CMMC-2020

STD XII –PHYSICS, CHEMISTRY, BIOLOGY | CBSE

Multiple Choice Questions | Number of questions: 120 | Max Marks: 120 | Time: 120 Minutes

PHYSICS (40 x 1 = 40 marks)

1. In general, metallic ropes are suspended on the carriers which take inflammable material. The reason is
   A. their speed is controlled
   B. to keep the gravity of the carrier nearer to Earth
   C. to keep the body of the carrier in contact with the Earth.
   D. nothing should be placed under the carrier

2. A glass rod rubber with silk is used to charge a gold leaf electroscope and the leaves are observed to diverge. The electroscope thus charged is exposed to X-rays for a short period. Then,
   A. the divergence of leaves will not be affected.
   B. the leaves will diverge further
   C. the leaves will collapse
   D. the leaves will melt

3. Statement I: Metallic bodies of electric appliances such as electric iron, refrigerator, TV are connected to the earth wire.

Statement II: When any fault occurs or live wire touches the metallic body, the charge flows to the Earth without damaging the appliance and without causing any injury to the human using appliance.

A. Both I, II are correct, II explains I
B. Both I, II are correct but II does not explain I
C. I is correct, II is incorrect
D. I is incorrect, II is correct

4. If F_{21} and F_{12} indicate force on q_2 due to q_1 and on q_1 due to q_2 respectively, then which of these are true?

I. $F_{12} = -F_{21}$ II. $|F_{12}| = |F_{21}|$ III. $F_{21} = \frac{1}{4\pi\varepsilon_0} \frac{q_1 q_2}{r_{21}^2} \widehat{r_{21}}$ IV. $F_{12} = F_{21}$

   A. I, II and IV B. II, III and IV
   C. I, III and IV D. I, II and III

5. An electric field line is a curve drawn such that the tangent at any point of it,
   A. points in the direction of positive charge
   B. points in the direction of negative charge
   C. points in the direction perpendicular to line joining charges
   D. points in the direction of net field at that point

6. Electric charges q, q, -2q are placed at the corners of an equilateral ΔABC of side l. The magnitude of electric dipole moment of the system is
   A. ql B. $2ql$ C. $\sqrt{3}ql$ D. $4ql$

7. Statement I : If a long wire of charge density λ is considered, then field at every point near the wire is radial (outward for $\lambda > 0$, inward for $\lambda < 0$)

Statement II: Normal components of different sections of wire cancels out each other.

A. Both I and II are correct and II is a correct explanation of I
B. Both I and II are correct and II is a not a correct explanation of I
C. I is correct and II is incorrect
D. I is incorrect and II is correct

8. Two points P and Q are maintained at the potentials of 10V and -4V respectively. The work done in moving 100 electrons from P to Q is

A. -9.60×10^{-17} J B. 9.60×10^{-17} J C. -2.24×10^{-16} J D.. 2.24×10^{-16} J

9. The electrostatic potential of a uniformly charged thin spherical shell of charge Q and radius R at a distance r from the centre is

A. $\frac{Q}{4\pi\varepsilon_0 r}$ for points outside and $\frac{Q}{4\pi\varepsilon_0 R}$ for points inside the shell
B. $\frac{Q}{4\pi\varepsilon_0 r}$ for both points inside and outside the shell
C. Zero for points outside and $\frac{Q}{4\pi\varepsilon_0 r}$ for points inside the shell
D. Zero for both points inside and outside the shell

10. An electric dipole consists of two opposite charges each 0.05 μC separated by 30 mm. The dipole is placed in a uniform external electric field of 10 NC^{-1} . The maximum torque exerted by the field on the dipole is

A. 6×10^{-3} Nm B. 3×10^{-3} Nm C. 15×10^{-3} Nm
D. 1.5×10^{-3} Nm

11. The potential at a point x (measured in μm) due to some charges situated on the X-axis is given by $V(x) = \frac{20}{(x^2-4)}$ volt

The electric field E at $x = 4$ μ m is given by

A. 10 / 9 V / μ m and in the + ve x- direction
B. 5 / 3 V / μ m and in the - ve x- direction
C. 5 / 3 V / μ m and in the + ve x- direction
D. 10 / 9 V / μ m and in the - ve x- direction

12. The examples of polar molecules are

A. HCl B. H_2O C. NH_3 D. both A and B

13. Is there any work done in moving a test charge over an equipotential surface?

A. No B. Yes C. Constant D. None of these

14. In which material, electric currents develop when an electric field is applied?

A. Conductor B. Wooden piece C. Non-conductor D. Insulator

15. In R = $\rho \frac{l}{A}$, ρ is known as
A. resistance B. resistivity C. density D. volume

16. A resistor has colour code of green, blue, brown and silver. What is the resistance?
A. 5600 $\Omega \pm 10\%$ B. 560 $\Omega \pm 5\%$
C. 560 $\Omega \pm 10\%$ D. 56 $\Omega \pm 5\%$

17. The resistance of the platinum wire of a platinum resistance thermometer at the ice point is 5Ω and at steam point 5.23Ω. When the thermometer is inserted in a hot bath, the resistance of the platinum wire is 5.795Ω . Calculate the temperature of the bath.
A. 345.65° C B. 345.65 K C. 300° C D. 320° C

18. Two resistances R and 2R are connected in parallel in an electric circuit. The thermal energy developed in
R and 2R in the ratio
A. 1 : 2 B. 1 : 4 C. 4 : 1 D. 2 : 1

19. In a potentiometer experiment for measuring the emf of cell, the null point is at 480 cm when we have a 400Ω resistor in series with the cell and galvanometer. If the series resistances are reduced to half, the null point will be at
A. 120 cm B. 240 cm C. 480 cm D. 600 cm

20. If a proton is projected in a direction perpendicular to a uniform magnetic field with velocity v and an electron is projected along the magnetic lines of force, what will happen to proton and electron?
A. The electron will travel along a circle with constant speed and the proton will move along a straight line
B. Proton will move in a circle with constant speed and there will be no effect on the motion of electron
C. There will not be any effect on the motion of electron and proton
D. The electron and proton both will follow the path of a parabola

21. A charged particle continues to move with constant velocity in a region, where
I. $E = 0, B \neq 0$ II $E \neq 0, B \neq 0$ III $E \neq 0, B = 0$ IV $E = 0, B = 0$
Correct options are
A. I, II and III B. I, II and IV C. II, III and IV D. I, III and IV

22. A long straight wire of radius *a* carries a steady current *I*. The current is uniformly distributed across its cross-section. The ratio of magnetic field at *a* / 2 and 2*a* is
A. ¼ B. 4 C 1 D. ½

23. Two long parallel straight wires *A* and *B* carrying currents of 4.0 A and 5.0 A in same direction separated by a distance of 4 X 10^{-2} m. The force on a 0.10 m section of wire *A* is
A. 2 x 10^{-5} N towards *B* B. 2 x 10^{-5} N away from *B*
C. 2 x 10^{-5} N perpendicular to *B* D. 2 x 10^{-5} N parallel to *B*

24. Two similar coils are placed mutually perpendicular such that their centres coincides. At centre, the ratio of the magnetic field due to one coil and the resultant magnetic field of both coils for same current will be

A. $1 : \sqrt{2}$ B. 1 : 2 C. 2 : 1 D. $\sqrt{3} : 1$

25. Two long conductors carrying I_1 and I_2 currents in same direction, separated by a distance d, placed parallel to each other. They exert a force F on each other. Now, current in one of them is increased to two times and its direction is reversed. The distance is also increased to $3d$. The new value of force between them is

A. $-2F$ B. $\frac{F}{3}$ C. $-\frac{2F}{3}$ D. $-\frac{F}{3}$

26. A short bar magnet of magnetic moment $m = 0.32$ J / T is placed in a uniform magnetic field of 0.15 T. If the bar is free to rotate in the plane of the field the potential energy which would correspond to its unstable equilibrium?

A. 4.8×10^{-2} J B. -4.8×10^{-2} J C. 7.5×10^{-2} J D. 3.6×10^{5} J

27. A magnet with moment P_m is given. If it is bent into a semi-circular form, its new magnetic moment will be

A. p_m / π B. $p_m / 2$ C. p_m D. $2p_m / \pi$

28. If a magnet is suspended at an angle 30° to the magnetic meridian, the dip needle makes an angle of 45° with the horizontal. The real dip is

A. $\tan^{-1}\left(\sqrt{\frac{3}{2}}\right)$ B. $\tan^{-1}\left(\sqrt{3}\right)$ C. $\tan^{-1}\left(\sqrt{3}/2\right)$ D. A. $\tan^{-1}\left(2/\sqrt{3}\right)$

29. A sample of cast iron exhibits a magnetic field (B) of 0.5 T when the magnetic field intensity is H= 10 A/m. What would be the field in air for this value of H?

A. 0.5×10^{-6} T B. $4\pi \times 10^{-6}$ T C. 15×10^{-2} T D. 11.5×10^{-2} T

30. If the magnetic dipole moment of an atom of diamagnetic material, paramagnetic material and ferromagnetic material are denoted by μ_d , μ_p and μ_f respectively, then

A. $\mu_p = 0$ and $\mu_d = 0$ B. $\mu_d \neq 0$ and $\mu_p \neq 0$
C. $\mu_d \neq 0$ and $\mu_f \neq 0$ D. $\mu_d = 0$ and $\mu_p \neq 0$

31. A circular coil of diameter 21 cm is placed in a magnetic field of induction 10^{-4} T. The magnitude of flux linked with coil when the plane of coil makes an angle 30° with the field is

A. $1.44 \times 10^{6} Wb$ B. $1.732 \times 10^{-6} Wb$
C. $3.1 \times 10^{-6} Wb$ D. $4.2 \times 10^{-6} Wb$

32. A circular coil of radius 10 cm, 500 turns and resistance 2Ω is placed with its plane perpendicular to the horizontal components of the Earth's magnetic field. It is rotated about its vertical diameter through 180° in

0.25 s. Find the magnitude of the emf induced in the coil. Horizontal component of the Earth's magnetic field at the place is 3.00×10^{-5} T.

A. 3×10^{3} V
B. 3.8×10^{-3} mV
C. 3.8×10^{3} mV
D. 3.8×10^{-3} V

33. If the rms current in a 50 Hz AC circuits is 5A, what is the value of the current (1/300)s after it was zero?

A. $5\sqrt{2}\ A$
B. $5\sqrt{{}^{3}/_{2}}\ A$
C. 5/6 A
D. $5\sqrt{2}\ A$

34. Same current is flowing in two Alternating circuits. The first circuit contains only inductance and the other contains only a capacitance. If the frequency of the end of AC is increased, the effect on the value of the current will be

A. Increase in the first circuit and decrease in the other
B. Increase in both the circuits
C. Decrease in both the circuits
D. Decrease in the first circuit and increase in the other

35. The conduction current is the same as displacement current when source is

A. Only AC
B. Only DC
C. Both AC and DC
D. Neither DC nor AC

36. You are given a parallel plate capacitor having capacitance of 2μF. How would you establish an instantaneous displacement current of 1 m A in the space between its plates?

A. 550 V/s
B. 500 V/s
C. 525 V/s
D. 475 V/s

37. A ray of light travelling in water is incident on its surface open to air. The angle of incidence is θ, which is less than the critical angle. Then, there will be

A. Only a reflected and no refracted ray
B. Only a refracted ray and no reflected ray
C. A reflected and refracted ray and the angle between them would be less than $180°\text{-}2\theta$
D. A reflected ray and a refracted ray and the angle between them would be greater than $180°\text{-}2\theta$

38. The theory associated with secondary wavelets is

A. Doppler's effect
B. Special theory of relativity
C. Huygen's wave theory
D. None of these

39. Two monochromatic beams A and B of equal intensities hits a screen. If number of photons hitting the screen by beam A is twice than by beam B. Then, $f_a : f_b$ is

A. 1:1
B. 2:1
C. 1:2
D. 3:2

40. JJ Thomson's cathode ray experiment demonstrated that,
A. cathode rays are stream of ions
B. all the mass of an atom is situated in the nucleus
C. the *e/m* of electrons is greater than the *e/m* of protons
D. the *e/m* ration of the cathode ray particles change when a different gas is placed in the cathode rays

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CHEMISTRY (40 X 1 = 40 MARKS)

1. Smallest portion of a crystal lattice which on repetition in different directions, generates the entire lattice is called ....A... Here, A refers to?
A. Unit Cell B. Crystal lattice C. Lattice point D. Lattice site
2. Which of the following point defects are shown by AgBr(s) crystals?
A. Schotky defect B. Frenkel Defect C. Metal Excess Defect D. Metal Deficiency Defect
3. The value of Bohr magneton, μB is ?

A. 9.27×10^{-27} Am^2 B. $9.27 \times 10^{-22} Am^2$ C. 11.27×10^{-22} Am^2 D. 11.27×10^{-24} Am^2

4. The ratio of volume of a hexagonal lattice unit cell to a tetragonal lattice unit cell is ? (both having same respective length)

A. 1 B. $\frac{2}{\sqrt{3}}\frac{a^2c}{\sqrt{3}b}$ C. $\frac{\sqrt{3}}{2}abc$ D. $\frac{2}{3\sqrt{3}}$

5. Which amongts these is a ferro electric compound?

A. $K_3[Fe(CN)_6]$ B. $BaTiO_3$ C. Pb_2O_3 D. None of these

6. Identify the solute and solvent in the option given below, for a solution as Amalgum of Mercury with Sodium

Solute	Solvent
A. Solid	Liquid
B. Solid	Solid
C. Liquid	Solid
D. Solid	Gas

7. Considering the formation, breaking and strenght of Hydrogen bond, predict which of the follwoing mixturres will show a positive deviation from Raoult's law :

A. Methanol and Acetone
B. Chloroform and Acetone
C. Nitric acid and Water
D. Phenol and Aniline

8. 1.26 gm of protein is present in the aqueous solution of 200 cm^3. Calculate the Molar mass of the protein if the osmotic pressure of such solution is 2.57 x 10^{-3} bar at 300K.

A. 61000 gm/mol
B. 61038 gm/mol
C. 60000 gm/mol
D. 61009 gm/mol

9. What is the vapour pressure of solution prepared by mixing 25.5 gm of $CHCl_3$ and 40 g of CH_2Cl_2 at 298K ?
A. 347.9 mmHg
B. 300 mmHg
C. 200 mmHg
D. 147.9 mmHg

10. 45g of ethylene glycol ($C_2H_6O_2$) is mixed with 600 g of water. Find out the freezing point of the solution.
A. 273.15K
B. 270.95K
C. -273.15K
D. -270.95K

11. Which of the following statement(s) is/are true about Daniel cell?
A. Its electrical potential is 2.1V
B. It is also called Galvanic cell when concentration of Zn^{2+} and Cu^{2+} in unity.
C. Unit of concentration used in Daniel cell is (dm^3mol^{-1})
D. All of the above

12. The plot of molar conductance vs √C in strong electrolyte is :
A. Circular
B. Linear
C. Parabolic
D. Sinusoidal

13. In a hydrogen-oxygen fuel cell, combustion of hydrogen occurs to :
A. Produce high purity water
B. Remove adsorbed oxygen from electrode surface
C. Generate heat
D. Create potential difference between two electrodes.

14. Consider the reaction,
$Cr_2O_7^{2-}(aq) + 14H^+(aq) + 6e^- \text{-----} > 2Cr^{3+}(aq) + 7\ H_2O$
What is the quantity of electricity in coulombs needed to reduce one mole of $Cr_2O_7^{2-}$?
A. 6F
B. 96500 C
C. 57900 C
D. 5790 C

15. If $[H_3O^+] = 2.0M$, $[Fe^{3+}] = 2.0M$, $[Fe^{2+}] = 0.5M$, $[Mn^{2+}] = 0.5M$, $[MnO_4^-] = 1.0M$. Calculate the emf of the cell.
A. -0.747 V
B. +0.747 V
C. -0.733 V
D. +0.736 V

16. Suppose P is the initial concentration of reaction, then the half-life period of a reaction of n^{th} order is proportional to :
A. P^{1-n}
B. P^{n+1}
C. P^n
D. P^{n-1}

17. Suppose E_f and E_b are the activation energies of the forward and backward reactions and the reaction is exothermic, then
A. $E_f < E_b$
B. $E_f > E_b$
C. $E_b = E_f$
D. No defined relation between E_f and E_b

18. Effect of temperature on the rate of reaction is given by :
A. Arrhenius Equation
B. Clausius-Clapeyron equation
C. Gibbs-Helmholtz equation
D. Kirchhoff's equation

19. Rate of a reaction can be expressed by Arrhenius equation as $k = Ae^{\frac{-E_a}{RT}}$. Here, E is :
A. Total energy of the reacting molecules at a temperature, T
B. The energy above which colliding molecules will react.
C. The energy below which colliding molecules will not react.
D. The fraction of molecules with energy greater than the activation energy of the reaction.

20. **Assertion (A) :** The multi molecular reactions are quite rare in comparison with bimolecular reactions.
Reason (R) : At normal pressure, triple collisions are much less frequent than double ones.
A. Both (A) and (R) are correct; (R) is correct explanation of (A).
B. Both (A) and (R) are correct; (R) is not the correct explanation of (A).
C. (A) is correct ; (R) is incorrect.
D. (A) is incorrect; (R) is correct.

21. Which of the following option is correct for the spontaneous adsorption process?
A. ΔH and ΔS will be highly negative
B. ΔH and ΔS will be highly positive

C. ΔH should be highly positive and ΔS should be highly negative.
D. ΔH should be highly negative and ΔS should be less negative.

22. Which of the following is not true about Colloids ?
i. A colloid is a homogeneous system.
ii. Range of diameter of colloidal particles is 1 – 1000 nm.
iii. Colloidal particles have large surface area per unit mass.
Choose the correct option.

A. (i) and (ii)
B. (i) and (iii)
C. (i), (ii) and (iii)
D. Only (i)

23. For soap, the CMC is in the range of :
A. $10^{4} - 10^{3}$ mol L^{-1}
B. $10^{-4} - 10^{-3}$ mol L^{-1}
C. $10^{-2} - 10^{-1}$ mol L^{-1}
D. $10^{-4} - 10^{-1}$ mol L^{-1}

24. The droplets in emulsions are often ____(A)____ charged and precipitated by the addition of ____(B)____. Here, A and B are refer to :
A. (A) – Positively , (B) – Analyte
B. (A) - Positively , (B) – Electrolyte
C. (A) – Negatively , (B) – Electrolyte
D. (A) – Negatively , (B) – Analyte

25. Which of the following will show Tyndall effect?
A. Aqueous solution of soap below critical micelle concentration.
B. Aqueous solution of soap above critical micelle concentration.
C. Aqueous solution of Sodium chloride.
D. Aqueous solution of sugar.

26. The correct order of abundance of the elements in Earth's crust is :
A. O > Si > Al > Fe
B. Fe > Al > Si > O
C. Si > Fe > Al > O
D. Al > Fe > O > Si

27. Roasting and Calcination are :
A. Use for the purification of metals.
B. Usually carried out in reverberatory furnace
C. Employed for the concentration of the ore.
D. Different names of the same operation.

28. **Assertion (A) :** The method of zone refining of metals is base on the principle of greater mobility of pure metal than that of impurities.

Reason (R) : Metals like Ga, Ge can be refined by this method.
A. Both (A) and (R) are correct; (R) is correct explanation of (A).
B. Both (A) and (R) are correct; (R) is not the correct explanation of (A).
C. (A) is correct; (R) is incorrect.
D. (A) is incorrect; (R) is correct.

29. On mixing Cu ore with Silica, in reverberatory furnace Copper Matte is obtained. It contains:
A. Sulphides of Cu(II) and Fe(III).
B. Sulphides of Cu(I) and Fe(II).
C. Sulphides of Cu(II) and Fe(II).
D. Sulphides of Cu(I) and Fe(III).

30. The least stable oxide among the following is :
A. Sb_2O_3
B. Ag_2O
C. CuO
D. ZnO

31. Angular shape of Ozone molecule consist of :
A. 1-sigma and 1- pi bond
B. 2- sigma and 2- pi bond
C. 1- sigma and 2- pi bond
D. 2- sigma and 1 – pi bond.

32. When HCl reacts with finely powdered iron, it forms ferrous chloride and not ferric chloride because:
A. Its reaction with iron produces H_2 molecule.
B. Liberation of Hydrogen prevents the formation of ferric chloride.
C. Both (A) and (B)
D. None of the above.

33. The hybrid state of Halogen atom is sp^3 in :
A. ClO_4^-
B. ClO^-
C. ClO_3^-
D. (A), (B) and (C)

34. The ease of liquefaction of noble gases increases in the order :
A. He > Ne > Ar > Kr > Xe
B. Xe > Kr > Ar > He > Ne
C. He < Ne < Ar < Kr < Xe
D. Xe < He < Ne < Ar < Kr

35. In the ring test for the NO_3^- ion, a brown ring is formed due to the formation of :
A. $FeSO_4 . NO_2$
B. $FeSO_4 . HNO_3$

C. $[Fe(H_2O)_5 NO]^{2+}$
D. $[Fe(H_2O)_4 (NO)_2]^{2+}$

36. Which of the compounds is used as the starting material for the preparation of potassium dichromate ?
A. $K_2SO_4. Cr_2(SO_4)_3. 24H_2O$ (Chrome alum)
B. $PbCrO_4$ (Chromite yellow)
C. $FeCr_2O_4$ (Chromite)
D. $PbCrO_4$. PbO (Chrome red)

37. Which of the following statements is not correct?
A. Copper liberates Hydrogen from acids.
B. In its higher oxidation states, manganese forms stable compounds with oxygen and fluorine.
C. Mn^{3+} and CO^{3+} are oxidising agents in aqueous solutions.
D. Ti^{2+} and Cr^{2+} are reducing agents in aqueous solutions.

38. Potassium manganate(K_2MnO_4) is formed when :
A. Chloride is passed into aqueous $KmnO_4$ solution.
B. Manganese dioxide is fused with potassium hydroxide in air
C. Formaldehyde reacts with potassium permanganate in presence of a strong alkali.
D. Potassium permanganate reacts with concentrated sulphuric acid.

39. The protection of steel by chrome plating is due to :
A. Cathodic protection.
B. Anodic protection.
C. Covering of steel surface.
D. Formation of alloy with iron.

40. In the extraction of silver from argentite ore, the ore is treated with dilute solution of NaCN in water in the presence of Y, whereby the following reaction takes place :
$Ag_2X + 4NaCN + 2Y$ ---------> $2Na[Ag(CN)_2] + Na_2XO_4$
X and Y in this reaction are represented by:
A. Cl and S
B. S and O_2
C. O and O_2
D. O and S

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BIOLOGY (40 X 1 = 40 marks)

1. Callus is a

A. organised mass of the cell
B. differentiated mass of the cell
C. dedifferentiated mass of the cell
D. undifferentiated mass of the cell

2. Off springs formed by sexual reproduction exhibit more variation than those formed by asexual reproduction because

A. sexual reproduction is a lengthy process
B. gametes of parents have qualitatively different genetic composition
C. genetic material comes from two parents of same species
D. greater amount of DNA is involved in sexual reproduction

3. Why water hyacinth is called Terror of Bengal?

A. It is being used as food for fish
B. It consumes oxygen from cultivated plant and destroys them
C. It consumes oxygen from water and decreases O_2 concentration in water
D. It is a weed.

4. **Assertion** (X) Zygote is the link between two generations,.
Reason (R) Zygote is the product of two gametes and producer of next generation.

A. Both X and R are true and R is the correct explanation of X
B. Both X and R are true, but R is not the correct explanation of X.
C. X is true, but R is false
D. X is false, but R is true

5. **Assertion** (X) Zygote is a single cell.
Reason (R) Two haploid cell fuse to form two diploid cell.

A. Both X and R are true and R is correct explanation of X
B. Both X and R are true, but R is not the correct explanation of X
C. X is true, but R is false
D. X is false, but R is true

6. Inflorescence is

A. development of flower
B. distribution of flowers
C. arrangement of flower
D. all of these

7. Which cell is bigger and has abundant food reserve material during microsporogenesis?

A. Generative cell
B. Vegetative cell
C. Vacuole
D. Spore mother cell

8. Inset pollinated flowers are

A. nector producing
B. colourful
C. fragrance producing
D all of these

9. Which of the following statements is / are wrong?

A. Pollen grains remain viable for several months because their outer covering is made of sporopollenin
B. No enzyme can degrade sporopollenin
C. Pollen grains are well represented in fossil strata due to sporopollenin
D. Pollen wall has cavities containing proteins

10. Study the following and find correct option.
I. Tapetum nourishes the developing pollen grain
II. Hilum represents the junction between ovule and funicle.
III. In aquatic plants such as water hyacinth and lilly pollination is by water.
IV. The primary endosperm nucleus is triploid.
A. I and II B. I, II and IV C. II, III and IV D. II and IV

11. The seminiferous tubules of the testis opens into the vasa efferentia by
A. vasa deferentia B. rete testis C. epididymis D. seminiferous tubules

12. Scrotum remains connected with abdomen or pelvic cavity by
A. spermatic cord B. inguinal canals C. testis D. lobules

13. Bartholin glands are called
A. vestibular glands B. lenticular glands C. rudimentary glands D. does not exist

14. Human egg is
A. mesolecithal B. megalecithal C. heterolecithal D. alecithal

15. Chorionic villi are formed by the modification of
A. outer layer of trophoblast B. inner layer of trophoblast
C. inner mass cell D. blastocyst

16. HCS (Human Chorionic Somatomammotrophin) previously called
A. human placental lactogen (hPL) B. chorionic thyrotrophin
C. chorionic corticotrophin D. relaxin

17. I. Sperm cells die immediately when they are released from the body and are placed in a
Petri dish.
II. Semen contains chemicals that causes females smooth muscles to contract.
A. statement I is true, but II is false
B. both statements I and II are false
C. statement I is false, but II is true
D. both statements are true

18. NSEP stands for
A. National Small box Eradication Programme B. National Sickness Eradication Programme
C. National Syphilis Eradication Programme D. None of these

19. STDs caused by viruses are I. AIDS II. Hepatitis-B III. Genital herpes
A. I, II and III B. I and III C. II and III D. I and II

20. Vitamin-E is also called
A. anti sterility vitamin B. anti helmenthic hormone
C. inorganic anti sterility vitamin D. none of the these

21. First case of IVF-ET technique success was reported by
A. Bayliss and Starling Taylor B. Robert Steptoe and Gilbert Brown
C. Louis Joy Brown and Benting Best D. Patrick Steptoe and Robert Edward

22. Mendelism was rediscovered by
I. Morgan II. de Vries III. Correns IV. Tschermark Choose the correct option.
A. I, III and IV B. I, II, III and IV C. II, III and IV D. I, II and III

23. Linkage gene do not show
A. independent assortment B. 9 : 3 : 3 : 1
C. segregation D. all of these

24. If Mendel had studied 7 traits using a plant of 12 chromosomes instead of 14. Choose the correct option for probable result.
A. He would have discovered crossing over
B. He would have discovered blending
C. He would have not discovered independent assortment
D. all of the above

25. In bugs and cockroaches, the sex determination takes place by
A. XX and XO chromosomes B. XX and XY chromosomes
C. ZZ-ZW chromosomes D. ZO-ZZ chromosomes

26. Mutation can't change
A. RNA B. enzyme C. DNA D. none of these

27. Mendel's contribution for genetic inheritance was
A. the idea that genes are found on chromosomes
B. providing a mechanism that explains patterns of inheritance
C. describing how genes are influenced by the environment
D. determining that the information contained in DNA codes for proteins

28. In a DNA molecule, if cytosine is 18% then, the percentage of adenine would be
A. 18% B. 32% C. 36% D. 64%

29. In 125 amino acid sequence, if 25 amino acids are mutated to UAA, then

A. a polypeptide of 124 amino acid will be formed
B. a polypeptide of 25 amino acid will be formed
C. a polypeptide of 24 amino acid will be formed
D. any of the above is possible

30. Job of amino acetyl tRNA synthetase is to charge
A. amino acid B. rRNA C DNA D. mRNA

31. Why glucose and galactose cannot act as an inducer for *lac* operon?
A. because they cannot bind with the repressor
B. because they can bind with the repressor
C. because they can bind with the operator
D. because they can bind with the regulator

32. Satellite DNA or repetitive DNA
A. do not code for any protein
B. forms a large portion of human genome
C. shows high degree of polymorphism
D. all of the above

33. Mapping of human chromosomes
A. has been restricted to the sex chromosomes because of the small family sizes
B. proceeded much more successfully as the large number of DNA markers became available
C. has determined that the number of linkage groups is about twice the number of chromosomes
D. has determined that almost all the DNA is involved in the coding of genes

34. Oparin and Haldane's theory is also called
A. Chemical theory of origin of life B. Modern theory of origin of life
C. Naturalistic theory D. All of these

35. Lamarck's theory of evolution is also known as
A. theory of acquired characters B. theory of genetic characters
C. theory of spontaneous characters D. theory of impose characters

36. Saltation stands for
A. single step large mutation B. single step small mutation
C. double step small mutation D. double step large mutation

37. Gene flow takes flow by
A. intra breeding between one population to another
B. intra breeding between one population only
C. interbreeding between one population to another
D. interbreeding between one population only

38. *Homo sapiens neanderthalensis* and *Homo sapiens sapiens* (Cro-magnon man), were originated
from
A. *Homo erectus* B. *Homo habilis* C.*Ramapithecus* D. *Proconsul*

39. Galapagos islands are located in
A. Indian ocean B. Pacific ocean C. Atlantic ocean D. Arabian ocean

40. The name of Mary Mallon is related with the disease
A. typhoid B. pneumonia C. dengue D. AIDS