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Name.: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Date : 07/02/2016

Test No.: 26

Subject Code.: 222

Time : 3 Hrs. **M.M. : 720**

HORIZON TEST SERIES

for

Medical Entrance Exam. 2016

[Test No. 26 (Batch 2)]

INSTRUCTIONS FOR STUDENTS

1. Read each question carefully.
2. It is mandatory to use Blue/Black Ball Point Pen to darken the appropriate circle in the answer sheet.
3. Mark should be dark and should complete fill the circle.
4. Rough work must be done on the Question Paper, no additional sheet will be provided for this purpose.
5. Do not use white-fluid or any other rubbing material on answer sheet. No change in the answer once marked.
6. Student cannot use log tables and calculators or any other material in the examination hall.
7. Before attempting the question paper, student should ensure that the test paper contains all pages and no page is missing.
8. Each correct answer carries four marks. One mark will be deducted for each incorrect answer from the total score.
9. Before handing over the answer sheet to the invigilator, candidate should check the particulars have been filled and marked correctly.
10. Immediately after the prescribed examination time is over, the answer sheet to be returned to the invigilator.
11. Use of Calculator and other Electronic device is not permitted.

Test No. 26

Topics of The Test

Physics	Electrostatics, Capacitors
Chemistry	Chemistry in Every day life + Extraction.
Biology	**Zoology :** Porifera + Coelenterata + Excretion. **Botany :** Algee, Bryophyta,Fungi

Test No. 26

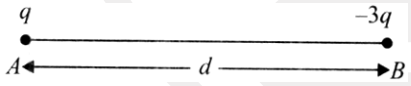
[PHYSICS]

1. The electrostatic force on a small sphere of charge 0.2 μC due to another small sphere of charge $-0.4\mu C$ in air is 0.4 N. The distance between the two spheres is
   (A) 4.2×10^{-6} m (B) 4.2×10^{-3} m
   (C) 1.8×10^{-3} m (D) 1.8×10^{-6} m

2. Two point charges of $+3\mu C$ repel each other with a force of 10 N. If each is given an additional charge of $-6\mu C$, the new force is
   (A) 2 N (B) 4 N
   (C) 5 N (D) 7.5 N

3. Coulomb's law relates two charges and distance between them describing the electric force as being
   (A) proportional to the sum of the charges
   (B) inversely proportional to the distance between charges
   (C) proportional to the product of the charges and inversely proportional to the distance
   (D) proportional to the product of the charges and inversely proportional to the square of distance

4. Two charges q and $-3q$ are placed fixed on x-axis separated by distance d. Where should a third charge $2q$ be placed such that it will not experience any force?

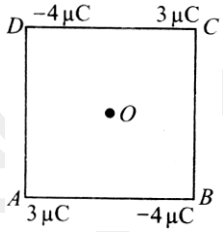


   (A) $\frac{d-\sqrt{3}d}{2}$ (B) $\frac{d+\sqrt{3}d}{2}$
   (C) $\frac{d+3d}{2}$ (D) $\frac{d-3d}{2}$

5. Which of the following statements is true about electrical forces ?
   (A) Electrical forces are produced by electrical charges.
   (B) Like charges attract, unlike charges repel.
   (C) Electric forces are weaker than gravitational forces.
   (D) Positive and negative charges can combine to produce a third type of charge.

6. Consider the charges q, q and $-q$ placed at the vertices of an equilateral triangle of each side l. The force on the system of charges is
   (A) $\frac{q^2}{4\pi\varepsilon_0 l}$ (B) $\frac{q^3}{4\pi\varepsilon_0 l}$
   (C) $\frac{q^2}{4\pi\varepsilon_0 l^2}$ (D) zero

7. Four point charges are placed at the corners of a square $ABCD$ of side 10 cm, as shown in figure.



   The force on a charge of $1\mu C$ placed at the centre of square is
   (A) 7 N (B) 8 N
   (C) 2 N (D) zero

Space for Rough Work

8. Three charges of equal magnitude q is placed at the vertices of an equilateral traingle of side l. The force on a charge Q placed at the centroid of the traingle is

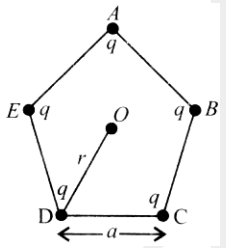
(A) $\frac{3Qq}{4\pi\varepsilon_0 l^2}$ (B) $\frac{2Qq}{4\pi\varepsilon_0 l^2}$

(C) $\frac{Qq}{2\pi\varepsilon_0 l^2}$ (D) zero

9. The electric field that can balance an electron of mass 3.2×10^{-27} kg is

(A) 19.6×10^{-8} N C^{-1} (B) 20×10^{-6} N C^{-1}
(C) 19.6×10^{8} N C^{-1} (D) 20×10^{6} N C^{-1}

10. Five equal charges each of value q are placed at the corners of a regular pentagon of side 'a'.
The electric field at the centre of the pentagon is

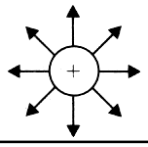
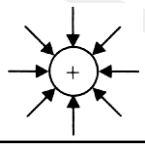


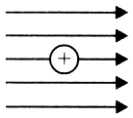
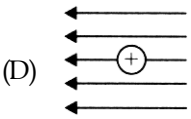
(A) $\frac{q}{4\pi\varepsilon_0 r^2}$ (B) $\frac{q^2}{4\pi\varepsilon_0 r^2}$

(C) $\frac{2q}{4\pi\varepsilon_0 r^2}$ (D) zero

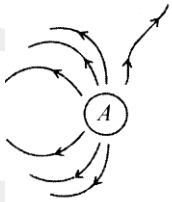
11. The dimensional formula of electric intensity is
(A) $[M^1L^1T^3A^{-1}]$ (B) $[ML^{-1}T^{-3}A^1]$
(C) $[M^1L^1T^{-3}A^{-1}]$ (D) $[M^1L^2T^1A^1]$

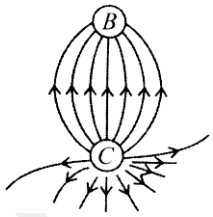
12. Which of the following figure represents the electric field lines due to a single positive charge ?

(A)  (B) 

(C)  (D) 

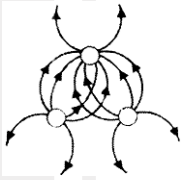
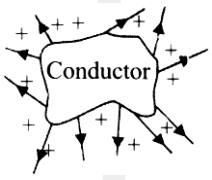
13. Figure shows the electric field lines around three point charges, A,B and C. Which of the following charges are positive ?

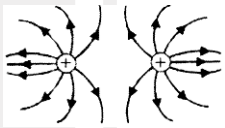
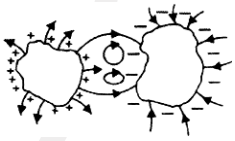




(A) Only A (B) Only C
(C) Both A and C (D) Both B and C

14. Which of the following curves shown below can possibly represent electrostatic field lines ?

(A)  (B) 

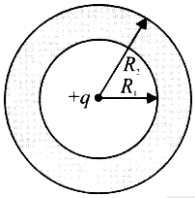
(C)  (D) 

15. A uniform electric field $E = 2\times10^3$ N C^{-1} is acting along the positive x-axis. The flux of this field through a square of 10 cm on a side whose plane is parallel to the yz plane is

(A) 20 N C^{-1}m^2 (B) 30 N C^{-1}m^2
(C) 10 N C^{-1}m^2 (D) 40 N C^{-1}m^2

Space for Rough Work

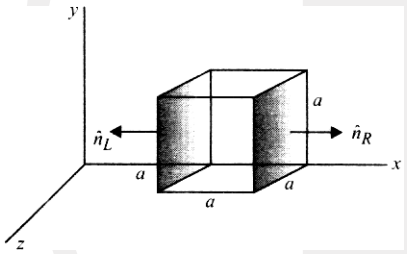
16. A metallic spherical shell has an inner radius R_1 and outer radius R_2. A charge is placed at the centre of the spherical cavity. The surface charge density on the inner surface is



(A) $\frac{q}{4\pi R_1^2}$ (B) $\frac{-q}{4\pi R_1^2}$

(C) $\frac{q^2}{4\pi R_2^2}$ (D) $\frac{q}{4\pi R_2^2}$

17. The electric field components in the given figure are $E_x = \alpha x^{1/2}, E_y = E_z = 0$ in which $\alpha = 800$ N C^{-1}m$^{-1/2}$. The charge within the cube is (assume a = 0.1 m)



(A) 9.27×10^{-12}C (B) 9.27×10^{12}C

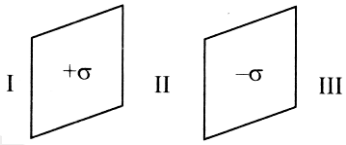
(C) 6.97×10^{-12}C (D) 6.97×10^{12}C

18. A point charge $4\mu C$ is at the centre of a cubic Gaussian surface 10 cm on edge. Net electric flux through the surface is

(A) 2.5×10^5 N m^{2}C^{-1} (B) 4.5×10^5N m^{2}C^{-1}

(C) 4.5×10^6 N m^{2}C^{-1} (D) 2.5×10^6 N m^{2}C^{-1}

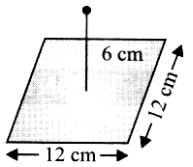
19. Two large thin metal plates are parallel and close to each other. On their inner faces, the plates have surface charge densities of opposite signs and magnitude 27×10^{-22}C m^{-2}. The electric field $\vec{E}$ in region II in between the plates is



(A) 4.25×10^{-8}N C^{-1} (B) 6.28×10^{-10}N C^{-1}

(C) 3.05×10^{-10} N C^{-1} (D) 5.03×10^{-10}N C^{-1}

20. A point charge $+20\mu C$ is at a distance 6 cm directly above the centre of a square of side 12 cm as shown in figure. The magnitude of electric flux through the square is



(A) 2.5×10^6 N m^{2}C^{-1} (B) 3.8×10^5N m^{2}C^{-1}

(C) 4.2×10^5N m^{2}C^{-1} (D) 2.9×10^6N m^{2}C^{-1}

21. The electric field intensity at point P due to point charge q kept at point Q is 24 N C^{-1} and the electric potential at point P due to same charge is 12 J C^{-1}. The order of magnitude of charge q is

(A) 10^{-6} C (B) 10^{-7} C

(C) 10^{-10} C (D) 10^{-9} C

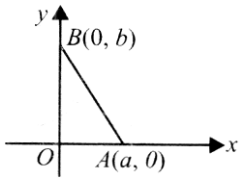
22. Two points A and B are located in diametrically opposite directions of a point charge of $+2\mu C$ at distances 2 m and 1 m respectively from it. The potential difference between A and B is

(A) 3×10^3 V (B) 6×10^4 V

(C) -9×10^3 V (D) -3×10^3 V

Space for Rough Work

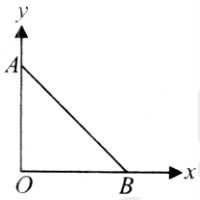
23. A charge $+q$ is placed at the origin O of x-y axes as shown in the figure. The work done in taking a charge Q from A to B along the straight line AB is



(A) $\frac{qQ}{4\pi\varepsilon_0}\left(\frac{a-b}{ab}\right)$ (B) $\frac{qQ}{4\pi\varepsilon_0}\left(\frac{b-a}{ab}\right)$

(C) $\frac{qQ}{4\pi\varepsilon_0}\left(\frac{b}{a^2}-\frac{1}{b}\right)$ (D) $\frac{qQ}{4\pi\varepsilon_0}\left(\frac{a}{b^2}-\frac{1}{b}\right)$

24. As per the diagram a point charge $+q$ is placed at the origin O. Work done in taking another point charge $-Q$ from the point A [coordinates (0, a)] to another point B [coordinates (a,0)] along the straight line AB is



(A) zero (B) $\left(\frac{qQ}{4\pi\varepsilon_0}\frac{1}{a^2}\right)\sqrt{2}a$

(C) $\left(\frac{-qQ}{4\pi\varepsilon_0}\frac{1}{a^2}\right)\sqrt{2}a$ (D) $\left(\frac{qQ}{4\pi\varepsilon_0}\frac{1}{a^2}\right)\frac{a}{\sqrt{2}}$

25. An electric dipole of length 20 cm having $\pm 3\times10^{-3}$ C charge placed at 60° with respect to a uniform electric field experiences a torque of magnitude 6 N m. The potential energy of the dipole is

(A) $-2\sqrt{3}$ J (B) $5\sqrt{3}$ J

(C) $-3\sqrt{2}$ J (D) $3\sqrt{5}$ J

26. The electric field and the potential of an electric dipole vary with distance r on axial line as

(A) $\frac{1}{r}$ and $\frac{1}{r^2}$ (B) $\frac{1}{r^2}$ and $\frac{1}{r}$

(C) $\frac{1}{r^2}$ and $\frac{1}{r^3}$ (D) $\frac{1}{r^3}$ and $\frac{1}{r^2}$

27. An electric dipole is placed at the centre of a hollow conducting sphere. Which of the following is correct?

(A) Electric field is zero at every point of the sphere

(B) Electric field is not zero anywhere on the sphere

(C) The flux of electric field is not zero through the sphere

(D) All of these

28. Which of the following is not true ?

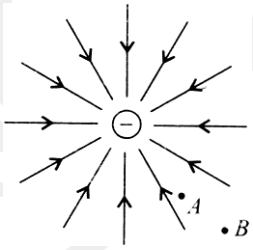
(A) For a point charge, electrostatic potential varies as 1/r.

(B) For a dipole, the potential depends on the magnitude of position vector and dipole moment vector.

(C) The electric dipole potential varies as 1/r at large distance.

(D) For a point charge, the electrostatic field varies as $1/r^2$.

29. Figure shows the field lines of a point negative charge. In going from B to A, the kinetic energy of a small negative charge will



(A) increase (B) decrease

(C) remains constant (D) data insufficient

Space for Rough Work

30. Four equal charges q each are placed at four corners of a square of side a each. Work done in carrying a charge $-q$ from its centre to infinity is

(A) zero (B) $\frac{\sqrt{2}q^2}{\pi\varepsilon_0 a}$

(C) $\frac{\sqrt{2}q}{\pi\varepsilon_0 a}$ (D) $\frac{q^2}{\pi\varepsilon_0 a}$

31. A hexagon of side 8 cm has a charge $4\mu C$ at each of its vertices. The potential at the centre of the hexagon is

(A) 2.7×10^6 V (B) 7.2×10^{11}V

(C) 2.5×10^{12}V (D) 3.4×10^4V

32. The work done to move a unit charge along an equipotential surface from P and Q

(A) must be defined as $-\int_P^Q E.dl$

(B) is zero

(C) can have a non-zero value

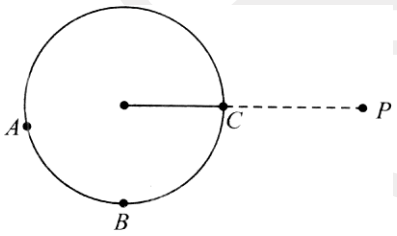
(D) both (A) and (B) are correct

33. What is the angle between electric field and equipotential surface ?

(A) 90° always (B) 0° always

(C) 0° to 90° (D) 0° to 180°

34. A hollow conducting sphere is placed in an electric field produced by a point charge placed at P as shown in figure. Let V_A, V_B, V_C be the potential at point A, B and C respectively, then



(A) $V_C > V_B$ (B) $V_A > V_B$

(C) $V_B > V_C$ (D) $V_A = V_C$

35. The work done in carrying a charge q once round a circle of radius a with a charge Q at its centre is

(A) $\frac{qQ}{4\pi\varepsilon_0 a}$ (B) $\frac{qQ}{4\pi\varepsilon_0 a^2}$

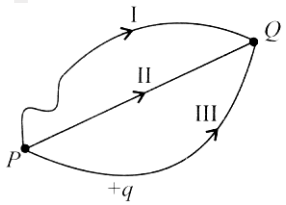
(C) $\frac{q}{4\pi\varepsilon_0 a}$ (D) zero

36. A system consists of two charges $4\mu C$ and $-3\mu C$ with no external field placed at (–5 cm, 0, 0) and (5 cm, 0,0) respectively. The amount of work required to separate the two charges infinitely away from each other is

(A) –1.1 J (B) 2 J

(C) 2.5 J (D) 3 J

37. Which among the following statements is true about the work done in bringing a unit positive charge from point P to Q in an electrostatic field ?



(A) Minimum work is done in case of path II.

(B) Maximum work is done in case of path I.

(C) Work done is same in all the three paths.

(D) Work done is zero in case of path II.

38. An infinite cylinder of radius r_0, carrying linear charge density λ. The equation of the equipotential surface for this cylinder is

(A) $r = r_o e^{\pi\varepsilon_o[V(r)+V(r_o)]\lambda}$

(B) $r = r_o e^{2\pi\varepsilon_o[V(r)-V(r_o)]\lambda^2}$

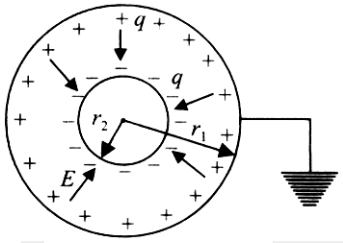
(C) $r = r_o e^{-2\pi\varepsilon_o\{V(r)-V(r_o)\}/\lambda}$

(D) $r = r_o e^{-2\pi\varepsilon_o[V(r)-V(r_o)]\lambda}$

Space for Rough Work

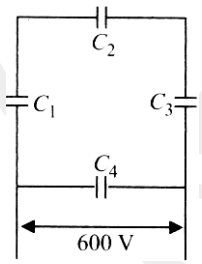
39. When air is replaced by a dielectric medium of constant K, the maximum force of attraction between two charges separated by a distance
(A) increases K times
(B) remains unchanged
(C) decreases K times
(D) increases K^{-1} times

40. A spherical capacitor consists of two concentric spherical conductors, held in position by suitable insulating supports as shown in figure. The capacitance C, of this spherical capacitor is



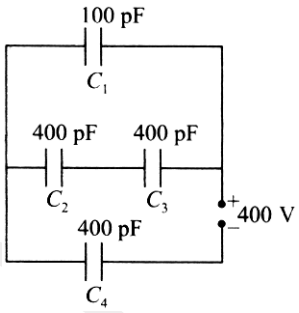
(A) $\frac{4\pi\varepsilon_o r_1 r_2}{r_1 - r_2}$ (B) $\frac{4\pi\varepsilon_o (r_2 - r_1)}{r_1 r_2}$
(C) $\frac{r_1 r_2}{4\pi\varepsilon_o (r_2 - r_1)}$ (D) $\frac{(r_1 - r_2)}{4\pi\varepsilon_o r_1 r_2}$

41. A network of four $20\mu F$ capacitors is connected to a 600 V supply as shown in the figure.



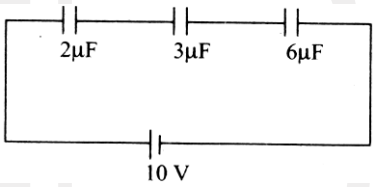
The equivalent capacitance of the network is
(A) $30.26\mu F$ (B) $20\mu F$
(C) $26.67\mu F$ (D) $10\mu F$

42. The equivalent capacitance for the network shown in the figure is



(A) $\frac{1200}{7}$ pF (B) $\frac{1000}{4}$ pF
(C) $\frac{1800}{7}$ pF (D) $\frac{1300}{3}$ pF

43. The charge on $3\mu F$ capacitor shown in the figure is



(A) $2\mu C$ (B) $10\mu C$
(C) $6\mu C$ (D) $8\mu C$

44. A 16 pF capacitor is connected to 80 V supply. The amount of electric energy stored in the capacitor is
(A) 4.5×10^{-12} J (B) 5.1×10^{-8} J
(C) 2.5×10^{-12} J (D) 3.2×10^{-8} J

45. A metallic sphere of radius 18 cm has been given charge of 5×10^{-6}C. The energy of the charged conductor is
(A) 0.2 J (B) 0.6 J
(C) 1.2 J (D) 2.4 J

Space for Rough Work

[CHEMISTRY]

46. Which process is used for the extraction of metals from their sulphide ores ?
(A) Electrolysis (B) Metal displacement
(C) Smelting (D) Roasting

47. Metals occur in the native form because of their.
(A) high electronegativity
(B) high reactivity
(C) low reactivity
(D) low density

48. Specific gravity of slag is
(A) always higher than molten metal
(B) always less than molten metal
(C) same as that of molten metal
(D) none of the above

49. Sperrylite is
(A) AgCl (B) $PtAs_2$
(C) Fe_2O_3 (D) SnO_2

50. Which process is **not** used for the purification of Al metal?
(A) Hoop's process (B) Baeyer's process
(C) Serpek's process (D) Hall's process

51. The following equation represents a method of purification of nickel by,

$$\underset{\text{Impure}}{Ni} + 2CO \xrightarrow{320\,K} Ni(CO)_4 \xrightarrow{420\,K} \underset{\text{Pure}}{Ni} + 4CO$$

this method is
(A) cupellation
(B) Mond's process
(C) Van Arkel method
(D) Zone refining

52. Which is the salt of an organic acid ?
(A) Rochelle salt (B) Microcosmic salt
(C) Mohr's salt (D) Glauber's salt

53. Which substance is used as basic refractory material in furnace ?
(A) Al_2O_3 (B) SiO_2
(C) CaO (D) Fe_2O_3

54. In the manufacture of iron haematite, lime stone is added to act as
(A) flux (B) slag
(C) a reducing agent (D) an oxidising agent

55. Carnallite is a mineral of
(A) Ca (B) Na
(C) Mg (D) Zn

56. Poling process is used
(A) for the removal of Cu_2O from Cu
(B) for the removal of Al_2O_3 from Al
(C) for the removal of Fe_2O_3 from Fe
(D) in all of the above

57. Leaching is a process of
(A) reduction (B) concentration
(C) refining (D) oxidation

58. The most abundant element in the earth crust is
(A) O (B) Si
(C) H (D) C

59. Extraction of silver from its ore involving NaCN, air and an active metal is known as
(A) Pattinson's method
(B) Amalgamation method
(C) Mc Arthur-Forest method
(D) Parke's method

60. In the thermite process the reducing agent is
(A) C (B) Al
(C) Na (D) Mg

61. Heating of ores with flux to remove non-fusible mass is called
(A) smelting (B) calcination
(C) roasting (D) cupellation

62. In the electrolysis of alumina, cryolite is added to
(A) lower the melting point of alumina and to increase the electrical conductivity
(B) minimise the anode effect
(C) remove impurities from alumina
(D) none of the above

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63. The process of converting hydrated alumina into anhydrous alumina is called
(A) roasting (B) smelting
(C) dressing (D) calcination

64. In the metallurgy of zinc, the zinc dust obtained from roasting and reduction of zinc sulphide contains some ZnO. It is removed by
(A) absorbance of ultraviolet light and reemission of white light
(B) shock cooling by contact with a shower of molten lead
(C) X-ray method
(D) smelting

65. Nickel is purified by thermal decomposition of its
(A) Hydride (B) Chloride
(C) Azide (D) Carbonyl

66. Impurities physically associated with minerals are
(A) slag (B) flux
(C) alloy (D) matrix

67. Which represents calcination ?
(A) $2Ag + 2HCl + [O] \rightarrow 2AgCl + H_2O$
(B) $2Zn + O_2 \rightarrow 2ZnO$
(C) $2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$
(D) $MgCO_3 \rightarrow MgO + CO_2$

68. The process of extraction of sodium on a commercial scale by the electrolysis of fused sodium chloride is called.
(A) Down's process (B) Solvay process
(C) Nelson process (D) Castner process

69. An element *A* dissolves both in acid and alkali. It is an example of
(A) allotropic nature of *A*
(B) dimorphic nature of *A*
(C) amorphous nature of *A*
(D) amphoteric nature of *A*

70. Aluminothermic process is used for the extraction of metals, whose oxides are
(A) fusible
(B) not easily reduced by carbon
(C) not easily reduced by hydrogen
(D) strongly basic

71. Alloy is an example of
(A) gel (B) aerosol
(C) solid sol (D) emulsion

72. In the reverberatory furnace
(A) the flames do not come in contact with the charge
(B) the flames come in contact with the charge
(C) only hot gases come in contact with the charge
(D) the flames are not there at all

73. Calcination and roasting are
(A) different names of the same operation
(B) used for the purification of metals
(C) usually carried out in reverberatory furnace
(D) employed for the concentration of the ore

74. Granulated zinc is obtained by
(A) suddenly cooling molten zinc
(B) adding molten zinc to water
(C) heating zinc to 100 – 150° C
(D) dropping molten zinc drop by drop

75. In Goldschmidt aluminothermic process, thermite mixture contains
(A) 3 parts Fe_2O_3 and parts Al
(B) 3 parts Al_2O_3 and 4 parts Al
(C) 1 part Fe_2O_3 and 12 parts Al
(D) 3 parts Fe_2O_3 and 1 part Al

76. A medicine which promotes the secretion of urine is called
(A) uretic (B) monouretic
(C) diuretic (D) triuretic

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77. An example of a psychedelic agent is
(A) DNA (B) LSD
(C) DDT (D) TNT

78. Further growth of cancerous cells in the body is arrested by
(A) physiotherapy (B) chemotherapy
(C) electrotherapy (D) psychotherapy

79. One of the most widely used drug in medicine, iodex is
(A) methyl salicylate
(B) ethyl salicylate
(C) acetyl salicylic acid
(D) *o* -hydroxy benzoic acid

80. Which of the following is a local anaesthetic ?
(A) Diazepam (B) Procaine
(C) Mescaline (D) None of these

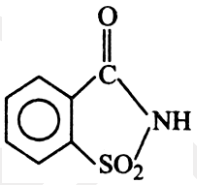
81. Chloramine-T is a
(A) disinfectant (B) antiseptic
(C) analgesic (D) antipyretic

82. Chloromycetin (Chloramphenicol) is effective in the treatment of
(A) tuberculosis (B) malaria
(C) typhoid (D) cholera

83. Which of the following is molecular disease ?
(A) Allergy
(B) Cancer
(C) German measeles
(D) Sickel-cell anaemia

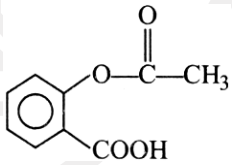
84. Heroin is a derivative of:
(A) Cocaine
(B) Morphine
(C) Caffeine
(D) Nicotine

85. What type of a propellant was used in rocket SLV-3 which was fired by India ?
(A) Solid propellant
(B) Monomethyl hydrazine + Liquid N_2O_4
(C) Unsymmetrical dimethyl hydrazine + Liquid N_2O_4
(D) Liquid oxygen

86. Which is correct about saccharin ?
(A) It is 
(B) It is 600 times sweeter than sugar
(C) It is used as sweetening agent
(D) All of the above

87. The rose odour from an ester is formed by the action of HCOOH on :
(A) Pine oil (B) Olive oil
(C) Geraniol (D) Turpentine oil

88. Fluorescin, a well known dye is obtained by the reactions of
(A) phthalic anhydride and phenol
(B) phthalic anhydride and resorcinal
(C) succinic acid and resorcinol
(D) phthalic anhydride and catechol

89. The following compound is used as

(A) an anti-inflammatory compound
(B) analgesic
(C) hypnotic
(D) antiseptic

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90. Paracetamol is
(A) both antipyretic and analgesic
(B) analgesic
(C) antipyretic
(D) antimalarial

[ZOOLOGY]

91. The middle layer of the body wall of porifera is an
(A) mesenchyme (B) mesoderm
(C) mesogloea (D) mesentery

92. Nematocyst are absent in
(A) Actinozoa (B) Ctenophora
(C) Hydrozoa (D) Scyphora

93. A sponge can be distinguished from other animals due to presence of
(A) coelenteron (B) choanocytes
(C) hollow body (D) dermal papillae

94. Which cells in sponges have food reserves?
(A) Archaeocytes (B) Myocytes
(C) Thesocytes (D) Choanocytes

95. Fertilization in sponge is
(A) internal (B) external
(C) Both (A) and (B) (D) None of these

96. In a sponge which of the following are responsible for maintaining the current of water?
(A) Pinacocytes (B) Porocytes
(C) Choanocytes (D) Amoebocytes

97. Which one is the freshwater sponge?
(A) *Spongia* (B) *Sycon*
(C) *Euplectella* (D) *Spongilla*

98. The totipotent cells of sponge are
(A) archaeocytes (B) pinacocytes
(C) choanocytes (D) trophocytes

99. Select the odd one from the following.
(A) *Sycon* (B) *Spongilla*
(C) *Euspongia* (D) *Adamsia*

100. Sponges have a water transport or canal system, in which the path of water is.
(A) Osculum $\rightarrow$ ostia $\rightarrow$ spangocoel
(B) Ostia $\rightarrow$ osculum $\rightarrow$ spangocoel
(C) Ostia $\rightarrow$ spongocoel $\rightarrow$ osculum
(D) Osculum $\rightarrow$ spongocoel $\rightarrow$ ostia

101. Glass sponges belong to the class
(A) Demospongia (B) Tetractinellida
(C) Hexactinellida (D) Calcarea

102. which one of the following is the most distinctive character of sponges?
(A) They are acellular
(B) They possess special cells called choanocytes
(C) They reproduce asexually
(D) They are all marine

103. The inter-communating cavities in the body of a sponge constitute
(A) water vascular system
(B) canal system
(C) Circulating system
(D) None of these

104. Which of the following statement is true about sponges?
(A) Innumerable mouths and one exit
(B) One mouth and innumerable exits
(C) Spicules are made of chitin
(D) A large spaceous stomach

105. Which of the following is a false statement?
(A) All sponges are hermaphrodites
(B) Choanocytes are reproductive in function
(C) Sponges are multicellular organisms
(D) Porocytes allow incurrents of water

106. Porocytes are special cells for the passage of
(A) Excretory products within body of flatworms
(B) Sweat upon surface of mammalian epidermis
(C) incoming water current in the body of sponges
(D) Outgoing water current on top of sponges

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107. The study of sponges is called
(A) Protozoology (B) Parazoology
(C) Nematology (D) Helminthology

108. Pinacocytes are
(A) ectodermal (B) mesodermal
(C) endodermal (D) interstitial cells

109. Internal buds in sponge are called
(A) nodes (B) buds
(C) gemmules (D) gastrulae

110. Sponges are
(A) pelagic (B) sessile
(C) nekton (D) plankton

111. Asymmetrical sponges mostly occur in
(A) Calcarea (B) Hexactinellida
(C) Demospongia (D) All of these

112. Dead man's finger is
(A) coral (B) echinoderm
(C) sponge (D) infected appendix

113. *Chalina* is
(A) sponge (B) scypha
(C) mermaid's glove (D) all of these

114. Nematoblasts with blind thread tube is called
(A) stenotele
(B) desmoneme
(C) stereoline glutinant
(D) streptoline glutinant

115. Nematocyst is a
(A) cell (B) group of cell
(C) organ (D) part of a cell

116. The osmoregulatory organs of *Hydra* are
(A) interstitial cells (B) myo-epithelial cells
(C) nerve cells (D) none of these

117. Gland cells for secreting adhesive material in *Hydra* are present in
(A) pedal disc (B) stomach region
(C) growth region (D) hypostome

118. Digestion in *Hydra* is
(A) intercellular (B) intracellular
(C) both (A) and (B) (D) none of these

119. One of the following is a coelenterate
(A) sea fan (B) sea dollar
(C) sea cucumber (D) sea horse

120. The mesolamella/mesogloea is formed by
(A) Epidermis (B) gastrodermis
(C) both (A) and (B) (D) mesoderm

121. *Hydra* does not feed on lower animals because
(A) they are so small
(B) they are distasteful
(C) they lack glutathione
(D) none of these

122. A brush border epithelium is formed in
(A) distal convoluted tubule
(B) proximal convoluted tubule
(C) Bowman's capsule
(D) loop of Henle

123. Bile manufactured by liver is stored within the
(A) urinary bladder (B) gall bladder
(C) liver (D) lungs

124. The basic functional unit of human kidney is
(A) Henle's loop (B) nephron
(C) nephridia (D) pyramid

125. The Bowman's capsules are found in
(A) cortex (B) medulla
(C) urinary bladder (D) loop of henle

126. The size of filtration slits of glomerulus are approximately
(A) 10 nm (B) 15 nm
(C) 20 nm (D) 25 nm

127. The yellow pigment derived from haeme breakdown and excreted by kidneys is
(A) uric acid (B) urochrome
(C) cholesterol (D) melanin

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128. If a man takes large amount of protein, he is likely to excrete more amount of
(A) glucose (B) urea and uric acid
(C) water (D) salts

129. In the kidneys, osmotic pressure controls
(A) glucose absorption
(B) sodium absorption
(C) water absorption
(D) none of these

130. Which of the following is nitrogenous waste in spiders?
(A) uric acid (B) guanine
(C) creatinine (D) creatine

131. Blood vessels that carries minimum nitrogenous waste is
(A) hepatic vein (B) pulmonary vein
(C) renal artery (D) renal vein

132. Transitional epithellium is characteristic of the
(A) nephron (B) glomerulus
(C) urinary bladder (D) urethra

133. In micturition
(A) urethra relaxes (B) ureter contracts
(C) ureter relaxes (D) urethra contracts

134. Urinary bladder is present in
(A) snakes (B) crocodiles
(C) ostriches (D) alligators

135. Which one does not enter nephron?
(A) Water (B) Glucose
(C) Plasma proteins (D) Urea

[BOTANY]

136. The fruiting body formed from a filamentous heterotrophic organism, which is known for its nutritive value for the humanity is
(A) cremocarp (B) acervulus
(C) basidiocarp (D) akinete

137. What are the successive structure formed in course of sexual reproduction of *Rhizopus*?
(A) Zygospore, progametangium, gametangium, zygophore
(B) Progametangium, zygophore, gametangium, zygospore
(C) Progametangium, gametangium, zygospore, zygophore
(D) Zygophore, progametangium, gametangium, zygospore

138. Mushroom belongs to
(A) Ascomycetes (B) Basidiomycetes
(C) Phycomycetes (D) Zygomycetes

139. Yeast belongs to
(A) Zygomycetes (B) Basidiomycetes
(C) Ascomycetes (D) Phycomycetes

140. Multinucleated filament of *Rhizopus* is
(A) coenocytic (B) conidia
(C) heterothallus (D) homothallus

141. An alga which can be employed as food for human being is
(A) *Ulothrix* (B) *Chlorella*
(C) *Spirogyra* (D) *Polysiphonia*

142. Which one of the following living organisms completely lacks a cell wall?
(A) Cyanobacteria (B) Sea-fan (Gorrgonia)
(C) *Saccharomyces* (D) Blue-green algae

143. Which one of the following shows isogamy with non-flagellated gametes?
(A) *Sargassum* (B) *Ectocarpus*
(C) *Ulothrix* (D) *Spirogaya*

144. Which one of the following is wrong about *Chara*?
(A) Upper oogonium and lower round antheridium
(B) Globule and nucule present on the same plant
(C) Upper antheridium and lower oogonium
(D) Globule is male reproductive structure

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145. The life cycle of algae such as *Spirogyra* is
(A) haplontic (B) diplontic
(C) haplo-diplontic (D) diplo-haplontic

146. The presence of pyrenoid is characteristic feature of class
(A) Phaeophyceae (B) Chlorophyceae
(C) Rhodophyceae (D) Poeceae

147. Food is stored in the form of mannitol in the class of algae
(A) Rhodophyceae (B) Phaeophyceae
(C) Chlorophyceae (D) Poaceae

148. *Ectocarpus* shows
(A) haplontic life cycle
(B) diplontic life cycle
(C) haplo-diplontic life cycle
(D) diplontic-haplontic life cycle

149. Select the wrong statement
(A) Isogametes are similar in structure, function and behaviour
(B) Anisogametes differ either in structure, function and behaviour
(C) In oogamous, female gamete is smaller and motile, while make gamete is larger and non-motile
(D) *Chlamydomonas* exhibits both isogamy and anisogamy and *Fucus* shows oogamy

150. Isogamous condition with non-flagellated gametes is found in
(A) *Chlamydomonas* (B) *Spirogyra*
(C) *Volvox* (D) *Fucus*

151. Monoecious plant of *chara* shows occurence of
(A) antheridiophore and archegoniphore on the same plant
(B) stamen and carpel on the same plant
(C) upper antheridium and lower oogonium on the same plant
(D) upper oogonium and lower antheridium on the same plant

152. Diatoms do not decay easily because they
(A) have siliceous walls
(B) body is impervious to water
(C) are chitinous
(D) are abundant in saline soil

153. The function of nitrogen fixation in *Anabaena* (cyanobacterium) is performed by
(A) thylakoid (B) heterocyst
(C) phycocyanin (D) phycoerythrin

154. Alginic acid is found in the cell wall of
(A) *Gigartina* (B) *Laminaria*
(C) *Gelidium* (D) *Scytonema*

155. Algae, which form motile colony, is
(A) *Volvox* (B) *Nostoc*
(C) *Spirogyra* (D) *Chlamydomonas*

156. Non-motile, greatly thickened, asexual spore in *chlamydomonas* is
(A) carpospores (B) aplanospores
(C) akinetes (D) hypnospores

157. Which one of the following is an example of chlorophyllous thallophyte?
(A) *Volvariella* (B) *Spirogyra*
(C) *Nephrolepis* (D) *Gnetum*

158. Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses?
(A) Diplontic life cycle
(B) Members of kingdom-Plantae
(C) Mode of nutrition
(D) Multiplication by fragmentation

159. Which one of the following is a characteristic feature of chrysophytes?
(A) They are parasitic forms which causes disease in animals
(B) They have a protein rich layer called pellicle
(C) They have indestructible wall layer deposited silica
(D) They are commonly called dinoflagellates

160. Which one of the following is algal parasite?
(A) *Volvox* (B) *Ulothrix*
(C) *Prophyra* (D) *Cephaleuros*

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161. Pyrenoids are made up of
(A) core of starch surrounded by sheath of protein
(B) core of protein surrounded by fatty sheath
(C) proteinaceous centre and starchy sheath
(D) core of nucleic acid sorrounded by protein sheath

162. Iodine is found in algae
(A) *Ulva* (B) *Ulothrix*
(C) *Chlorella* (D) *Laminaria*

163. Floridean starch is reserve food in
(A) Rhodophyceae (B) Phaeophyceae
(C) Chlorophyceae (D) Xanthophyceae

164. Select the correctly matched ones.
I. Phaeophyceae – Mannitol
II. Rhodophyceae – Dictyota
III. Chlorophyceae – Non-motile gametes
IV. Rhodophyceae – r-phycoerythrin
(A) I, II and III (B) II, III and IV
(C) I and III (D) I and IV

165. Spirogyra lateral conjunction takes place in
(A) heterosporous species
(B) homosporous species
(C) heterothallic species
(D) homothallic species

166. Mannitol is the stored food in
(A) *Chara* (B) *Porphyra*
(C) *Fucus* (D) *Gracilaria*

167. Which of the following plant cells is not surrounded by a cell wall?
(A) Root hair cell (B) Stem hair cell
(C) Gamete cell (D) Bacterial cell

168. The site of photosynthesis in blue-green algae is
(A) Chromatophores (B) mitochondria
(C) chloroplast (D) root hair

169. Oil is reserve food in
(A) *Chlamydomonas* (B) *Oedogonium*
(C) *Vaucheria* (D) *Chara*

170. Which of the following is an important source of edible protein?
(A) *Spirogyra* (B) *Porphyra*
(C) *Spirulina* (D) *Cephaleuros*

171. In which of the following, all listed genera belong to the same class of algae?
(A) *Chara, Fucus* and *Polysiphonia*
(B) *Volvox, Spirogyra* and *Chlamydomonas*
(C) *Porphyra, Ectocarpus* and *Urothrix*
(D) *Sargassum, Laminaria* and *Gracillaria*

172. Agar-agar is obtained from
(A) *Chlorella* (B) *Spirogyra*
(C) *Ulothrix* (D) *Gelidium*

173. Which one of the following formed in *Spirogyra* in different based on its nucleus?
(A) Zygospore (B) Azygospore
(C) Aplanospore (D) Akinete

174. Which of the following plant materials is an efficient water imbibant?
(A) Lignin (B) Pectin
(C) Agar (D) Cellulose

175. *Marchantia* is considered as a heterothallic plant because it is
(A) heterogametic (B) bisexual
(C) monoecious (D) dioecious

176. Mosses and liverworts are members of
(A) gametophytes (B) chlorophytes
(C) bryophytes (D) pteridophytes

177. Vegetative reproduction in *Funaria* takes place by
(A) primary protonema
(B) gemmule
(C) secondary protonema
(D) all of the above

178. Identify the wrong combination
(A) *Dryopteris* – Rhizome
(B) *Cycas* – Coralloid roots
(C) *Volvox* – Colonial form
(D) *Marchantia* – Pseudoelaters

179. Which of the following group of plants are generally called amphibians of plant kingdom?
(A) Algae (B) Gymnosperms
(C) Bryophytes (D) Pteridophytes

180. Spore of *Funaria* on germination gives rise to
(A) protonema (B) embryo
(C) antheridia (D) archegonia

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