

**Question set AIPMST (Secondary)**

# PHYSICS

1. Which of the following set have different dimensions?  
 (a) Pressure, Young's modulus, Stress  
 (b) EMF, Potential difference, Electric potential  
 (c) Heat, Work done, Energy  
 (d) Dipole moment, Electric flux, Electric field
  
2. The density of a solid ball is to be determined in an experiment. The diameter of the ball is measured with a screw gauge, whose pitch is 0.5 mm and there are 50 divisions on the circular scale. The reading on the main scale is 2.5 mm and that on the circular scale is 20 divisions. If the measured mass of the ball has a relative error of 2%, the relative percentage error in the density is  
 (a) 0.9%                      (d) 2.4%  
 (c) 3.1%                      (d) 4.2 %
  
3. A spectrometer gives the following reading when used to measure the angle of a prism. Main scale reading: 58.5 degree Vernier scale reading: 09 divisions Given that 1 division on main scale corresponds to 0.5 degree. Total divisions on the Vernier scale is 30 and match with 29 divisions on the main scale. The angle of the prism from the above data:  
 (a) 58.59 degree    (d) 58.77 degree  
 (c) 58.65 degree    (d) 59 degree
  
4. A river is flowing from west to east at a speed of 5 meters per minute. A man on the south bank of the river, capable of swimming at 10 meters per minute in still water, wants to swim across the river in the shortest time. He should swim in a direction  
 (a) due north  
 (b) 30 degree east of north  
 (c) 30 degree west of north  
 (d) 60 degree east of north
  
5. A block of mass 0.1 is held against a wall applying a horizontal force of 5 N on the block. If the coefficient of friction between the block and the wall is 0.5, the magnitude of the frictional force acting on the block is:  
 (a) 2.5 N                      (b) 0.98 N  
 (c) 4.9N                      (d) 0.49 N
  
6. The image of an object, formed by a plano-convex lens at a distance of 8 m behind the lens, is real is one-third the size of the object. The wavelength of light inside the  $\frac{2}{3}$  times the wavelength in free space. The radius of the curved surface of the lens is  
 (a) 1 m    (b) 2 m    (c) 3 m    (d) 6 m
  
7. A bullet fired into a fix target loses half of its velocity after penetrating 3 cm. How much further it will penetrate before coming to rest assuming that it faces constant resistance to motion?  
 (a) 2.0 cm                      (b) 3.0 cm  
 (c) 1.0 cm                      (d) 1.5 cm
  
8. A player caught a cricket ball of mass 150g moving at a rate of 20m/s. If the catching process is completed in 0.1s, the force of the blow exerted by the ball on the hand of the player is equal to

- (a) 150N (b) 3N (c) 30 N (d)300N
9. A particle is acted upon by a force of constant magnitude which is always perpendicular to the velocity of the particle. The motion of the particle takes place in a plane. It follows that:
- its velocity is constant
  - its acceleration is constant
  - its kinetic energy is constant
  - none of these
10. A 2 Kg block slides on a horizontal floor with a speed of 4 m/s. It strike a uncompressed spring, and compresses it till the block is motionless. The kinetic friction force is 15 N and spring constant is 10,000 N/m. The spring compresses by
- 8.5 cm
  - 5.5 cm
  - 2.5 cm
  - 11.0 cm
11. Two blocks of masses 10 kg and 4 kg are connected by a spring of negligible mass and placed on a frictionless horizontal surface. An impulse gives a velocity of 14 m/s to the heavier block in the direction of the lighter block. The velocity of the centre of mass is
- 30 m/s
  - 20 m/s
  - 10 m/s
  - 5 m/s
12. A cylinder rolls up an inclined plane, reaches some height, and then rolls down (without slipping throughout these motions). The directions of the frictional force acting on the cylinder are
- up the incline while ascending and down the incline descending
  - up the incline while ascending as well as descending
  - down the incline while ascending and up the incline while descending
  - down the incline while ascending as well as descending
13. A particle undergoes uniform circular motion. About which point on the plane of the circle, will the angular momentum of the particle remain conserved?
- centre of the circle
  - on the circumference of the circle
  - inside the circle
  - outside the circle
14. A solid sphere is rotating in free space. If the radius of the sphere is increased keeping mass same which one of the following will not be affected?
- Angular velocity
  - Angular momentum
  - Moment of inertia
  - Rotational kinetic energy
15. If the radius of the earth were to shrink by one percent, its mass remaining the same, the acceleration due to gravity on the earth's surface would
- decrease
  - remain unchanged
  - Increase be zero
  - be zero
16. If the distance between the earth and the sun were half is present value, the number of days in a year would have been
- 64.5
  - 129
  - 182.5
  - 730
17. If suddenly the gravitational force of attraction between Earth and satellite revolving around it becomes zero, then the satellite will
- Continue to move in its orbit with same velocity
  - Move tangentially to the original orbit in the same velocity
  - Becomes stationary in its orbit
  - Move towards the earth
18. The time period of a satellite of earth is 5 hours. If the separation between the earth

and the satellite is increased to 4 times the previous value, the new time period will become

- (a) 10 hours      (b) 80 hours  
(c) 40 hours      (d) 20 hours

19. The following four wires are made of the same material. Which of these will have the largest extension when the same tension is applied?

- (a) Length = 50 cm , diameter = 0.5 mm  
(b) Length = 100 cm , diameter = 1 mm  
(c) Length = 200 cm , diameter = 2 mm  
(d) Length = 300 cm , diameter = 3 mm

20. If two soap bubbles of different radii are connected by a tube.

- (a) air flows from the smaller bubble to the bigger  
(b) air flows from bigger bubble to the smaller bubble till the sizes are interchanged  
(c) air flows from bigger bubble to the smaller bubble till the sizes become equal  
(d) there is no flow of air.

21. From the following statements concerning ideal gas at any given temperature  $T$ , select the correct one(s)

- (a) The coefficient of volume expansion at constant pressure is the same for all ideal gases  
(b) The average translation kinetic energy per molecule of oxygen gas is  $3kT$ ,  $k$  being Boltzmann constant  
(c) The mean-free path of molecules increases with increases in the pressure  
(d) In a gaseous mixture, the average translational kinetic energy of the molecules of each component is different

22. A spherical black body with a radius of 12 cm radiates 450 W power at 500 K. If the radius were halved and the temperature

doubled, the power radiated in watt would be

- (a) 225              (b) 450  
(c) 900              (d) 1800

23. An ideal Black-body at room temperature is thrown into a furnace. It is observed that

- (a) initially it is the darkest body and at later times the brightest.  
(b) it is the darkest body at all times  
(c) it cannot be distinguished at all times  
(d) initially it is the darkest body and at later times it cannot be distinguished

24. In which of the following process, convection does not take place primarily

- (a) sea and land breeze  
(b) boiling of water  
(c) heating air around a furnace  
(d) warming of glass of bulb due to filament

25. Cooking gas containers are kept in a lorry moving with uniform speed. The temperature of the gas molecules inside will

- (a) Increase  
(b) Decrease  
(c) Remain same  
(d) Decrease for some, while increase for others

26. Which of the following statements is correct for any thermodynamic system?

- (a) The change in entropy can never be zero  
(b) Internal energy and entropy and state functions  
(c) The internal energy changes in all processes  
(d) The work done in an adiabatic process is always zero

27. A diatomic ideal gas is used in a Carnot engine as the working substance. If during the adiabatic expansion part of the cycle the volume of the gas increase from  $V$  to  $32V$ , the efficiency of the engine is

- (a) 0.5 (b) 0.75 (c) 0.99 (d) 0.25

28. A body executes simple harmonic motion. The potential energy (P.E), the kinetic energy (K.E) and total energy (T.E) are measured as a function of displacement  $x$ . which of the following statements is true?  
 (a) K.E is maximum when  $x = 0$   
 (b) T.E is zero when  $x = 0$   
 (c) K.E is maximum when  $x$  is maximum  
 (d) P.E is maximum when  $x = 0$
29. The bob of a simple pendulum is a spherical hollow ball filled with water. A plugged hole near the bottom of the oscillating bob gets suddenly unplugged. During observation, till water is coming out, the time period of oscillation would  
 (a) first decrease and then increase to the original value  
 (b) first increase and then decrease to the original value  
 (c) increase towards to saturation value  
 (d) remain unchanged
30. An open pipe is suddenly closed at one end with the result that the frequency of third harmonic of the closed pipe is found to be higher by 100 Hz than the fundamental frequency of the open pipe. The fundamental frequency of the open pipe is  
 (a) 200 Hz (b) 300 Hz  
 (c) 240 Hz (d) 480 Hz
31. A siren placed at a railway platform is emitting sound of frequency 5 kHz. A passenger sitting in a moving train  $A$  records a frequency of 5.5 kHz while the train approaches the siren. During his return journey in a different train  $B$  he records a frequency of 6.0 kHz while the approaching the same siren. The ratio of the velocity of train  $B$  to that train  $A$  is  
 (a)  $242/252$  (b) 2  
 (c)  $5/6$  (d)  $11/6$
32. A vibrating string of certain length  $\ell$  under a tension  $T$  resonates with a mode corresponding to the first overtone (third harmonic) of an air column of length 75 cm inside a tube closed at one end. The string also generates 4 beats per second when excited along with a tuning fork of frequency  $n$ . Now when the tension of the string is slightly increased the number of beats reduces 2 per second. Assuming the velocity of sound in air to be 340 m/s, the frequency  $n$  of the tuning fork in Hz is  
 (a) 344 (b) 336  
 (c) 117.3 (d) 109.3
33. A hollow pipe of length 0.8 m is closed at one end. At its open end a 0.5 m long uniform string is vibrating in its second harmonic and it resonates with the fundamental frequency of the pipe. If the tension in the wire is 50 N and the speed of sound is  $320 \text{ ms}^{-1}$ , the mass of the string is  
 (a) 5 grams (b) 10 grams  
 (c) 20 grams (d) 40 grams
34. A tuning fork of known frequency 256 Hz makes 5 beats per second with the vibrating string of a piano. The beat frequency decreases to 2 beats per second when the tension in the piano string is slightly increased. The frequency of the piano string before increasing the tension was  
 (a)  $256 + 2 \text{ Hz}$  (b)  $256 - 2 \text{ Hz}$   
 (c)  $256 - 5 \text{ Hz}$  (d)  $256 + 5 \text{ Hz}$
35. When two tuning forks (fork 1 and fork 2) are sounded simultaneously, 4 beats per second are heard. Now, some tape is attached on the prong of the fork 2. When the tuning forks are sounded again, 6 beats per second are heard. If the frequency of fork 1 is 200 Hz, then what was the original frequency of fork 2?  
 (a) 202 Hz (b) 200 Hz

(c) 204 Hz      (d) 196 Hz

36. A long, hollow conducting cylinder is kept coaxially inside another long, hollow conducting cylinder of larger radius. Both the cylinders are initially electrically neutral.
- A potential difference appears between the two cylinders when a charge density is given to the inner cylinder.
  - A potential difference appears between the two cylinders when a charge density is given to the outer cylinder.
  - No potential difference appears between the two cylinders when a uniform line charge is kept along the axis of the cylinders.
  - No potential difference appears between the two cylinders when same charge density is given to both the cylinders.
37. Two spherical conductors B and C having equal radii and carrying equal charges on them repel each other with a force  $F$  when kept apart at some distance. A third spherical conductor having same radius as that B but uncharged is brought in contact with B, then brought in contact with C and finally removed away from both. The new force of repulsion between B and C is  
 (a)  $F/8$  (b)  $3F/4$  (c)  $F/4$  (d)  $3F/8$
38. A constant voltage is applied between the two ends of a uniform metallic wire. Some heat is developed in it. The heat developed is doubled if
- Both the length and the radius of the wire are halved.
  - Both the length and the radius of the wire are doubled.
  - The radius of the wire is doubled.
  - The length of the wire is doubled.
39. The negative Zn pole of a Daniell cell, sending a constant current through a circuit, decreases in mass by 0.13 g in 30 minutes. If the electrochemical equivalent of Zn and Cu are 32.5 and 31.5 respectively, the increase in the mass of the positive Cu pole in this time is
- 0.180 g      (b) 0.141 g
  - 0.126 g      (d) 0.242 g
40. The thermistors are usually made of
- metal oxides with high temperature coefficient of resistivity.
  - metals with high temperature coefficient of resistivity.
  - metals with low temperature coefficient of resistivity.
  - semi conducting materials having low temperature coefficient of resistivity.
41. A battery is used to charge a parallel plate capacitor till the potential difference between the plates becomes equal to the electromotive force of the battery. The ratio of the energy stored in the capacitor and the work done by the battery will
- $1/2$
  - 1
  - 2
  - $1/4$
42. A charged particle is released from rest in a region of steady and uniform electric and magnetic fields which are parallel to each other. The particle will move in a
- straight line
  - circle
  - helix
  - cycloid
43. Curie temperature is the temperature above which
- a ferromagnetic material becomes paramagnetic
  - a paramagnetic material becomes diamagnetic
  - a ferromagnetic material becomes diamagnetic

- (d) a paramagnetic material becomes ferromagnetic
44. A coil of inductance 8.4 mH and resistance  $6\ \Omega$  is connected to a 12 V battery. The current in the coil is 1.0 A at approximately the time
- (a) 500 s
  - (b) 25 s
  - (c) 35 ms
  - (d) 1 ms
45. A short circuited coil is placed in a time-varying magnetic field. Electrical power is dissipated due to the current induced in the coil. If the number of turns were to be quadrupled and the wire radius halved, the electrical power dissipated would be
- (a) halved
  - (b) the same
  - (c) doubled
  - (d) quadrupled
46. When the current changes from +2 A to -2 A in 0.05 second, an e.m.f. of 8 V is induced in a coil. The coefficient of self-induction of the coil is
- (a) 0.2 H
  - (b) 0.4 H
  - (c) 0.8 H
  - (d) 0.1 H
47. A diminished image of an object is to be obtained on a screen 1.0 m from it. This can be achieved by appropriately placing
- (a) a concave mirror of suitable focal length
  - (b) a convex mirror of suitable focal length
  - (c) a convex length of focal length less than 0.25 m
  - (d) a concave lens of suitable focal length
48. Monochromatic light of wavelength 400 nm and 560 nm are incident simultaneously and normally on double slits apparatus whose slits separation is 0.1 mm and screen distance is 1 m. Distance between areas of total darkness will be
- (a) 4 mm
  - (b) 5.6 mm
  - (c) 14 mm
  - (d) 28 mm
49. A biconvex lens of focal length 15 cm is in front of a plane mirror. The distance between the lens and the mirror is 10 cm. A small object is kept at a distance of 30 cm from the lens. The final image is
- (a) Virtual and at a distance of 16 cm from the mirror
  - (b) Real and at a distance of 16 cm from the mirror
  - (c) Virtual and at a distance of 20 cm from the mirror
  - (d) Real and at a distance of 20 cm from the mirror
50. Which of the following is a correct statement?
- (a) Beta rays are same as cathode rays
  - (b) Gamma rays are high energy neutrons
  - (c) Alpha particles are singly ionised helium atoms
  - (d) Protons and neutrons have exactly the same mass.

# CHEMISTRY

51. A molal solution is one that contains one mole of a solute in:
- 1000 g of the solvent
  - One litre of the solvent
  - One litre of solution
  - 22.4 litre of the solution
52. The statement that is not correct for the periodic classification of element is:
- The properties of elements are the periodic functions of their atomic numbers
  - Non-metallic elements are lesser in number than metallic elements
  - The first ionisation energies of elements along a period do not vary in a regular manner with increase in atomic number
  - For transition elements the d –subshells are filled with electrons monotonically with increase in atomic number
53. Following statements regarding the periodic trends of chemical reactivity of the alkali metals and the halogens are given. Which of these statements gives the correct picture?
- Chemical reactivity increase with increase in atomic number down the group in both the alkali metals and halogens
  - In alkali metals the reactivity increase but in the halogens it decreases with increase in atomic number down the group
  - The reactivity decreases in the alkali metals but increases in the halogens with increase in atomic number down the group
  - In both the alkali metals and the halogens the chemical reactivity decreases with increase in atomic number down the group
54. Molecular spaces of  $\text{SF}_4$ ,  $\text{CF}_4$  and  $\text{XeF}_4$  are
- The same, with 2, 0 and 1 lone pair of electrons respectively
  - The same, with 1, 1 and 1 lone pairs of electrons respectively
  - Different, with 0, 1 and 2 lone pairs of electrons respectively
  - Different, with 1, 0 and 2 lone pairs of electrons respectively
55. An ether is more volatile than an alcohol having the same molecular formula. This is due to
- Alcohols having resonance structures
  - Inter molecular hydrogen bonding in ethers
  - Inter molecular hydrogen bonding in alcohols
  - Dipolar character of ethers
56. Which of the following is the wrong statement?
- $\text{ONCl}$  and  $\text{ONO}^-$  are not isoelectronic
  - $\text{O}_3$  molecule is bent
  - Ozone is violate-black in solid state
  - Ozone is dial magnetic gas

57. Helium atom is two times heavier than a hydrogen molecule. At 298K, the average kinetic energy of helium atom is

- (a) two times that of a hydrogen molecule
- (b) same as that of hydrogen molecule
- (c) four times that of a hydrogen molecule
- (d) half that of a hydrogen molecule

58. A bottle of dry ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends the white ammonium chloride ring first formed will be

- (a) At the centre of the tube
- (b) Near the hydrogen chloride bottle
- (c) Near the ammonia bottle
- (d) Through out the length of the tube

59. According to kinetic theory of gasses, for a diatomic molecule.

- (a) The pressure exerted by the gas is proportional to mean velocity of the molecule
- (b) The pressure exerted by the gas is proportional to the root mean velocity of the molecule
- (c) The root mean square velocity of the molecule is inversely proportional to the temperature
- (d) The mean translational kinetic energy of the molecule is proportional to the absolute temperature

60. In thermodynamics, a process is called reversible when

- (a) Surroundings and system change in to each other

(b) There is no boundary between surrounding and system

(c) The surroundings are always in equilibrium with the system

(d) The system changes into the surrounding spontaneously

61. Which one of the following statements is false?

(a) Work is a state function

(b) Temperature is a state function

(c) Change in the state is completely defined when the initial and the final states are specified

(d) Work appears at the boundary of the system

62. The enthalpy change for a reaction does not depend upon

(a) Use of different reactants for the same product

(b) The nature of intermediate reaction steps

(c) The differences in initial or final temperatures of involved substances

(d) The physical state of reactants and products

63. Identify the correct statement regarding the spontaneous process:

(a) Lowering of energy in the process is the only criterion for spontaneity

(b) For a spontaneous process in an isolated system, the change entropy is positive

(c) Endothermic processes are never spontaneous



- (d) Exothermic processes are always spontaneous
64. The oxidation of  $\text{SO}_2$  by  $\text{O}_2$  to  $\text{SO}_3$  is an exothermic reaction. The yield of  $\text{SO}_3$  will be maximum if
- temperature is increased and pressure is kept constant
  - temperature is reduced and pressure is increased
  - both temperature and pressure are increased
  - both temperature and pressure are decreases
65. The  $\text{pK}_a$  of acetylsalicylic acid (aspirin) is 3.5. The pH of gastric juice in human stomach is about 2-3 and the pH in the small intestine is about 8. Aspirin will be
- Unionised in the small intestine and in the stomach
  - Completely ionised in the small intestine and in the stomach
  - Ionised in the stomach and almost unionised in the small intestine
  - Ionised in the small intestine and almost unionised in the stomach
66. The metallic lustre exhibited by sodium is explained by
- diffusion of sodium ions
  - Oscillations of loose electrons
  - Excitation of free protons
  - Existence of body centred cubic lattice
67. A metal M readily forms its sulphate  $\text{MSO}_4$  which is water soluble. It forms its oxide MO which becomes inert on heating. It forms an insoluble hydroxide  $\text{M}(\text{OH})_2$  which is soluble in NaOH solution. Then M is
- Mg
  - Ba
  - Ca
  - Be
68. Which of the following compounds exhibits stereoisomerism?
- 2-methylbutene-1
  - 3-methylbutyne-1
  - 3-methylbutanoic acid
  - 2-methylbutanoic acid
69. The nodal plane in the  $\pi$ -bond of ethane is located in
- The molecular plane
  - A plane parallel to molecular plane
  - A plane perpendicular to molecular plane which bisect the carbon – carbon  $\sigma$ -bond at right angle
  - A plane perpendicular to the molecular plane which contains the carbon – carbon  $\sigma$ -bond
70. Which branched chain isomer of the hydrocarbon with molecular mass 72u gives only one isomer of mono substituted alkyl halide?
- Tertiary butyl chloride
  - Neopentane
  - Isohexane
  - Neohexane
71. Adsorption of gases on solid surface is generally exothermic because
- Enthalpy is positive
  - Entropy decreases

- (c) Entropy increase
- (d) Free energy increase
72. The disperse phase in colloidal iron(III) hydroxide and colloidal gold is positively and negatively charged, respectively. Which of the following statements is not correct?
- (a) Coagulation in both sols can be brought about by electrophoresis
- (b) Mixing the sols has no effect
- (c) Sodium sulphate solution causes coagulation in both sols
- (d) Magnesium chloride solution coagulates, the gold sol more readily than the iron (III) hydroxide sol
73. For a dilute solution, Raoult's law states that:
- (a) The lowering of vapour pressure is equal to the mole fraction of solute
- (b) The relative lowering of vapour pressure is equal to the mole fraction of solute
- (c) The relative lowering of vapour pressure is proportional to the amount of solute in solution
- (d) The vapour pressure of the solution is equal to the mole fraction of solvent
74. The molecular weight of benzoic acid in benzene as determined by depression in freezing point method corresponds to:
- (a) Ionisation of benzoic acid
- (b) Dimerization of benzoic acid
- (c) Trimerisation of benzoic acid
- (d) Solvation of benzoic acid
75. A standard hydrogen electrode has zero electrode potential because:
- (a) Hydrogen is easiest to oxidise
- (b) Its electrode potential is assumed to be zero
- (c) Hydrogen atom has only one electron
- (d) Hydrogen is the lightest element
76. In the electrolytic cell, flow of electrons is from
- (a) Cathode to anode in solution
- (b) Cathode to anode through external supply
- (c) Cathode to anode through internal supply
- (d) Anode to cathode through internal supply
77. A catalyst is a substance which
- (a) Increase the equilibrium concentration of the product
- (b) Changes the equilibrium constants of the reaction
- (c) Shortens the time to reach equilibrium
- (d) Supplies energy to the reaction
78. Which one of the following statement for order of reaction is not correct?
- (a) Order can be determined experimentally
- (b) Order of reaction is equal to sum of the powers of concentration terms in differential rate law.
- (c) It is not affected with the stoichiometric coefficient of the reactants

- (d) Order cannot be fractional
79. Which of the following process is used in the extractive metallurgy of magnesium?
- Fused salt electrolysis
  - Self-reduction
  - Aqueous solution electrolysis
  - Termite reduction
80. Extraction of zinc from zinc blende is achieved by
- Electrolytic reduction
  - Roasting followed by reduction with carbon
  - Roasting followed by reduction with another metal
  - Roasting followed by self-reduction
81. Electrolytic reduction of alumina to aluminium by Hall-Heroult process is carried out
- In the presence of NaCl
  - In the presence of fluorite
  - In the presence of cryolite which forms a melt with lower melting temperature
  - In the presence of cryolite which forms a melt with higher melting temperature
82. Pb and Sn are extracted from their chief ores by
- Carbon reduction and self-reduction respectively
  - Self-reduction and carbon reduction respectively
  - Electrolysis and self-reduction respectively
  - Self-reduction and electrolysis respectively
83. In silicon dioxide
- There are double bonds between silicon and oxygen atoms
  - Silicon atom is bonded to two oxygen atoms
  - Each silicon atom is surrounded by two oxygen atoms and each oxygen atom is bonded to two silicon atoms
  - Each silicon atom is surrounded by four oxygen atoms and each oxygen atom is bonded to two silicon atoms
84. Anhydrous ferric chloride is prepared by
- Heating hydrated ferric chloride at a high temperature in a stream of air
  - Heating metallic iron in a stream of dry chlorine gas
  - Reaction of metallic iron with hydrochloric acid
  - Reaction of metallic iron with nitric acid
85. The coordination number of a central metal atom in a complex is determined by
- The number of ligands around a metal ion bonded by sigma and pi bond both
  - The number of ligands around a metal ion bonded by pi bonds
  - The number of ligands around a metal ion by sigma bonds
  - The number of only anionic ligands bonded to the metal ion
86. Phenyl magnesium bromide reacts with methanol to give

- (a) A mixture of toluene and  $\text{Mg}(\text{OH})\text{Br}$   
 (b) A mixture of phenol and  $\text{Mg}(\text{Me})\text{Br}$   
 (c) A mixture of anisole and  $\text{Mg}(\text{OH})\text{Br}$   
 (d) A mixture of benzene and  $\text{Mg}(\text{OMe})\text{Br}$
87. 1-propanol and 2-propanol can be based distinguished by
- (a) Oxidation with alkaline  $\text{KMnO}_4$  followed by reaction with Fehling solution  
 (b) Oxidation with acidic dichromate followed by reaction with Fehling solution  
 (c) Oxidation by heating with copper followed by reaction with Fehling solution  
 (d) Oxidation with concentrated  $\text{H}_2\text{SO}_4$  followed by reaction with Fehling solution
88. The product of acid catalysed hydration of 2-phenylpropane is
- (a) 3-phenyl-2-propanol  
 (b) 1-phenyl-2-propanol  
 (c) 2-phenyl-2-propanol  
 (d) 2-phenyl-1-propanol
89. The enolic form of acetone contains
- (a) 9 sigma bonds, 1 pi bond and 2 lone pairs  
 (b) 8 sigma bonds, 2 pi bonds and 2 lone pairs  
 (c) 10 sigma bonds, 1 pi bond and 1 lone pair  
 (d) 9 sigma bonds, 2 pi bonds and 1 lone pair
90. m-Chlorobenzaldehyde on reaction with conc.  $\text{KOH}$  at room temperature gives
- (a) Potassium m-chlorobenzoate and m-hydroxybenzaldehyde  
 (b) m-hydroxybenzaldehyde and m-chlorobenzyl alcohol  
 (c) m-chlorobenzyl alcohol and m-hydroxybenzyl alcohol  
 (d) Potassium m-chlorobenzoate and m-chlorobenzyl alcohol
91. Trichloroacetaldehyde was subjected to Cannizzaro's reaction by using  $\text{NaOH}$ . The mixture of the products contains sodium trichloroacetate and another compound. The other compound is:
- (a) 2,2,2-Trichloroethanol  
 (b) Trichloromethanol  
 (c) 2,2, 2-Trichloropropanol  
 (d) Chloroform
92. The pair of compound in which both the compounds give positive test with Tollens's reagent is
- (a) Glucose and Sucrose  
 (b) Fructose and Sucrose  
 (c) Acetophenone and Hexanal  
 (d) Glucose and Fructose
93. Which one of the following statements is correct?
- (a) All amino acids except lysine are optically active  
 (b) All amino acids are optically active  
 (c) All amino acids except glycine are optically active  
 (d) All amino acids except glutamic acids are optically active

94. The principal quantum number of an atom is related to the
- (a) size of the orbital
  - (b) spin angular momentum
  - (c) orbital angular momentum
  - (d) orientation of the orbital in space
95. In Bohr series of lines of hydrogen spectrum, the third line from the red end corresponds to which one of the following inter-orbit jumps of the electron for Bohr orbits in an atom of hydrogen.
- (a)  $5 \rightarrow 2$
  - (b)  $4 \rightarrow 1$
  - (c)  $2 \rightarrow 5$
  - (d)  $3 \rightarrow 2$
96. The correct order of radii is
- (a)  $N < Be < B$
  - (b)  $F^- < O^{2-} < N^{3-}$
  - (c)  $Na < Li < K$
  - (d)  $Fe^{3+} < Fe^{2+} < Fe^{4+}$
97. In which of the following molecules /ions are all the bonds not equal?
- (a)  $XeF_4$
  - (c)  $BF_4^-$
  - (c)  $SF_4$
  - (d)  $SiF_4$
98. If  $\alpha$  is the degree of disassociation of  $Na_2SO_4$ , the Vant Hoff's factor (  $i$  ) used for calculating the molecular mass is
- (a)  $1-2\alpha$
  - (b)  $1+2\alpha$
  - (c)  $1-\alpha$
  - (d)  $1+\alpha$
99. A vessel at 1000 K contains  $CO_2$  with a pressure of 0.5 atm. Some of the  $CO_2$  is converted into Co on the addition of graphite. If the total pressure at equilibrium is 0.8 atm, the value of k is
- (a) 1.8atm
  - (b) 3atm
  - (c) 0.3atm
  - (d) 0.18atm
100. The reason for double helical structure of DNA is operation of
- (a) Dipole-Dipole interaction
  - (b) Hydrogen bonding
  - (c) Electrostatic attraction
  - (d) Van der Waal's force

# BIOLOGY

101. The heart keeps on beating throughout the life without fatigue because
- it contracts slowly
  - it has a refractory period
  - it can use lactic acid as an extra source of energy
  - none of the above.
102. Which of the following organisms causes the sexual disease gonorrhoea?
- Neisseria*
  - Treponema*
  - Pasteurella*
  - Clostridium*
103. Which one of the following combinations of organisms are responsible for the formation and flavour of yoghurt?
- Lactobacillus bulgaricus* and *Streptococcus thermophilus*
  - Rhizobium meliloti* and *Azotobacter*
  - Bacillus subtilis* and *E. coli*
  - Bacillus megathermus* and *Xanthomonas* sp.
104. If the Bengal tiger becomes extinct
- hyenas and wolves will become scarce
  - the wild areas will be safe for man and domestic animals
  - its gene pool will be lost for ever
  - the populations of beautiful animals like deer will get stabilized.
105. Ordines Anomali of Bentham and Hooker includes
- seed plants showing abnormal forms of growth and development
  - plants described only in fossil state
  - plants described in the literature but which Bentham and Hooker did not see in original
  - a few orders which could not be placed satisfactorily in the classification
106. Johnston's organ is found in
- antenna of mosquito
  - head of cockroach
  - abdomen of housefly
  - abdomen of spider.
107. The state of Gujarat has river, desert, forest and lake ecosystem, thus exhibiting a diversity of life. Which measure would you use to denote total diversity in such case?
- $\alpha$  (alpha)
  - $\beta$  (beta)
  - $\gamma$  (gamma)
  - $\delta$  (delta)
108. Which one of these diseases in animals is caused by *Babesia bigemina* ?
- Rinderpest
  - Tick fever
  - Anthrax
  - Diarrhoea
109. Which of the following is true?
- Biowaris the use of biological weapons against humans and/or their crops and animals.
  - Bioethics is the unauthorised use of bioresources and traditional knowledge

- related to bioresources for commercial benefits.
- (c) Biopatening is exploitation of bioresources of other nations without proper authorisation.
- (d) Biopiracy is production of GMOs using genetic engineering techniques
110. Lichenin of lichen is a
- starch allied to protein
  - starch allied to fatty acid
  - protein allied to carbohydrate
  - carbohydrate allied to starch
111. During ventricular systole
- oxygenated blood is pumped into the pulmonary artery and deoxygenated blood is pumped into the aorta
  - oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary vein
  - oxygenated blood is pumped into the pulmonary vein and deoxygenated blood is pumped into the pulmonary artery
  - oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary artery
112. Stink gland is found in
- 4<sup>th</sup> and 5<sup>th</sup> terga of cockroach
  - 5<sup>th</sup> and 6<sup>th</sup> terga of cockroach
  - 5<sup>th</sup> and 6<sup>th</sup> sterna of cockroach
  - 4<sup>th</sup> and 5<sup>th</sup> sterna of cockroach
113. The world's highly prized wool yielding 'Pashmina' breed is
- sheep
  - goat
  - goat-sheep cross
  - Kashmiri sheep- Afghan sheep cross.
114. Carbamates pesticides act by combining with acetylcholinesterase enzyme. Which one of the following is a carbamate?
- Propoxur (baygon)
  - Aldicarb (temik)
  - Carbofuran (furan)
  - All of these.
115. Hepatitis-B is also called
- epidemic jaundice
  - serum jaundice
  - catarrhal jaundice
  - None of these
116. During isomatic hybridisation in plants,
- somaclones are produced in large numbers
  - the apical meristems are cultured to get virus-free plants
  - the cell walls and the middle lamella are digested before fusing the cells
  - crop plants with higher levels of vitamins, proteins and minerals are hybridised.
117. Identify the incorrect statement from the following
- The reservoir pool for phosphorus cycle is earth's crust, whereas atmosphere is the reservoir pool for carbon cycle

- (b) During carbon cycle and phosphorus cycle, there is very little respiratory release of carbon and phosphorus respectively
- (c) Atmospheric inputs of phosphorus throughout rainfall are much smaller than carbon inputs
- (d) Gaseous exchanges of phosphorus between organism and environment are negligible.
118. Breeding ground for migratory flemingo is
- (a) area of Gulf of Kachch (Kutch)
- (b) area between Khadir and Paccham islands in great Rann of Kachch
- (c) area of great Rann of Kachch and little Rann of Kachch
- (d) area of Nal Sarovar Bird Sanctuary
119. Osteomalacia is a deficiency disease of
- (a) Infants due to protein energy malnutrition
- (b) Adults due to protein energy malnutrition
- (c) Adults due to vitamin-D deficiency
- (d) Infants due to vitamin-K deficiency
120. Inner surface of the bronchi, bronchioles and Fallopian tubes are lined by
- (a) Cubical epithelium
- (b) columnar epithelium
- (c) Squamous epithelium
- (d) ciliated epitheliums
121. An action potential in the nerve fibre is produced when positive and negative charges on outside and the inside of the axon membrane are reversed because
- (a) more potassium ions enter the axon as compared to sodium ions leaving it
- (b) more sodium ions enter the axon as compared to potassium ions leaving it
- (c) all potassium ions leave the axon
- (d) all sodium ions enter the axon
122. Excessive stimulation of vagus nerve in humans may lead to
- (a) hoarse voice
- (b) peptic ulcers
- (c) efficient digestion of proteins
- (d) irregular contraction of diaphragm
123. In the developmental history of mammalian heart, it is observed that it passes through a two chambered fish- like heart, three chambered frog-like heart and finally four-chambered stage. To which hypothesis can the above cited statement be approximated?
- (a) Biogenetic Law
- (b) Hardy-Weinberg Law
- (c) Lamarck's Principle
- (d) Mendelian Principles
124. The nitrogenous metabolic waste in *Hydra* is mostly
- (a) ammonia and is removed from whole surface of body
- (b) urea and is removed mainly by tentacles
- (c) urea and is removed from whole surface of body



- (d) uric acid and is removed from whole surface of body
125. Calcium encrustation and larvicidal properties are present in
- (a) *Chara*            (b) *Oscillatoria*  
 (c) *Diatoms*        (d) *Canlerapa*
126. Which green alga shows heterotrichous habit and may have given rise to terrestrial (land) habit?
- (a) *Chlamydomonas*  
 (b) *Fritschiella*  
 (c) *Vaucheria*  
 (d) *Ulothrix*
127. Fungus/Lichen, which grows on wood is
- (a) terricolous    (b) saxicolous  
 (c) lignicolous    (d) corticolous
128. Vitellogenesis occurs during the formation of
- (a) primary oocyte in Graafian follicle  
 (b) oogonial cell in the Graafian follicle  
 (c) ootid in the fallopian tube  
 (d) secondary oocyte in the fallopian tube
129. Superficial meroblastic cleavage occurs in
- (a) reptiles        (b) insects  
 (c) mammals      (d) birds
130. Sperms acrosome has
- (a) Hyaluronic acid and proacrosin  
 (b) Hyaluronic acid and fertilizin  
 (c) hyaluronidase and proacrosin  
 (d) fertilizin and proacrosin
131. In amniocentesis of a pregnant woman, it is found that the embryo contains both, Barr body and F- body. The syndrome likely to be associated with the embryo is
- (a) Edward's syndrome  
 (b) Down's Syndrome  
 (c) Klinefelter's Syndrome  
 (d) Patau's Syndrome
132. A man and a woman, who do not show any apparent sign of a certain inherited disease, have seven children (two daughters and five sons). Three of the sons suffer from the given disease but none of the daughters are affected. Which of the following mode of inheritance do you suggest for this disease?
- (a) Autosomal dominant  
 (b) Sex-linked dominant  
 (c) Sex-limited recessive  
 (d) Sex-linked recessive
133. Which of the statement about Huntington's disease is true?
- (a) Genetic tests to detect the presence of the allele responsible for Huntington's disease do not exist at this time  
 (b) The onset of Huntington's disease is typically between birth and three years of age  
 (c) There is currently no effective treatment of Huntington's disease  
 (d) Huntington's disease is caused by the expression of recessive allele
134. Broad spectrum antibiotic

- (a) acts on all bacteria and virus  
 (b) is effective in very small amount  
 (c) acts on both pathogen and host  
 (d) acts on a variety of pathogenic microorganisms
135. The treatment of snake- bite by antivenin is an example
- (a) artificially acquired active immunity  
 (b) artificially acquired passive immunity  
 (c) naturally acquired passive immunity  
 (d) specific natural immunity
136. Two of the body parts, which do not appear in MRI may be
- (a) Molar Teeth and Eye lens  
 (b) Scapula and canines  
 (c) Ligaments and ribs  
 (d) Tendons and Premolars
137. The cockroach of genus *Blatta* is also called
- (a) German cockroach  
 (b) Australian cockroach  
 (c) Oriental cockroach  
 (d) American cockroach
138. *Viscum* is a
- (a) total root parasite  
 (b) total stem parasite  
 (c) partial root parasite  
 (d) partial stem parasite
139. Tyloses are ballon like ingrowths in vessels developing from the adjoining
- (a) fibres through pits on vessel wall  
 (b) fibres through the general surface of vessel wall  
 (c) parenchyma through pits on vessel wall  
 (d) parenchyma through the general surface of vessel wall
140. Genes present in the cytoplasm of eukaryotic cells are found in
- (a) mitochondria and inherited via egg cytoplasm  
 (b) lysosome and peroxisomes  
 (c) Golgi bodies and smooth endoplasmic reticulum  
 (d) plastids are inherited via male gamete

#### Instructions for Question No. 141 to 150

Each of the questions given below consists of two statements an Assertion (A) and a Reason (R). Encircle the number corresponding to appropriate response in the answer sheet as follows:

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.  
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.  
 (c) Assertion is true but Reason is false.  
 (d) Both Assertion and Reason are false.

141. **Assertion:** Clonal selection is a method of breeding in sugarcane.

**Reason:** Sugarcane is propagated through suckers.

142. **Assertion:** Mast cells in the human body release excessive amounts of inflammatory chemicals, which cause allergic reactions.

**Reason:** Allergens in the environment on reaching human body stimulate mast cells in certain individuals.

143. **Assertion:** The phenomenon where tumor cells detach and migrate to other parts of the body where they give rise to secondary tumors is called metastasis.

**Reason:** Abnormal antigens on the surface of cell and unusual number of chromosomes cause metastasis.

144. **Assertion:** Phase of cell division is also known as formative phase.

**Reason:** In formative phase, new cells are produced from pre-existing cells through meiosis division.

145. **Assertion:** The regulation of RBC production is accompanied by the kidneys.

**Reason:** Erythropoietin hormone circulates to the red bone marrow, where it increases stem cell mitosis and speeds up the development of RBCs.

146. **Assertion:** *Monotropagrow* in pine forests with the roots of pines.

**Reason:** Soprophytes obtain their nutrition from dead organic matter.

147. **Assertion:** The imbalance in concentration of  $\text{Na}^+$ ,  $\text{K}^+$  and proteins generates resting potential.

**Reason:** To maintain the unequal distribution of  $\text{Na}^+$  and  $\text{K}^+$ , the neurons uses electrical energy.

148. **Assertion:** Diabetes insipidus is marked by excessive urination and too much thirst of water.

**Reason:** Antidiuretic hormone(ADH) is secreted by the posterior lobe of pituitary.

149. **Assertion:** In collateral vascular bundles phloem is situated towards inner side.

**Reason:** In monocot stem, cambium is present.

150. **Assertion:** When dried seeds of pea are placed in a tin and water added up to their upper level and then a lid is put tightly over it. Within an hour, the lid will be blown off.

**Reason:** Due to rapid cell division in pea seeds.

## ENGLISH PROFICIENCY & GENERAL KNOWLEDGE

### *Directions for Question 151 to 160.*

In this section you find a number of sentences, parts of which are underlined. You may also find only a group of words which is underlined. For each underlined part, four words/phrases are listed below. Choose the word/phrase nearest in meaning to the underlined part.

151. The surreptitious movements of a lone figure among the dunes filled the villagers with curiosity and awe.

- (a) invisible      (b) nocturnal  
(c) secret      (d) concealed

152. One's remonstration against social ills has to be consistent to be fruitful.

- (a) outrage      (b) demonstration  
(c) protest(d) criticism

153. Sanguine as he is in his attitude to life and its problems, he cannot but be noticed wherever he goes.

- (a) Optimistic      (b) Enthusiastic  
(c)Realistic      (d) Dispassionate

154. Even the most careful researcher cannot predict the possible future ramification of his findings.

- (a) uses      (b) developments  
(c) consequences      (d) conclusions

155. He added his speech on a supercilious note which was quite unexpected of a person of his balanced and stable temperament.

- (a) defamatory      (b) contemptuous

- (c) superfluous      (d) irrelevant

156. India has made spectacular progress in science and technology.

- (a) remarkable      (b) great  
(c) formidable      (d) super

157. The opposition criticized the ruling party for the deteriorating law and order situation in the state.

- (a) disrupting      (b) worsening  
(c) crumbling      (d) eroding

158. The flat has been refurbished recently.

- (a) white-washed      (b) painted  
(c) renovated      (d) repaired

159. Guerillas infiltrated into the region during the severe winter of 1997.

- (a) entered      (b) ingressed  
(c) penetrated      (d) filtered

160. He has always been fastidious while examining answer scripts.

- (a) meticulous      (b) discriminating  
(c) critical      (d) judicious

### *Directions for Question No. 161 to 170.*

In this Section each item consists of a word or a phrase which is underlined in the sentence given. It is followed by four words or phrases. Select the word or phrase which is closest to the opposite in meaning of the underlined word or phrase.

161. The facts of the case were obscured by the speech of the defence counsel.

- (a) reflected (b) illustrated  
(c) clarified (d) exhibited

162. Due to his excessive craftiness he achieved success but lost friends.

- (a) simplicity (b) sincerity  
(c) straightforwardness (d) innocence

163. He made several attempts to placate his opponents.

- (a) infuriate (b) defeat  
(c) discourage (d) deceive

164. There are no permanent adversaries in politics.

- (a) associates (b) allies  
(c) collaborators (d) partners

165. He produced cogent reasons for the change of policy.

- (a) flimsy (b) unconvincing  
(c) improper (d) simple

166. The tentative date for the conduct of the examination has been announced.

- (a) final (b) probable  
(c) plausible (d) preliminary

167. At the meeting a number of resolutions were adopted.

- (a) deffered (b) reviewed  
(c) rejected (d) rescinded

168. The impromptu observation of his friend caught everyone's attention.

- (a) well-worded (b) studied  
(c) suitable (d) appropriate

169. After many pleas, he reluctantly agreed to help me.

- (a) gladly (b) suddenly  
(c) resolutely (d) willingly

170. He decided to abandon his claim to the ancestral property.

- (a) uphold (b) support  
(c) confirm (d) emphasize

**Directions for Question No. 171 to 175.** In this section you have short passage. After the passage you will find several questions based on the passage. First, read the passage and answer the questions based on it.

Our busy and absent-minded father would never worry about us children; our mother did worry. Yet she allowed us to go off into the hills immediately after breakfast, and did not complain when we came back long after supper-time. Though she had a bad head for heights, she never restrained us from climbing in dangerous places; and we never got hurt. Having a bad for heights myself, I trained myself deliberately and painfully to overcome it.

171. The children regularly went to the hills

- (a) for the greater part of the day  
(b) for a couple of hours  
(c) for the afternoon only  
(d) after sunset till supper-time

172. In this passage, 'restrained' implies:

- (a) refused (b) suspected  
(c) forced (d) held back

173. The phrase 'deliberately and painfully' implies:
- (a) pleasure (b) fear  
(c) determination (d) effort
174. The father did not worry about the children because
- (a) he was involved in his business  
(b) he knew their mother did  
(c) he did not care about them  
(d) men worry less than women do
175. Which of the following statements best express the main thought in this passage?
- (a) The indifference of the parents led to the children's growing up wild.  
(b) The mother trusted her children and in spite of normal anxiety, gave them freedom to explore the countryside and they came to no harm.  
(c) His mother's fear of heights spurred on the author to conquer the same fear in himself.  
(d) The mother never complained when her children were climbing.
- General Awareness type questions:**
176. Which one of the following states has the world's largest fresh water island?
- (a) Uttar Pradesh (b) Karnataka  
(c) Bihar (d) Assam
177. The timber of which one of the following trees is used for marking cricket bats?
- (a) Deodar (b) Sal  
(c) Teak (d) Willow
178. Which of the following towns is located eastern-most?
- (a) Bokaro (b) Jamshedpur  
(c) Patna (d) Ranchi
179. Which one of the following Indian States does not share border with Bhutan?
- (a) Sikkim (b) Meghalaya  
(c) West Bengal (d) Arunachal Pradesh
180. Which one of the following Indian states has the highest population density (among them)?
- (a) Uttar Pradesh (b) Bihar  
(c) West Bengal (d) Kerala
181. Which among the following is the smallest state area-wise?
- (a) Nagaland (b) Mizoram  
(c) Meghalaya (d) Manipur
182. The Indian flag was designed by
- (a) Indual Yagnik  
(b) Madam Cama  
(c) Aurobindo Ghosh  
(d) Subhash Chandra Bose
183. Which one of the following organisms has a role in converting nitrates to free nitrogen?
- (a) Pseudomonas (b) Nitrosomonas  
(c) Nitrobacter (d) Rhizobium
184. Among the following fruits, which one is not a true fruit?
- (a) Apple (b) Date Palm  
(c) Coconut (d) Tomato

185. Genetically modified varieties or hybrids of which of the following are now being widely cultivated in the world?
- (a) Wheat, coconut and mango
  - (b) Maize, soyabean and cotton
  - (c) Gram, brinjal and orange
  - (d) Olive, mustard and groundnut
186. Cooking with solid fuel on open fires or traditional stoves results in high levels of indoor air pollution. The indoor smoke contains a range of health-damaging pollutants, which include the following except
- (a) Benzopyrenes
  - (b) Carbon monoxide
  - (c) Lead oxide
  - (d) Sulphur oxides
187. In the cells of living organisms, other than nucleus, which of the following organelles contains DNA?
- (a) Cell membrane
  - (b) Endoplasmic reticulum
  - (c) Golgi Bodies
  - (d) Mitochondria
188. Which part of potato plant is used as vegetables?
- (a) Modified root
  - (b) Modified stem
  - (c) Modified leaf
  - (d) Modified flowers
189. Which one of the following pigments in plants is involved in the perception of photoperiodic stimuli, which control flowering, seed germination and other morphogenetic phenomena?
- (a) Cytochrome
  - (b) Phytochrome
  - (c) Phycobilins
  - (d) Phycoerythrin
190. Which one of the following is the national animal of India?
- (a) Elephant
  - (b) Lion
  - (c) Rhinoceros
  - (d) Tiger
191. Which one among the following planets is nearest to the Sun?
- (a) Jupiter
  - (b) Uranus
  - (c) Mars
  - (d) Mercury
192. Which country had helped India in Green Revolution Technology for agricultural development and self-sufficiency in food?
- (a) USSR
  - (b) UK
  - (c) Germany
  - (d) USA
193. Of the following types of chemical compounds, which one is a key ingredient in the formation of photochemical smog?
- (a) Carbon oxides
  - (b) Halogenated hydrocarbons
  - (c) Nitrogen oxides
  - (d) Lead particles
194. Which one of the following hazardous chemicals caused the 'Bhopal Gas Tragedy'?
- (a) Methyl isocyanate
  - (b) Methylbenzene
  - (c) Thiocyanate
  - (d) Hydrogen cyanide
195. Where are the Headquarters of International Organization for Standardization (ISO) located?

- (a) Geneva      (b) Paris  
(c) London      (d) Vienna

196. Who of the following is the author of the book “Imaging India: Ideas for the New Century”?

- (a) Aravind Adiga      (b) M. J. Akbar  
(c) Nandan Nilekani      (d) Shashi Tharoor

197. Among the following states, which one has the highest number of seats allocated for the Legislative Assembly?

- (a) Bihar      (b) Karnataka  
(c) Maharashtra      (d) West Bengal

198. Members of Rajya Sabha are elected for

- (a) 4 years      (b) 5 years  
(c) 6 years      (d) 7 years

199. Who is the author of the ‘Panchatantra’?

- (a) Banabhatta      (b) Kalidasa  
(c) Harisena      (d) Vishnu Sharman

200. Which one of the following began with Dandi March?

- (a) Home Rule- Movement  
(b) Non-Cooperation Movement  
(c) Civil Disobedience Movement  
(d) Quit India Movement