



No. 1
Coaching Institute of the Capital
(As per survey conducted by the All India Students' Welfare Council)



SAHIL
STUDY CIRCLE PVT. LTD.
Where Glorious Careers are Made
ISO 9001:2000 Certified Educational Institute



ISO 9001 : 2000 certified

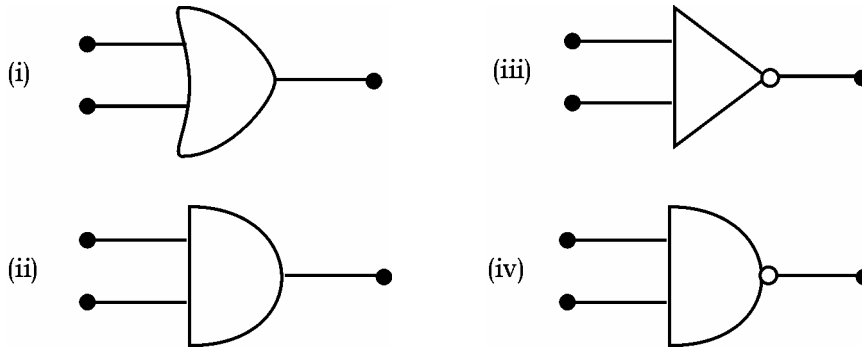
Corporate Office : B-1/637, 1st Floor, Janak Puri, New Delhi-110058, Ph: 91-11-28855148, 25554045, 41588944, 9818557084
 Email : info@sahilstudycircle.net website : www.sahilstudycircle.net Sahil 24 Hour Helpline: 9818557084

CBSE-Pre-Medical/Pre-Dental Entrance Exam-2011

- Q1.** In the Davisson and Germer experiment, the velocity of electrons emitted from the electron gun can be increased by :
1. increasing the filament current
 2. decreasing the filament current
 3. decreasing the potential difference between the anode and filament
 4. increasing the potential difference between the anode and filament

Correct Choice is (4)

- Q2.** Symbolic representation of four logic gates are shown as :



Pick out which one are for AND, NAND and NOT gates, respectively :

1. (iii), (ii) and (i)
 2. (iii), (ii) and (iv)
 3. (ii), (iv) and (iii)
 4. (ii), (iii) and (iv)
- Correct Choice is (3)**
- Q3.** A radioactive nucleus of mass M emits a photon of frequency ν and the nucleus recoils. Therecoil energy will be :
1. $h^2\nu^2 / 2Mc^2$
 2. zero
 3. $h\nu$
 4. $Mc^2 - h\nu$
- Correct Choice is (1)**
- Q4.** A particle moves in a circle of radius 5 cm with constant speed and time period 0.2π s. The acceleration of the particle is :
1. 25 m/s^2
 2. 36 m/s^2
 3. 5 m/s^2
 4. 15 m/s^2
- Correct Choice is (3)**

Q5. The power obtained in a reactor using U^{235} disintegration is 1000 kW. The mass decay of U^{235} per hour is :

1. 20 microgram 2. 40 microgram 3. 1 microgram 4. 10 microgram

Correct Choice is (3)

Q6. The half life of a radioactive isotope 'X' is 50 years. It decays to another element 'Y' which is stable. The two elements 'X' and 'Y' were found to be in the ratio of 1 : 15 in a sample of a given rock. The age of the rock was estimated to be :

1. 200 years 2. 250 years 3. 100 years 4. 150 years

Correct Choice is (1)

Q7. A parallel plate condenser has a uniform electric field E (V/m) in the space between the plates. If the distance between the plates is d(m) and area of each plate in $A(m^2)$ the energy (joules) stored in the condenser is :

1. $\frac{1}{2} \epsilon E^2$ 2. $\epsilon_0 EAd$ 3. $\frac{1}{2} \epsilon_0 E^2 Ad$ 4. $E^2 Ad / \epsilon_0$

Correct Choice is (3)

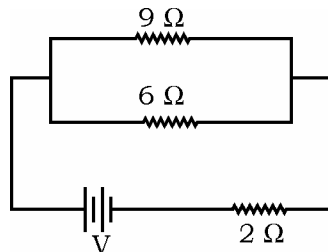
Q8. The instantaneous angular position of a point on a rotating wheel is given by the equation $\theta(t) = 2t^3 - 6t^2$

The torque on the wheel becomes zero at :

1. $t = 0.5$ s 2. $t = 0.25$ s 3. $t = 2$ s 4. $t = 1$ s

Correct Choice is (4)

Q9. If power dissipated in the 9Ω resistor in the circuit shown in 36 Watt, the potential difference across the 2Ω resistor is :



1. 8 Volt 2. 10 Volt 3. 2 Volt 4. 4 Volt

Correct Choice is (2)

Q10. Two waves are represented by the equations $y_1 = a \sin(\omega t + kx + 0.57)$ m and $y_2 = a \cos(\omega t + kx)$ m, where x is in meter and t in sec. The phase difference between them is :

1. 1.25 radian 2. 1.57 radian 3. 0.57 radian 4. 1.0 radian

Correct Choice is (4)

Q11. In photoelectric emission process from a metal of work function 1.8 eV, the kinetic energy of most energetic electrons is 0.5 eV. The corresponding stopping potential is :

1. 1.3 V 2. 0.5 V 3. 2.3 V 4. 1.8 V

Correct Choice is (2)

Q12. A person of mass 60 kg is inside a lift of mass 940 Kg and presses the button on control panel. The lift starts moving upwards with an acceleration 1.0 m/s^2 . If $g = 10 \text{ ms}^{-2}$, the tension in the supporting cable is :

1. 9680 N 2. 11000 N 3. 1200 N 4. 8600 N

Correct Choice is (2)

Q13. Out of the following functions representing motion of a particle which represents SHM :

- (A) $y = \sin \omega t - \cos \omega t$ (B) $y = \sin^3 \omega t$
 (C) $y = 5 \cos \frac{3\pi}{4} - 3\omega t$ (D) $y = 1 + \omega t + \omega^2 t^2$

1. only (D) does not represent SHM 2. Only (A) and (C)
 3. Only (A) and (B) 4. Only (A)

Correct Choice is (2)

Q14. The moment of inertia of a thin uniform rod of mass M and length L about an axis passing through its midpoint and perpendicular to its length is I_0 . Its moment of inertia about an axis passing through one of its ends and perpendicular to its length is :

1. $I_0 + ML^2/4$ 2. $I_0 + 2ML^2$ 3. $I_0 + ML^2$ 4. $I_0 + ML^2/2$

Correct Choice is (1)

Q15. If a small amount of antimony is added to germanium crystal :

1. the antimony becomes an acceptor atom
 2. there will be more free electrons than holes in the semiconductor
 3. Its resistance is increased
 4. it becomes a p-type semiconductor

Correct Choice is (2)

Q16. Sound waves travel at 350 m/s through a warm air and at 3500 m/s through brass. The wavelength of a 700 Hz acoustic wave as it enters brass from warm air :

1. increases by a factor 20 2. increases by a factor 10
 3. decreases by a factor 20 4. decreases by a factor 10

Correct Choice is (2)

Q17. Light of two different frequencies whose photons have energies 1 eV and 2.5 eV respectively illuminate a metallic surface whose work function is 0.5 eV successively. Ratio of maximum speeds of emitted electrons will be :

1. 1 : 2 2. 1 : 1 3. 1 : 5 4. 1 : 4

Correct Choice is (1)

Q18. A current of 2 A flows through a 2Ω resistor when connected across a battery. The same battery supplies a current of 0.5 A when connected across a 9Ω resistor. The internal resistance of the battery is :

1. $1/3\Omega$ 2. $1/4\Omega$ 3. 1Ω 4. 0.5Ω

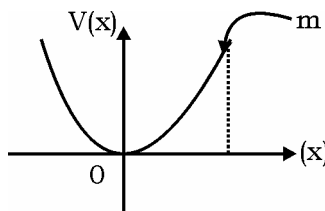
Correct Choice is (1)

Q19. The electric and the magnetic field, associated with an e.m. wave, propagating along the + z-axis, can be represented by :

1. $\vec{E} = E_0 \hat{k}, \vec{B} = B_0 \hat{i}$ 2. $\vec{E} = E_0 \hat{j}, \vec{B} = B_0 \hat{i}$
 3. $\vec{E} = E_0 \hat{j}, \vec{B} = B_0 \hat{k}$ 4. $\vec{E} = E_0 \hat{i}, \vec{B} = B_0 \hat{j}$

Correct Choice is (4)

Q20. A particle of mass m is released from rest and follows a parabolic path as shown. Assuming that the displacement of the mass from the origin is small, which graph correctly depicts the position of the particle as a function of time ?



1. 2.
 3. 4.

Correct Choice is (4)

Q21. When 1 kg of ice at 0°C melts to water at 0°C, the resulting change in its entropy, taking latent heat of ice to be 80 Cal/°C, is :

1. $8 \times 10^4 \text{ Cal/K}$ 2. 80 Cal/K 3. 293 Cal/K 4. 273 Cal/K

Correct Choice is (3)

Q22. A planet moving along an elliptical orbit is closest to the sun at a distance r_1 and farthest away at a distance of r_2 . If v_1 and v_2 are the linear velocities at these points respectively, then the ratio $\frac{v_1}{v_2}$ is :

1. r_2/r_1 2. $(r_2/r_1)^2$ 3. r_1/r_2 4. $(r_1/r_2)^2$

Correct Choice is (1)

Q23. A charge Q is enclosed by a Gaussian spherical surface of radius R. If the radius is doubled, then the outward electric flux will :

1. be reduced to half 2. remain the same
 3. be doubled 4. increase four times

Correct Choice is (2)

- Q24.** The rate of increase of thermo e.m.f. with temperature at the neutral temperature of a thermocouple :
1. is zero
 2. depends upon the choice of the two materials of the thermocouple
 3. is negative
 4. is positive

Correct Choice is (1)

- Q25.** Fusion reaction takes place at high temperature because :
1. atoms get ionized at high temperature
 2. kinetic energy is high enough to overcome the coulomb repulsion between nuclei
 3. molecules break up at high temperature
 4. nuclei break up at high temperature

Correct Choice is (2)

- Q26.** A nucleus m_nX emits one α particle and two β -particles. The resulting nucleus is :

1. ${}^{m-6}_nZ$
2. ${}^{m-4}_nX$
3. ${}^{m-4}_nY$
4. ${}^{m-6}_{n-4}Z$

Correct Choice is (2)

- Q27.** There are four light-weight-rod samples A, B, C, D separately suspended by threads. A bar magnetic is slowly brought near each sample and the following observations are noted :

- (i) A is feebly repelled (ii) B is feebly attracted
(iii) C is strongly attracted (iv) D remains unaffected

1. C is of a diamagnetic material
2. D is of a ferromagnetic material
3. A is of a non-magnetic material
4. B is of a paramagnetic material

Correct Choice is (4)

- Q28.** During an isothermal expansion, a confined ideal gas does -150 J of work against its surroundings. This implies that :

1. 300 J of heat has been added to the gas
2. no heat is transferred because the process is isothermal
3. 150 J of heat has been added to the gas
4. 150 J of heat has been removed from the gas

Correct Choice is (4)

- Q29.** Photoelectric emission occurs only when the incident light has more than a certain minimum :

1. wavelength
2. intensity
3. frequency
4. power

Correct Choice is (3)

- Q30.** Electrons used in an electron microscope are accelerated by a voltage of 25 kV. If the voltage is increased to 100 kV then the de-Broglie wavelength associated with the electrons would :
1. decrease by 2 times
 2. decrease by 4 times
 3. increase by 4 times
 4. increase by 2 times

Correct Choice is (1)

- Q31.** In an ac circuit an alternating voltage $e = 200\sqrt{2}\sin 100t$ volts is connected to a capacitor of capacity $1\mu\text{F}$. The r.m.s. value of the current in the circuit is :
1. 100 mA
 2. 200 mA
 3. 20 mA
 4. 10 mA

Correct Choice is (3)

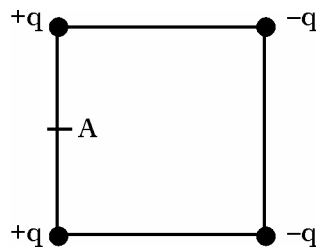
- Q32.** A boy standing at the top of a tower of 20 m height drops a stone. Assuming $g = 10 \text{ ms}^{-2}$, the velocity with which it hits the ground is :
1. 20.0 m/s
 2. 40.0 m/s
 3. 5.0 m/s
 4. 10.0 m/s

Correct Choice is (1)

- Q33.** A body projected vertically from the earth reaches a height equal to earth's radius before returning to the earth. The power exerted by the gravitational force is greatest :
1. at the instant just before the body hits the earth
 2. it remains constant all through
 3. at the instant just after the body is projected
 4. at the highest position of the body

Correct Choice is (1)

- Q34.** Four electric charges $+q$, $+q$, $-q$ and $-q$ are placed at the corners of a square of side $2L$ (see figure). The electric potential at point A, midway between the two charges $+q$ and $+q$ is :



1. $\frac{1}{4\pi\epsilon_0} \frac{2q}{L} \left(1 + \frac{1}{\sqrt{5}}\right)$
2. $\frac{1}{4\pi\epsilon_0} \frac{2q}{L} \left(1 - \frac{1}{\sqrt{5}}\right)$
3. Zero
4. $\frac{1}{4\pi\epsilon_0} \frac{2q}{L} (1 + \sqrt{5})$

Correct Choice is (2)

- Q35.** The dimension of $(\mu_0 \epsilon_0)^{\frac{1}{2}}$ are :

1. $L^{-1}T$
2. LT^{-1}
3. $L^{\frac{1}{2}}T^{\frac{1}{2}}$
4. $L^{\frac{1}{2}}T^{-\frac{1}{2}}$

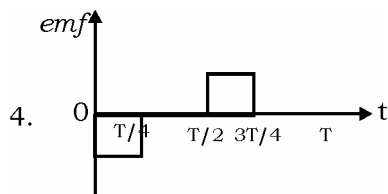
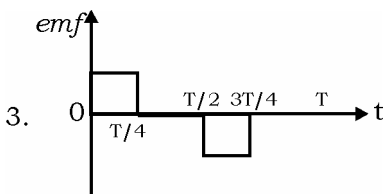
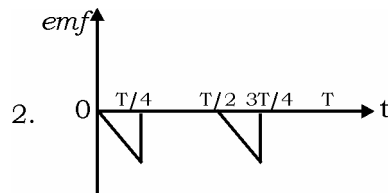
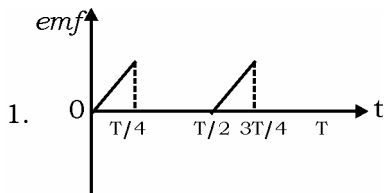
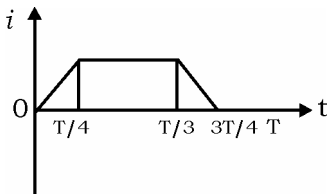
Correct Choice is (2)

Q42. A missile is fired for maximum range with an initial velocity of 20 m/s. If $g = 10 \text{ m/s}^2$, the range of the missile is :

1. 50 m 2. 60 m 3. 20 m 4. 40 m

Correct Choice is (4)

Q43. The current i in a coil varies with time as shown in the figure. The variation of induced emf with time would be :



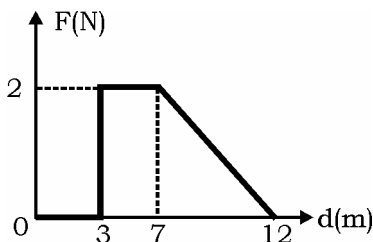
Correct Choice is (4)

Q44. An ac voltage is applied to a resistance R and an inductor L in series. If R and the inductive reactance are both equal to 3Ω , the phase difference between the applied voltage and the current in the circuit is :

1. $\pi/4$ 2. $\pi/2$
3. Zero 4. $\pi/6$

Correct Choice is (1)

Q45. Force F on a particle moving in a straight line varies with distance d as shown in the figure. The work done on the particle during its displacement of 12 m is :



1. 21 J 2. 26 J
3. 13 J 4. 18 J

Correct Choice is (3)

Q51. Given below is a sample of a portion of DNA strand giving the base sequence on the opposite strands. What is so special shown in it ?

5' _____ GAATTC _____ 3'

3' _____ CTTAAG _____ 5'

1. Deletion mutation
2. Start codon at the 5' end
3. Palindromic sequence of base pair
4. Replication completed

Correct Choice is (3)

Q52. Compared with the gametophytes of the bryophytes, the gametophytes of vascular plants tend to be :

1. larger but to have smaller sex organ
2. larger and to have larger sex organs
3. smaller and to have smaller sex organs
4. smaller but to have larger sex organs

Correct Choice is (3)

Q53. Which one of the following statements is correct?

1. Seeds of orchids have oil-rich endosperm
2. Placentation in *primose* is basal
3. Flower of tulip is a modified shoot
4. In tomato, fruit is a capsule

Correct Choice is (3)

Q54. Arteries are best defined as the vessels which :

1. carry blood away from the heart to different organs
2. break up into capillaries which reunite to form a vein
3. carry blood from one visceral organ to another visceral organ
4. supply oxygenated blood to the different organs

Correct Choice is (1)

Q55. There is a restriction endonuclease called *EcoRI*. What does "co" part in it stand for ?

1. coelom
2. coenzyme
3. coli
4. colon

Correct Choice is (3)

Q56. Consider the following four conditions (a – d) and select the correct pair of them as adaptation to environment in *desert lizards*.

The conditions :

- (a) burrowing in soil to escape high temperature
- (b) losing heat rapidly from the body during high temperature
- (c) bask in sun when temperature is low
- (d) insulating body due to thick fatty dermis

Options :

- | | |
|-------------|-------------|
| 1. (a), (c) | 2. (b), (d) |
| 3. (a), (b) | 4. (c), (d) |

Correct Choice is (1)

Q57. “Java” and “Ratna” developed for green revolution in India are the varieties of :

- | | |
|----------|----------|
| 1. Maize | 2. Rice |
| 3. Wheat | 4. Bajra |

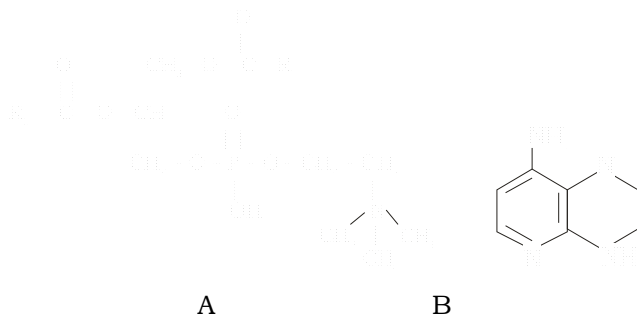
Correct Choice is (1)

Q58. Agarose extracted from sea weeds finds use in :

- | | |
|------------------------|----------------------|
| 1. Tissue Culture | 2. PCR |
| 2. Gel electrophoresis | 4. Spectrophotometry |

Correct Choice is (3)

Q59. Which of the following structural formulae of two organic compounds is correctly identified along with its related function?



- | |
|---|
| 1. A : Triglyceride – major source of energy |
| 2. B : Uracil – a component of DNA |
| 3. A : Lecithin – a component of cell membrane |
| 4. B : Adenine – a nucleotide that makes up nucleic acids |

Correct Choice is (3)

Q60. A certain patient is suspected to be suffering from Acquired Immuno Deficiency Syndrome. Which diagnostic technique will you recommend for its detection?

- | | |
|----------|----------------|
| 1. MRI | 2. Ultra sound |
| 3. WIDAL | 4. ELISA |

Correct Choice is (4)

Q61. Which one of the following statement is correct for secondary succession?

- | |
|--|
| 1. It occurs on a deforested site |
| 2. It follows primary succession |
| 3. It is similar to primary succession except that it has a relatively fast pace |
| 4. It begins on a bare rock |

Correct Choice is (1)

Q62. Filiform apparatus is a characteristic feature of :

- 1. Egg
- 2. Synergid
- 3. Zygote
- 4. Suspensor

Correct Choice is (2)

Q63. Which one of the following pairs of gases are the major cause of “Greenhouse effect”?

- 1. CO₂ and CO
- 2. CFCs and SO₂
- 3. CO₂ and N₂O
- 4. CO₂ and O₃

Correct Choice is (3)

Q64. Which one of the following expanded forms of the following acronyms is correct?

- 1. UNEP = United Nations Environment Policy
- 2. EPA = Environmental Pollution Agency
- 3. IUCN = International Union Conservation of Nature and Natural Resources
- 4. IPCC = International Panel for Climb Change

Correct Choice is (3)

Q65. What are those structures that appear ‘beafs – on – string’ in the chromosomes which viewed under electron microscope?

- 1. Nucleotides
- 2. Nucleosomes
- 3. Base pairs
- 4. Genes

Correct Choice is (2)

Q66. Which one of the following statements pyramid of energy is incorrect, where as remaining three are correct?

- 1. It shows energy content of differ trophic level organisms
- 2. It is inverted in shape
- 3. It is upright in shape
- 4. Its base is broad

Correct Choice is (2)

Q67. Match the source gland with its respective hormone as well as the function.

	Source gland	Hormone	Function
1.	Posterior pituitary	Vasopressin	Stimulates resorption of water in the distal tubules in the nephron
2.	Corpus luteum	Estrogen	Supports pregnancy
3.	Thyroid	Thyroxine	Regulates blood calcium level
4.	Anterior pituitary	Oxytocin	Contraction of uterus muscles during child birth

Correct Choice is (1)

Q68. Medical Termination of Pregnancy (MTP) is considered safe up to how many weeks of pregnancy?
 1. Twelve weeks 2. Eighteen weeks
 3. Six weeks 4. Eight weeks

Correct Choice is (1)

Q69. The gametophyte is not an independent, free-living generation in :
 1. *Adiantum* 2. *Marchantia*
 3. *Pinus* 4. *Polytrichum*

Correct Choice is (3)

Q70. Which one of the following have the highest number of species in nature?
 1. Insects 2. Birds
 3. Angiosperms 4. Fungi

Correct Choice is (1)

Q71. Which one of the following statements is correct regarding blood pressure :
 1. 100/55 mmHg is considered an ideal blood pressure
 2. 105/50 mmHg makes one very active
 3. 190/110 mmHg may harm vital organs like brain and kidney
 4. 130/90 mmHg is considered high and requires treatment

Correct Choice is (3)

Q72. Given below is an incomplete table about certain hormones, their source glands and one major effect of each on the body in humans. Identify the correct option for the three blanks A, B and C.

GLAND	SECRETION	EFFECT ON BODY
A	Oestrogen	Maintenance of secondary sexual characters
Alpha cells of Islets of Langerhans	B	Raises blood sugar level
Anterior pituitary	C	Over secretion leads to gigantism

Options :

- | A | B | C |
|-------------|----------|----------------|
| 1. Placenta | Insulin | Vasopressin |
| 2. Ovary | Insulin | Calcitonin |
| 3. Placenta | Glucagon | Calcitonin |
| 4. Ovary | Glucagon | Growth hormone |

Correct Choice is (4)

Q73. One very special feature in the earthworm *pheretima* is that :

1. The typhlosole greatly increases the effective absorption area of the digested food in the intestine
2. The S – shaped setae embedded in the integument are the defensive weapons used against the enemies
3. It has a long dorsal tubular heart
4. Fertilisation of eggs occurs inside the body

Correct Choice is (1)

Q74. The “Eyes” of the potato tuber are :

1. flower buds
2. shoot buds
3. axillary buds
4. root buds

Correct Choice is (3)

Q75. Which of the following is **mainly** produced by the activity of anaerobic bacteria on sewage ?

1. Propane
2. Mustard gas
3. Marsh gas
4. Laughing gas

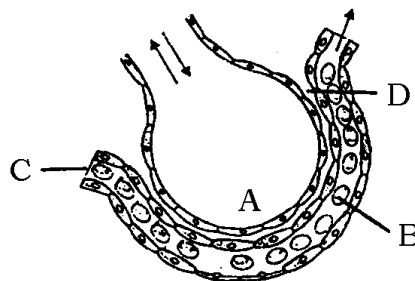
Correct Choice is (3)

Q76. Two friends are eating together on a dining table. One of them suddenly starts coughing while swallowing some food. This coughing would have been due to improper movement of :

1. Diaphragm
2. Neck
3. Tongue
4. Epiglottis

Correct Choice is (4)

Q77. The figure given below shows a small part of human lung where exchange of gases takes place. In which one of the options given below, the one part A, B, C or D is correctly identified along with its function :



Options :

1. A : alveolar cavity – main site of exchange of respiratory gases
2. D : Capillary wall – exchange of O₂ and CO₂ takes place here
3. B : red blood cell – transport of CO₂ mainly
4. C : arterial capillary – passes oxygen to tissues

Correct Choice is (1)

- Q78.** If for some reason, the vasa efferentia in the human reproductive system get blocked, the gametes will **not** be transported from :
1. epididymis to vas deferens
 2. ovary to uterus
 3. vagina to uterus
 4. testes to epididymis

Correct Choice is (4)

- Q79.** Which one of the following helps in absorption of phosphorus from soil by plants?

1. *Rhizobium*
2. *Frankia*
3. *Anabaena*
4. *Glomus*

Correct Choice is (4)

- Q80.** Large Woody Vines are more commonly found in :

1. Mangroves
2. Tropical rainforests
3. Alpine forests
4. Temperate forests

Correct Choice is (2)

- Q81.** The ciliated columnar epithelial cells in humans are known to occur in :

1. Bronchioles and Fallopian tubes
2. Bile duct and oesophagus
3. Fallopian tubes and arethra
4. Eustachian tube and stomach lining

Correct Choice is (1)

- Q82.** A person with unknown blood group under ABO system, has suffered much blood loss in an accident and needs immediate blood transfusion. His one friend who has a valid certificate of his own blood type, offers for blood donation without delay. What would have been the type of blood group of the donor friend?

1. Type AB
2. Type O
3. Type A
4. Type B

Correct Choice is (2)

- Q83.** Which one of the following is the most widely accepted method of contraception in India, as at present ?

1. Tubectomy
2. Diaphragms
3. IUDs' (Intra uterine devices)
4. Cervical caps

Correct Choice is (3)

Q84. CAM helps the plants in :

1. Secondary growth
2. Disease resistance
3. Reproduction
4. Conserving water

Correct Choice is (4)

Q85. The function of leghaemoglobin in the root nodules of legumes is :

1. oxygen removal
2. nodule differentiation
3. expression of *nif* gene
4. inhibition of nitrogenase activity

Correct Choice is (1)

Q86. 'Bundle of His' is a part of which one of the following organs in humans ?

1. Heart
2. Kidney
3. Pancreas
4. Brain

Correct Choice is (1)

Q87. Organisms called Methanogens are most abundant in a :

1. Cattle yard
2. Polluted stream
3. Hot spring
4. Sulphur rock

Correct Choice is (1)

Q88. Which one of the following enzymes carries out the initial step in the digestion of milk in humans ?

1. Rennin
2. Lipase
3. Trypsin
4. Pepsin

Correct Choice is (4)

Q89. The purplish red pigment rhodopsin contained in the rods type of photoreceptor cells of the human eye, is a derivative of :

1. Vitamin C
2. Vitamin D
3. Vitamin A
4. Vitamin B₁

Correct Choice is (3)

Q90. The process of RNA interference has been used in the development of plants resistant to :

1. Fungi
2. Viruses
3. Insects
4. Nematodes

Correct Choice is (4)

Q91. Which one of the following organisms is not an example of eukaryotic cells ?

1. *Escherichia coli*
2. *Euglena viridis*
3. *Amoeba proteus*
4. *Paramecium caudatum*

Correct Choice is (1)

- Q92.** Which one of the following conditions correctly describes the manner of determining the sex in the given example?
1. XO type of sex chromosomes determine male sex in grasshopper
 2. XO condition in humans as found in Turner Syndrome, determines female sex
 3. Homozygous sex chromosomes (XX) produce male in *Drosophila*
 4. Homozygous sex chromosomes (ZZ) determine female sex in birds
- Correct Choice is (1)**
- Q93.** Maximum number of existing transgenic animal is of :
1. Mice
 2. Cow
 3. Pig
 4. Fish
- Correct Choice is (1)**
- Q94.** Which one of the following shows maximum genetic diversity in India ?
1. Rice
 2. Maize
 3. Mango
 4. Groundnut
- Correct Choice is (1)**
- Q95.** Continuous addition of sugars in 'fed batch' fermentation is done to :
1. obtain antibiotics
 2. purify enzymes
 3. degrade sewage
 4. produce methan
- Correct Choice is (2)**
- Q96.** What would be the number of chromosomes of the aleurone cells of a plant with 42 chromosomes in its root tip cells ?
1. 63
 2. 84
 3. 21
 4. 42
- Correct Choice is (1)**
- Q97.** Nitrifying bacteria :
1. convert free nitrogen to nitrogen compounds
 2. convert proteins into ammonia
 3. reduce nitrates to free nitrogen
 4. oxidize ammonia to nitrates
- Correct Choice is (4)**
- Q98.** Secondary sewage treatment is mainly a:
1. Mechanical process
 2. Chemical process
 3. Biological process
 4. Physical process
- Correct Choice is (3)**
- Q99.** Which one of the following is not a biofertilizer ?
1. *Rhizobium*
 2. *Nostoc*
 3. *Mycorrhiza*
 4. *Agrobacterium*
- Correct Choice is (4)**

Q100. Mass of living matter at a trophic level in an area at any time is called :

1. Detritus
2. Humus
3. Standing state
4. Standing crop

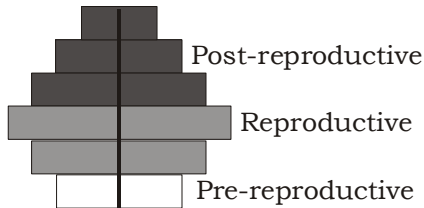
Correct Choice is (4)

Q101. Which one of the following plasma proteins is involved in the coagulation of blood ?

1. serum amylase
2. a globulin
3. Fibrinogen
4. an albumin

Correct Choice is (3)

Q102. What type of human population is represented by the following age pyramid?



1. Stable population
2. Declining population
3. Expanding population
4. Vanishing population

Correct Choice is (2)

Q103. Important site for formation of glycoproteins and glycolipids is :

1. Golgi apparatus
2. Plastid
3. Lysosome
4. Vacuole

Correct Choice is (1)

Q104. Which of the following is correctly stated as it happens in the common cockroach?

1. Oxygen is transported by haemoglobin in blood
2. Nitrogenous excretory product is urea
3. The food is ground by mandibles and gizzard
4. Malpighian tubules are excretory organs projecting out from the colon

Correct Choice is (3)

Q105. Which one of the following correctly explains the function of a specific part of a human nephron?

1. Henle's loop : most reabsorption of the major substances from the glomerular filtrate
2. Distal convoluted tubule : reabsorption of K^+ ions into the surrounding blood capillaries
3. Afferent arteriole : carries the blood away from the glomerulus towards renal vein
4. Podocytes : Create minute spaces (slit pores) for the filtration of blood into the Bowman's capsule

Correct Choice is (4)

Q106. What will you look for to identify the sex of the following?

1. Male frog – A copulatory pad on the first digit of the hind limb
2. Female cockroach – Anal cerci
3. Male shark – Claspers borne on pelvic fins
4. Female *Ascaris* – Sharply curved posterior end

Correct Choice is (3)

Q107. Select the correct option with respect to mitosis :

1. Chromatids start moving towards opposite poles in telophase
2. Golgi complex and endoplasmic reticulum are still visible at the end of prophase
3. Chromosomes move to the spindle equator and get aligned along equatorial plate in metaphase
4. Chromatids separate but remain in the center of the cell in anaphase

Correct Choice is (3)

Q108. A collection of plants and seeds having diverse alleles of all the genes of a crop is called :

1. Germplasm
2. Gene library
3. Genome
4. Herbarium

Correct Choice is (1)

Q109. The correct floral formula of chilli is :

1. $\oplus \overset{\curvearrowright}{\text{K}}_{(5)} \overset{\curvearrowleft}{\text{C}}_{(5)} \text{A}_5 \text{G}_{(2)}$
2. $\oplus \overset{\curvearrowright}{\text{K}}_{(5)} \text{C}_{(5)} \text{A}_{(5)} \text{G}_2$
3. $\oplus \overset{\curvearrowright}{\text{K}}_5 \text{C}_5 \text{A}_{(5)} \text{G}_2$
4. $\oplus \overset{\curvearrowright}{\text{K}}_{(5)} \text{C}_5 \text{A}_5 \text{G}_{(2)}$

Correct Choice is (1)

Q110. The most common substrate used in distilleries for the production of ethanol is :

1. Soya meal
2. Ground gram
3. Molasses
4. Corn meal

Correct Choice is (3)

Q111. Of the total incident solar radiation the proportion of PAR is :

1. About 60%
2. Less than 50%
3. More than 80%
4. About 70%

Correct Choice is (2)

Q112. Which one of the following elements in plants is not remobilized ?

1. Calcium
2. Potassium
3. Sulphur
4. Phosphorus

Correct Choice is (1)

Q113. Ethanol is commercially produced through a particular species of :

1. *Clostridium*
2. *Trichoderma*
3. *Aspergillus*
4. *Saccharomyces*

Correct Choice is (4)

Q114. A large proportion of oxygen is left unused in the human blood even after its uptake by the body tissues. This O₂ :

1. raises the pCO₂ of blood to 75 mm of Hg
2. is enough to keep oxyhaemoglobin saturation at 96%
3. helps in releasing more O₂ to the epithelial tissues
4. acts as a reserve during muscular exercise

Correct Choice is (4)

Q115. Which one of the following is categorized as a parasite in true sense ?

1. Human foetus developing inside the uterus draws nourishment from the mother
2. Head louse living on the human scalp as well as laying eggs on human hair
3. The cuckoo (koel) lays its eggs in crow's nest
4. The female *Anopheles* bites and sucks blood from humans

Correct Choice is (2)

Q116. At which stage of HIV infection does one usually show symptoms of AIDS?

1. When viral DNA is produced by reverse transcriptase
2. When HIV replicates rapidly in helper T-lymphocytes and damages large number of these
3. Within 15 days of sexual contact with an infected person
4. When the infecting retrovirus enters host cells.

Correct Choice is (2)

Q117. Which one of the following statements is wrong in case of Bhopal tragedy?

1. Thousands of human beings died
2. Radioactive fall out engulfed Bhopal
3. It took place in the night of December 2/3, 1984
4. Methyl Isocyanate gas leakage took place

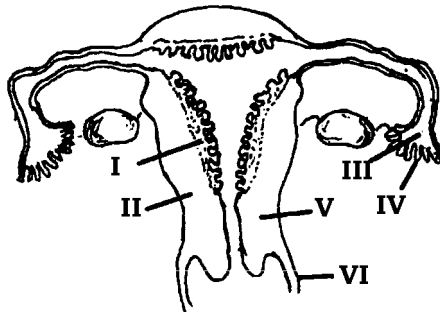
Correct Choice is (2)

Q118. Ground tissue includes :

1. All tissues except epidermis and vascular bundles
2. Epidermis and cortex
3. All tissues internal to endodermis
4. All tissues external to endodermis

Correct Choice is (1)

Q119. The figure given below depicts a diagrammatic sectional view of the female reproductive system of humans. Which one set of three parts out of I – VI have been correctly identified ?



1. (III) Infundibulum, (IV) Fimbriae, (V) Cervix
2. (IV) Oviducal funnel, (V) Uterus, (VI) Cervix
3. (I) Perimetrium, (II) Myometrium, (III) Fallopian tube
4. (II) Endometrium, (III) Infundibulum, (IV) Fimbriae

Correct Choice is (1)

Q120. Butrophication is often seen in :

1. Fresh water lakes
2. Ocean
3. Mountains
4. Deserts

Correct Choice is (1)

Q121. Flowers are Zygomorphic in :

- | | |
|-------------|------------|
| 1. Gulmohur | 2. Tomato |
| 3. Datura | 4. Mustard |

Correct Choice is (1)

Q122. A drupe develops in :

- | | |
|-----------|----------|
| 1. Wheat | 2. Pea |
| 3. Tomato | 4. Mango |

Correct Choice is (4)

Q123. Which one of the following also acts as a catalyst in a bacterial cell ?

- | | |
|--------------|-------------|
| 1. sn RNA | 2. hn RNA |
| 3. 23 sr RNA | 4. 5 sr RNA |

Correct Choice is (3)

Q124. What was the most significant trend in the evolution of modern man (*Homo sapiens*) from his ancestors ?

1. Shortening of jaws
2. Binocular vision
3. Increasing brain capacity
4. Upright posture

Correct Choice is (3)

Q125. In eubacteria, a cellular component that resembles eukaryotic cell is :

1. Nucleus
2. Ribosomes
3. Cell wall
4. Plasma membrane

Correct Choice is (4)

Q126. In which one of the following the genus name, its two characters and its class/phylum are correctly matched ?

	Genus name	Two characters	Class/ Phylum
1	<i>Salamandra</i>	(a) A tympanum represents ear (b) Fertilization is external	Amphibia

2	<i>Pteropus</i>	(a)	Skin possesses hair	Mammalia
		(b)	Oviparous	
3	<i>Aurelia</i>	(a)	Cnidoblasts	Coelenterata
		(b)	Organ level of organization	
4	<i>Ascaris</i>	(a)	Body segmented	Annelida
		(b)	Males and females distinct	

Correct Choice is (1)

Q127. Which one of the following animals is correctly matched with its particular named taxonomic category?

1. Cuttlefish – Mollusca, a class
2. Humans – Primata, the family
3. Housefly – *Musca*, an order
4. Tiger – *tigris*, the species

Correct Choice is (4)

Q128. Mutations can be induced with :

1. I A A
2. Ethylene
3. Gamma radiations
4. Infra Red radiations

Correct Choice is (3)

Q129. In land plants, the guard cells differ from other epidermal cells in having :

1. Mitochondria
2. Endoplasmic reticulum
3. Chloroplasts
4. Cytoskeleton

Correct Choice is (3)

Q130. Wind pollination is common in :

1. Lilies
2. Grasses
3. Orchids
4. Legumes

Correct Choice is (2)

Q131. Which one of the following is not a part of a renal pyramid ?

1. Convolute tubules
2. Collecting ducts
3. Loops of Henle
4. Peritubular capillaries

Correct Choice is (1)

Q132. 'Himgiri' developed by hybridization and selection for disease resistance against rust pathogens is a variety of :

- | | |
|----------|--------------|
| 1. Maize | 2. Sugarcane |
| 3. Wheat | 4. Chilli |

Correct Choice is (3)

Q133. Which one of the following groups of animals is correctly matched with its one characteristic feature without even a single exception?

1. *Chordata* : possess a mouth provided with an upper and a lower jaw
2. *Chondrichthyes* : possess cartilaginous endoskeleton
3. *Mammalia* : give birth to young ones
4. *Reptilia* : possess 3-chambered heart with one incompletely divided ventricle

Correct Choice is (2)

Q134. Which one of the following acts as a physiological barrier to the entry of microorganisms in human body ?

1. Tears
2. Monocytes
3. Skin
4. Epithelium of Urogenital tract

Correct Choice is (1)

Q135. When a neuron is in resting state i.e. not conducting any impulse, the axonal membrane is :

1. Equally permeable to both Na^+ and K^+ ions
2. Impermeable to both Na^+ and K^+ ions
3. Comparatively more permeable to K^+ ions and nearly impermeable to Na^+ ions
4. Comparatively more permeable to Na^+ ions and nearly impermeable to K^+ ions

Correct Choice is (3)

Q136. Nucellar polyembryony is reported in species of :

1. *Gossypium*
2. *Triticum*
3. *Brassica*
4. *Citrus*

Correct Choice is (4)

Q137. Peptide synthesis inside a cell takes place in :

- | | |
|-----------------|----------------|
| 1. Mitochondria | 2. Chromoplast |
| 3. Ribosome | 4. Chloroplast |

Correct Choice is (3)

Q138. When two unrelated individuals or lines are crossed, the performance of F₁ hybrid is often superior to both its parents. This phenomenon is called :

- | | |
|-------------------|--------------|
| 1. Transformation | 2. Splicing |
| 3. Metamorphosis | 4. Heterosis |

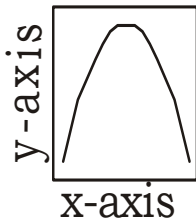
Correct Choice is (4)

Q139. The cork cambium, cork and secondary cortex are collectively called :

- | | |
|--------------|---------------|
| 1. Phellogen | 2. Periderm |
| 3. Phellem | 4. Phelloderm |

Correct Choice is (2)

Q140. The curve given below shows enzymatic activity with relation to three conditions (pH, temperature and substrate concentration)



When do the two axes (x and y) represent ?

- | | x-axis | y-axis |
|----|--------------------------|--------------------|
| 1. | temperature | enzyme activity |
| 2. | substrate concentration, | enzymatic activity |
| 3. | enzymatic activity, | temperature |
| 4. | enzymatic activity | Ph |

Correct Choice is (1)

Q141. Uricotelic mode of passing out nitrogenous wastes is found in :

1. Birds and Annelids
2. Amphibians and Reptiles
3. Insects and Amphibians
4. Reptiles and Birds

Correct Choice is (4)

Q142. The testes in humans are situated outside the abdominal cavity inside a pouch called scrotum. The purpose served is for:

1. escaping any possible compression by the visceral organs
2. providing more space for the growth of epididymis
3. providing a secondary sexual feature for exhibiting the male sex
4. maintaining the scrotal temperature lower than the internal body temperature

Correct Choice is (4)

Q143. An organism used as a biofertilizer for raising soyabean crop is :

1. *Azospirillum*
2. *Rhizobium*
3. *Nostoc*
4. *Azotobacter*

Correct Choice is (2)

Q144. Which one of the following is wrongly matched ?

1. Puccinia – Smut
2. Root – Exarch protoxylem
3. Cassia – Imbricate aestivation
4. Root pressure – Guttation

Correct Choice is (1)

Q145. In which one of the following pollination is autogamous ?

1. Xenogamy
2. Chasmogamy
3. Cleistogamy
4. Geitonogamy

Correct Choice is (3)

Q146. The ovary is half inferior in flowers of :

1. Cucumber
2. Cotton
3. Guava
4. Peach

Correct Choice is (4)

Q147. Which one of the following statements is correct with respect to kidney function regulation ?

1. Exposure to cold temperature stimulates ADH release
2. An increase in glomerular blood flow stimulates formation of Angiotensin II
3. During summer when body loses lot of water by evaporation, the release of ADH is suppressed
4. When someone drinks lot of water, ADH release is suppressed

Correct Choice is (4)

Q148. Archegoniophore is present in :

1. *Chara*
2. *Adiantum*
3. *Funaria*
4. *Marchantia*

Correct Choice is (4)

Q149. Where will you look for the sporozoites of the malarial parasite ?

1. red blood corpuscles of humans suffering from malaria
2. spleen of infected humans
3. Salivary glands of freshly moulted female *Anopheles* mosquito
4. Saliva of infected female *Anopheles* mosquito

Correct Choice is (4)

Q150. A prokaryotic autotrophic nitrogen fixing symbiont is found in :

1. *Cycas*
2. *Cicer*
3. *Pisum*
4. *Alnus*

Correct Choice is (1)

Q151. Standard electrode potential of three metals X, Y and Z are -1.2 V , $+0.5\text{ V}$ and -3.0 V respectively. The reducing power of these metals will be :

1. $X > Y > Z$
2. $Z > X > Y$
3. $X > Y > Z$
4. $Y > Z > X$

Correct Choice is (2)

Q152. Considering the state of hybridization of carbon atoms, find out the molecule among the following which is linear ?

1. $\text{CH}_3 - \text{C} \equiv \text{C} - \text{CH}_3$
2. $\text{CH}_2 = \text{CH} - \text{CH}_2 - \text{C} \equiv \text{CH}$
3. $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$
4. $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3$

Correct Choice is (1)

Q153. Clemmensen reduction of a ketone is carried out in the presence of which of the following ?

1. $\text{Zn} - \text{Hg}$ with HCl
2. LiAlH_4
3. H_2 and Pt as catalyst
4. Glycol with KOH

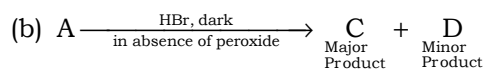
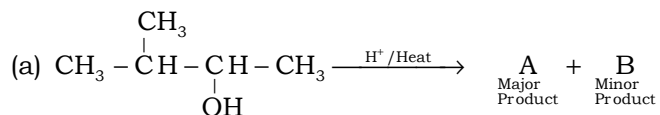
Correct Choice is (1)

Q154. A gaseous mixture was prepared by taking equal mole of CO and N_2 . If the total pressure of the mixture was found 1 atmosphere, the partial pressure of the nitrogen (N_2) in the mixture is :

1. 0.8 atm
2. 0.9 atm
3. 1 atm
4. 0.5 atm

Correct Choice is (4)

Q155. In the following reactions,



the major products (A) and (C) are respectively :

- $\text{CH}_3 - \overset{\text{CH}_3}{\text{C}} = \text{CH} - \text{CH}_3$ and $\text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{Br}}{\text{C}}} - \text{CH}_2 - \text{CH}_3$
- $\text{CH}_3 - \overset{\text{CH}_3}{\text{C}} = \text{CH} - \text{CH}_3$ and $\text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{Br}}{\text{C}}} - \text{CH} - \text{CH}_3$
- $\text{CH}_3 = \overset{\text{CH}_3}{\text{C}} - \text{CH}_2 - \text{CH}_3$ and $\text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{Br}}{\text{C}}} - \text{CH}_2 - \text{CH}_3$
- $\text{CH}_2 = \overset{\text{CH}_3}{\text{C}} - \text{CH}_2 - \text{CH}_3$ and $\underset{\text{Br}}{\text{CH}_2} - \overset{\text{CH}_3}{\text{CH}} - \text{CH}_2 - \text{CH}_3$

Correct Choice is (1)

Q156. If x is amount of adsorbate and m is amount of adsorbent, which of the following relations is not related to adsorption process ?

- $x/m = f(T)$ at constant p
- $p = f(T)$ at constant (x/m)
- $\frac{x}{m} = p \times T$
- $x/m = f(p)$ at constant T

Correct Choice is (3)

Q157. The freezing point depression constant for water is $-1.86^\circ\text{Cm}^{-1}$. If 5.00 g Na_2SO_4 is dissolved in 45.0 g H_2O , the freezing point is changed by -3.82°C . Calculate the van't Hoff factor for Na_2SO_4

- 2.63
- 3.11
- 0.381
- 2.05

Correct Choice is (1)

Q158. Which of the two ions from the list given below that have the geometry that is explained by the same hybridization of orbitals, NO_2^- , NO_3^- , NH_2^- , NH_4^+ , SCN^- ?

- NH_4^+ and NO_3^-
- SCN^- and NH_2^-
- NO_2^- and NH_2^-
- NO_2^- and NO_3^-

Correct Choice is (4)

Q159. The d-electron configurations of Cr^{2+} , Mn^{2+} , Fe^{2+} and Co^{2+} are d^4 , d^5 , d^6 and d^7 respectively. Which one of the following will exhibit minimum paramagnetic behaviour ?

1. $\text{Fe}(\text{H}_2\text{O})_6^{2+}$
2. $\text{Co}(\text{H}_2\text{O})_6^{2+}$
3. $\text{Cr}(\text{H}_2\text{O})_6^{2+}$
4. $\text{Mn}(\text{H}_2\text{O})_6^{2+}$

(At. Nos. Cr=24, Mn= 25, Fe=26, Co=27)

Correct Choice is (2)

Q160. For the four successive transition elements (Cr, Mn, Fe and Co), the stability of +2 oxidation state will be there in which of the following order ?

1. $\text{Fe} > \text{Mn} > \text{Co} > \text{Cr}$
2. $\text{Co} > \text{Mn} > \text{Fe} > \text{Cr}$
3. $\text{Cr} > \text{Mn} > \text{Co} > \text{Fe}$
4. $\text{Mn} > \text{Fe} > \text{Cr} > \text{Co}$

Correct Choice is (4)

Q161. The van't Hoff factor i for a compound which undergoes dissociation in one solvent and association in other solvent is respectively :

1. less than one and less than one
2. greater than one and less than one
3. greater than one and greater than one
4. less than one and greater than one

Correct Choice is (2)

Q162. Which one of the following statements is **not true** regarding (+) Lactose ?

1. (+) Lactose is β -glycoside formed by the union of a molecule D(+) glucose and a molecule of D(+) galactose
2. (+) Lactose is a reducing sugar and does not exhibit mutarotation
3. (+) Lactose, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ contains 8-OH groups
4. On hydrolysis (+) Lactose gives equal amount of D(+) glucose and D(+) galactose

Correct Choice is (2)

Q163. If the E_{cell}° for a given reaction has a negative value, then which of the following gives the correct relationships for the values of ΔG° at K_{eq} ?

1. $\Delta G^{\circ} < 0$; $K_{\text{eq}} > 1$
2. $\Delta G^{\circ} < 0$; $K_{\text{eq}} < 1$
3. $\Delta G^{\circ} > 0$; $K_{\text{eq}} < 1$
4. $\Delta G^{\circ} > 0$; $K_{\text{eq}} > 1$

Correct Choice is (3)

Q164. Which one of the following is employed as Antithistamine ?

1. Diphenyl hydramine
2. Norothindrone
3. Omeprazole
4. Chloramphenicol

Correct Choice is (1)

Q165. Which of the following elements is present as the impurity to the maximum extent in the pig iron ?

1. Carbon
2. Silicon
3. Phosphorous
4. Manganese

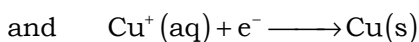
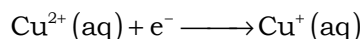
Correct Choice is (1)

Q166. Of the following complex ions, which is diamagnetic in nature ?

1. $\text{Ni}(\text{CN})_4^{2-}$
2. $[\text{CuCl}_4]^{2-}$
3. $[\text{CoF}_6]^{3-}$
4. $[\text{NiCl}_4]^{2-}$

Correct Choice is (1)

Q167. The electrode potentials for



are + 0.15 V and + 0.50 V respectively. The value of $E_{\text{Cu}^{2+}/\text{Cu}}^{\circ}$ will be :

1. 0.325 V
2. 0.650 V
3. 0.105 V
4. 0.500 V

Correct Choice is (1)

Q168. If the enthalpy change for the transition of liquid water to steam is 30 kJ mol⁻¹ at 27°C, the entropy change for the process would be :

1. 1.0 J mol⁻¹K⁻¹
2. 0.1 J mol⁻¹K⁻¹
3. 100 J mol⁻¹K⁻¹
4. 10 J mol⁻¹K⁻¹

Correct Choice is (3)

Q169. Which one of the following statements for the order of a reaction is **incorrect** ?

1. Order is not influenced by stoichiometric coefficient of the reactants
2. Order of reaction is sum of power to the concentration terms of reactants to express the rate of reaction
3. Order of reaction is always whole number
4. Order can be determined only experimentally

Correct Choice is (3)

Q170. The correct order of increasing bond length of

C-H, C-O, C-C and C=C is :

1. C-C < C=C < C-O < C-H
2. C-O < C-H < C-C < C=C
3. C-H < C-O < C-C < C=C
4. C-H < C=C < C-O < C-C

Correct Choice is (4)

Q171. Which of the following is least likely to behave as Lewis base ?

1. NH_3 2. BF_3
 3. OH^- 4. H_2O

Correct Choice is (2)**Q172.** Of the following which one is classified as polyester polymer ?

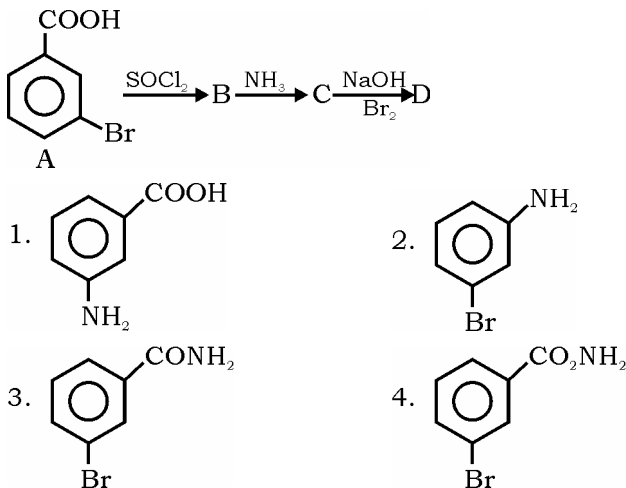
1. Bakelite 2. Melamine
 3. Nylon-66 4. Terylene

Correct Choice is (4)**Q173.** A buffer solution is prepared in which the concentration of NH_3 is 0.30 M and the concentration of NH_4^+ is 0.20 M. If the equilibrium constant, K_b for NH_3 equals 1.8×10^{-5} , what is the pH of this solution ? ($\log 2.7 = 0.43$)

1. 9.43 2. 11.72
 3. 8.73 4. 9.08

Correct Choice is (1)**Q174.** Standard electrode potential for $\text{Sn}^{4+}/\text{Sn}^{2+}$ couple is 0.15 V and that for the Cr^{3+}/Cr couple is -0.74 V. These two couples in their standard state are connected to make a cell. The cell potential will be :

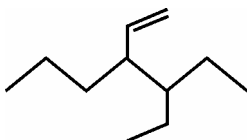
1. + 0.89 V 2. + 0.18 V
 3. 1.83 V 4. + 1.19 V

Correct Choice is (1)**Q175.** In a set of reactions m-bromobenzoic acid gave a product D. Identify the product D.**Correct Choice is (2)****Q176.** Name the type of the structure of silicate in which one oxygen atom of $[\text{SiO}_4]^{4-}$ is shared ?

1. Sheet silicate 2. Pyrosilicate
 3. Three dimensional 4. Linear chain silicate

Correct Choice is (2)

Q177. The correct IUPAC name of the compound

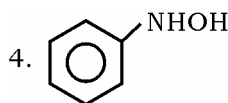
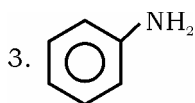
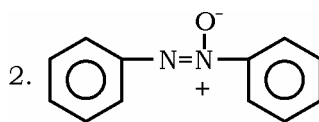
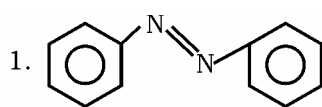
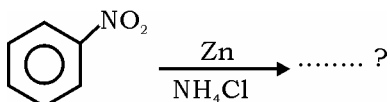


is

1. 3-Ethyl-4-ethenyl heptane
2. 3-Ethyl-4-propyl hex-5-ene
3. 3-(1-ethyl propyl) hex-1-ene
4. 4-Ethyl-3-propyl hex-1-ene

Correct Choice is (4)

Q178. What is the product obtained in the following reaction :



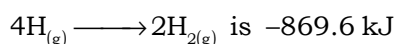
Correct Choice is (4)

Q179. Which of the following is correct option for free expansion of an ideal gas under adiabatic condition ?

1. $q \neq 0, \Delta T = 0, w = 0$
2. $q = 0, \Delta T = 0, w = 0$
3. $q = 0, \Delta T < 0, w \neq 0$
4. $q = 0, \Delta T \neq 0, w = 0$

Correct Choice is (2)

Q180. Enthalpy change for the reaction,



The dissociation energy of H-H bond is :

1. -869.6 kJ
2. $+434.8 \text{ kJ}$
3. $+217.4 \text{ kJ}$
4. -434.8 kJ

Correct Choice is (2)

Q181. Two gases A and B having the same volume diffuse through a porous partition in 20 and 10 seconds respectively. The molecular mass of A is 49 u. Molecular mass of B will be :

1. 12.25 u
2. 6.50 u
3. 25.00 u
4. 50.00 u

Correct Choice is (1)

Q182. The complexes $\text{Co}(\text{NH}_3)_6$ $\text{Cr}(\text{CN})_6$ and $\text{Cr}(\text{NH}_3)_6$ $\text{Co}(\text{CN})_6$ are the examples of which type of isomerism ?

1. Ionization isomerism
2. Coordination isomerism
3. Geometrical isomerism
4. Linkage isomerism

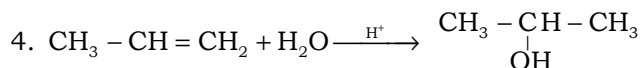
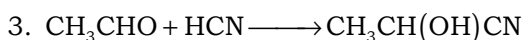
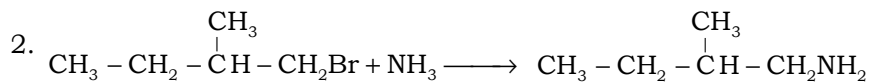
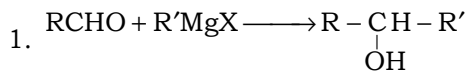
Correct Choice is (2)

Q183. Which of the following pairs of metals is purified by van Arkel method ?

1. Zr and Ti
2. Ag and Au
3. Ni and Fe
4. Ga and In

Correct Choice is (1)

Q184. Which one is a nucleophilic substitution reaction among the following ?



Correct Choice is (2)

Q185. Which of the following compounds has the lowest melting point ?

1. CaBr_2
2. CaI_2
3. CaF_2
4. CaCl_2

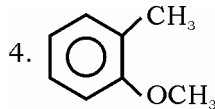
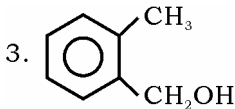
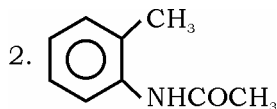
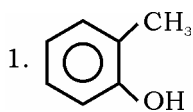
Correct Choice is (2)

Q186. The total number of atomic orbitals in fourth energy level of an atom is :

1. 16
2. 32
3. 4
4. 8

Correct Choice is (1)

Q187. Which one of the following is most reactive towards electrophilic reagent ?



Correct Choice is (1)

Q188. By what factor does the average velocity of a gaseous molecule increase when the temperature (in Kelvin) is doubled ?

1. 2.8
2. 4.0
3. 1.4
4. 2.0

Correct Choice is (3)

Q189. In Dumas' method of estimation of nitrogen 0.35 g of an organic compound gave 55 mL of nitrogen collected at 300 K temperature and 715 mm pressure. The percentage composition of nitrogen in the compound would be :

1. 16.45
2. 17.45
3. 14.45
4. 15.45

Correct Choice is (1)

Q190. The complex, $\text{Pt}(\text{Py})(\text{NH}_3)\text{BrCl}$ will have how many geometrical isomers ?

1. 4
2. 0
3. 0
4. 3

Correct Choice is (1)

Q191. Mole fraction of the solute in a 1.00 molal aqueous solution is :

1. 0.0177
2. 0.0344
3. 1.7700
4. 0.1770

Correct Choice is (1)

Q192. The value of ΔH for the reaction

$\text{X}_{2(\text{g})} + 4\text{Y}_{2(\text{g})} \rightleftharpoons 2\text{XY}_{4(\text{g})}$ is less than zero. Formation $\text{XY}_{4(\text{g})}$ will be favoured at :

1. Low pressure and low temperature
2. High temperature and low pressure
3. High pressure and low temperature
4. High temperature and high pressure

Correct Choice is (3)

Q193. The Lassaigne's extract is boiled with conc. HNO_3 while testing for halogens. By doing so it :

1. helps in the precipitation of AgCl
2. increases the solubility product of AgCl
3. increases the concentration of NO_3^- ions
4. decomposes Na_2S and NaCN , if formed

Correct Choice is (4)

Q194. For the reaction $\text{N}_{2(\text{g})} + \text{O}_{2(\text{g})} \rightleftharpoons 2\text{NO}(\text{g})$, the equilibrium constant is K_1 . The equilibrium constant is K_2 for the reaction $2\text{NO}(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}_2(\text{g})$. What is K for the reaction

$\text{NO}_2(\text{g}) \rightleftharpoons \frac{1}{2}\text{N}_2(\text{g}) + \text{O}_2(\text{g})$?

1. $1/(4K_1K_2)$
2. $[1/K_1K_2]^{1/2}$
3. $1/(K_1K_2)$
4. $1/(2K_1K_2)$

Correct Choice is (2)

Q195. The energies E_1 and E_2 of two radiations are 25 eV and 50 eV respectively. The relation between their wavelengths i.e. λ_1 and λ_2 will be :

1. $\lambda_1 = 2\lambda_2$
2. $\lambda_1 = 4\lambda_2$
3. $\lambda_1 = \frac{1}{2}\lambda_2$
4. $\lambda_1 = \lambda_2$

Correct Choice is (1)

Q196. Which of the following has the minimum bond length ?

1. O_2^-
2. O_2^{2-}
3. O_2
4. O_2^+

Correct Choice is (4)

Q197. Acidified $K_2Cr_2O_7$ solution turns green when Na_2SO_3 is added to it. This is due to the formation of :

1. CrO_4^{2-}
2. $Cr_2(SO_3)_3$
3. $CrSO_4$
4. $CrSO_4$

Correct Choice is (4)

Q198. Which one of the following statement is not true ?

1. Concentration of DO below 6 ppm is good for the growth of fish
2. Clean water would have a BOD value of less than 5 ppm
3. Oxides of sulphur, nitrogen and carbon are the most widespread air pollutant
4. pH of drinking water should be between 5.5–9.5

Correct Choice is (1)

Q199. If $n = 6$, the correct sequence for filling of electrons will be :

1. $ns \rightarrow (n-1)d \rightarrow (n-2)f \rightarrow np$
2. $ns \rightarrow (n-2)f \rightarrow np \rightarrow (n-1)d$
3. $ns \rightarrow np(n-1)d \rightarrow (n-2)f$
4. $ns \rightarrow (n-2)f \rightarrow (n-1)d \rightarrow np$

Correct Choice is (4)

Q200. Which one of the following is present as an active ingredient in bleaching powder for bleaching action ?

1. $Ca(OCl)_2$
2. CaO_2Cl
3. $CaCl_2$
4. $CaOCl_2$

Correct Choice is (1)