCl}_3$
- E)  $\text{H}_2\text{SO}_4$

**Correct Answer :** Option A

**50.** A particular colour of light has wavelength of 663nm. What is the energy possessed by the light? (Planck's constant =  $6.63 \times 10^{-34} \text{ J s}$ ; Velocity of light =  $3 \times 10^8 \text{ m s}^{-1}$ )

- A)  $6.63 \times 10^{-19} \text{ J}$
- B)  $6.63 \times 10^{-20} \text{ J}$
- C)  $1.5 \times 10^{-19} \text{ J}$
- D)  $3.0 \times 10^{-20} \text{ J}$
- E)  $3.0 \times 10^{-19} \text{ J}$

**Correct Answer :** Option E

**51.** The molar enthalpy of vaporization of water at 1 bar and  $100^\circ\text{C}$  is  $41 \text{ kJ mol}^{-1}$ . What is the internal energy change, when 1 mol of water is vapourised at 1 bar pressure and  $100^\circ\text{C}$ .

Assume water vapour as a perfect gas. ( $R = 8.3 \text{ J K}^{-1}\text{mol}^{-1}$ )

- A)  $37.9 \text{ kJ mol}^{-1}$
- B)  $44.1 \text{ kJ mol}^{-1}$
- C)  $34.7 \text{ kJ mol}^{-1}$
- D)  $47.9 \text{ kJ mol}^{-1}$
- E)  $34.9 \text{ kJ mol}^{-1}$

**Correct Answer :** Option A

52. 0.1 M HCl and 0.1 M H<sub>2</sub>SO<sub>4</sub> each of volume 2 mL are mixed and the volume is made up to 6 mL by adding 2 mL of 0.01 N NaCl solution. The pH of the resulting mixture is
- A) 1.17  
 B) 1.0  
 C) 0.3  
 D)  $\log 2 - \log 3$   
 E)  $\log 3 - \log 2$

Correct Answer : Option B

53. Which of the following molecule has two sigma ( $\sigma$ ) and two pi ( $\pi$ ) bonds?
- A) N<sub>2</sub>  
 B) C<sub>2</sub>H<sub>6</sub>  
 C) N<sub>2</sub>F<sub>2</sub>  
 D) HCN  
 E) C<sub>2</sub>H<sub>2</sub>Cl<sub>2</sub>

Correct Answer : Option D

The following results were obtained in the gas phase reaction between nitric oxide and oxygen at a given temperature.

54.

[NO] <sub>0</sub> / mol L <sup>-1</sup>	[O <sub>2</sub> ] <sub>0</sub> / mol L <sup>-1</sup>	Initial rate of formation of NO <sub>2</sub> /mol L <sup>-1</sup> s <sup>-1</sup>
0.30	0.30	0.096
0.60	0.30	0.384
0.30	0.60	0.192

The total order and order in [O<sub>2</sub>] of the reaction are respectively

- A) 3 and 2  
 B) 2 and 2  
 C) 2 and 1  
 D) 3 and 0  
 E) 3 and 1

Correct Answer : Option E

55. Which of the following is an example of pseudo first order reaction?

- A) Thermal decomposition of  $N_2O_5$  gas
- B) Decomposition of HI on gold surface
- C) Decomposition of  $NH_3$  on platinum surface
- D) Inversion of sucrose
- E) Hydrogenation of ethene

Correct Answer : Option D

56. Which of the following changes alone would cause increase in the value of equilibrium constant of the reaction?  $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$ ;  $\Delta H > 0$ .

- A) Increasing the volume of the reaction vessel
- B) Decreasing the volume of the reaction vessel
- C) Addition of catalyst to equilibrium mixture
- D) Addition of  $PCl_3(g)$  to the equilibrium mixture
- E) Increasing the temperature

Correct Answer : Option E

57. For the gas phase homogenous equilibrium,  $2X(g) \rightleftharpoons 2Y(g) + Z(g)$ ,  $K_C$  at 400K is  $1 \times 10^{-3} \text{ mol L}^{-1}$ . What is the value of  $K_P$  for the equilibrium at 400K?

$$(R = 0.082 \text{ L atm K}^{-1}\text{mol}^{-1})$$

- A)  $1 \times 10^{-3} \text{ atm}$
- B)  $3.16 \times 10^{-4} \text{ atm}$
- C)  $4.24 \times 10^{-4} \text{ atm}$
- D)  $3.28 \times 10^{-2} \text{ atm}$
- E)  $1.28 \times 10^{-2} \text{ atm}$

Correct Answer : Option D

58. Which of the following pair of aquated first transition metal ions have the same colour?

- A)  $Cr^{3+}$ ,  $Mn^{3+}$
- B)  $Ti^{3+}$ ,  $Cu^{2+}$
- C)  $Fe^{2+}$ ,  $Co^{2+}$
- D)  $Fe^{2+}$ ,  $Cu^{2+}$
- E)  $Fe^{3+}$ ,  $Co^{3+}$

Correct Answer : Option A

59. For the reaction  $3Fe_{(s)} + 2O_{2(g)} \rightarrow Fe_3O_{4(s)}$ ,  $\Delta S = -600 \text{ J K}^{-1}\text{mol}^{-1}$  at 300K and  $\Delta H = -1650 \text{ kJ mol}^{-1}$ . What is the value of free energy change for the reaction at 300K?

- A)  $-1470 \text{ J mol}^{-1}$

- B)  $-1830 \text{ J mol}^{-1}$
- C)  $-147.02 \text{ kJ mol}^{-1}$
- D)  $-1830 \text{ kJ mol}^{-1}$
- E)  $-1470 \text{ kJ mol}^{-1}$

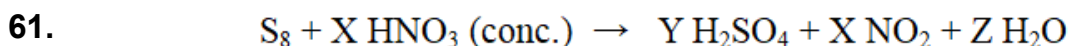
**Correct Answer :** Option E

**60.** In which of the following aqueous solution of salt, pH is independent of concentration of the salt?

- A) Ammonium chloride
- B) Ferric chloride
- C) Ammonium acetate
- D) Sodium acetate
- E) Ammonium sulphate

**Correct Answer :** Option C

The values of X, Y and Z in the following chemical equation



are respectively

- A) 24, 4, 8
- B) 36, 6, 18
- C) 48, 8, 24
- D) 48, 8, 16
- E) 24, 8, 12

**Correct Answer :** Option D

**62.** Which of the 3d block element has the minimum melting point?

- A) Ti
- B) Fe
- C) Cr
- D) Mn
- E) Ag

**Correct Answer :** Option E

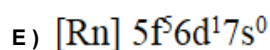
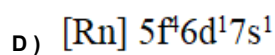
**63.** Iron does not exhibit ----- oxidation state.

- A) +6
- B) +4
- C) +3
- D) +5
- E) +2

**Correct Answer :** Option D

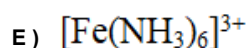
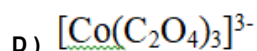
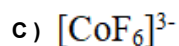
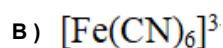
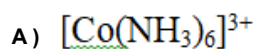
**64.** The correct electronic configuration of Uranium (Z=92) is

- A)  $[\text{Rn}] 5f^3 6d^1 7s^2$
- B)  $[\text{Rn}] 5f^4 6d^0 7s^2$
- C)  $[\text{Rn}] 5f^3 6d^3 7s^0$



Correct Answer : Option A

65. Which one of the following is an outer orbital complex?



Correct Answer : Option C

66. Conformational isomerism is not possible in

A) ethane

B) n-butane

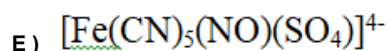
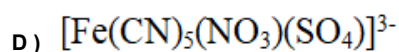
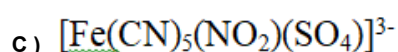
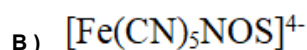
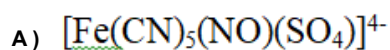
C) 2,3-dimethylbutane

D) cyclohexane

E) ethene

Correct Answer : Option E

67. When sodium nitroprusside is added to sodium fusion extract the presence of sulphur is indicated by the formation of a violet coloured complex. Its formula is



Correct Answer : Option B

68. When n-hexane is heated to 773K at 10-20 atmosphere pressure in the presence of  $\text{Cr}_2\text{O}_3$  benzene is formed. This reaction is called

A) pyrolysis

B) refining

C) reforming

D) cracking

E) isomerisation

Correct Answer : Option C

69. The decreasing order of reactivity of butyl bromides in  $S_N2$  reaction is

- A)  $(CH_3)_3CBr > CH_3CH_2CH_2CH_2Br > CH_3CH(CH_3)CH_2Br > CH_3CH_2CH(Br)CH_3$   
B)  $CH_3CH_2CH_2CH_2Br > CH_3CH(CH_3)CH_2Br > (CH_3)_3CBr > CH_3CH_2CH(Br)CH_3$   
C)  $(CH_3)_3CBr > CH_3CH_2CH(Br)CH_3 > CH_3CH(CH_3)CH_2Br > CH_3CH_2CH_2CH_2Br$   
D)  $CH_3CH_2CH_2CH_2Br > (CH_3)_3CBr > CH_3CH_2CH(Br)CH_3 > CH_3CH(CH_3)CH_2Br$   
E)  $CH_3CH_2CH_2CH_2Br > CH_3CH(CH_3)CH_2Br > CH_3CH_2CH(Br)CH_3 > (CH_3)_3CBr$

Correct Answer : Option E

70. Which of the following is the most acidic compound?

- A) *p*-Nitrophenol  
B) *o*-Nitrophenol  
C) *o*-Cresol  
D) *p*-Cresol  
E) Phenol

Correct Answer : Option A

71. When propanoic acid is treated with bromine and red phosphorus in aqueous medium, 2-bromopropanoic acid is formed. This reaction is known as

- A) Kolbe reaction  
B) Wurtz reaction  
C) Hell-Volhard -Zelinsky reaction  
D) Etard reaction  
E) Wurtz-Fittig reaction

Correct Answer : Option C

72. Which of the following groups is deactivating *ortho-para* directing in aromatic electrophilic substitution?

- A)  $-NO_2$   
B)  $-OCH_3$   
C)  $-CH_3$   
D)  $-Cl$   
E)  $-CHO$

Correct Answer : Option D

73. Gatterman reaction is used to convert benzene diazonium chloride to

- A) benzene  
B) nitrobenzene  
C) phenetole  
D) phenol  
E) chlorobenzene

Correct Answer : Option E



**74.** The correct increasing order of basic strength is

- A)  $\text{NH}_3 < \text{C}_2\text{H}_5\text{NH}_2 < \text{C}_6\text{H}_5\text{NH}_2 < \text{C}_6\text{H}_5\text{CH}_2\text{NH}_2$
- B)  $\text{C}_6\text{H}_5\text{NH}_2 < \text{NH}_3 < \text{C}_6\text{H}_5\text{CH}_2\text{NH}_2 < \text{C}_2\text{H}_5\text{NH}_2$
- C)  $\text{C}_6\text{H}_5\text{NH}_2 < \text{C}_6\text{H}_5\text{CH}_2\text{NH}_2 < \text{NH}_3 < \text{C}_2\text{H}_5\text{NH}_2$
- D)  $\text{C}_6\text{H}_5\text{CH}_2\text{NH}_2 < \text{NH}_3 < \text{C}_2\text{H}_5\text{NH}_2 < \text{C}_6\text{H}_5\text{NH}_2$
- E)  $\text{C}_6\text{H}_5\text{NH}_2 < \text{NH}_3 < \text{C}_2\text{H}_5\text{NH}_2 < \text{C}_6\text{H}_5\text{CH}_2\text{NH}_2$

**Correct Answer :** Option B

**75.** Animal starch is

- A) glycogen
- B) lactose
- C) cellulose
- D) amylase
- E) maltose

**Correct Answer :** Option A