

1. **The person which cannot see near that 25 cm have**
 - a. Size of eye ball increase
 - b. size of eye ball decrease
 - c. Distance between eye lens and retina cannot be decreased
 - d. Focal length cannot be decreased up to certain limit.

2. **Kirchoff's law states that**
 - a. A good absorber of radiation is good reflector
 - b. A poor absorber of radiation is poor reflector
 - c. A good absorber of radiation is poor reflector
 - d. A poor absorber of radiation is good reflector

3. **In Mitosis only sister chromatids** exchange. What happens in meiosis?
 - a. Only sister chromatids exchange
 - b. Only homologous chromosome exchange
 - c. Both sister chromatids and homologous chromosome exchange
 - d. Non homologous chromosomes exchange

4. **During strenuous exercise, the glucose is converted into**
 - a. Acetic acid
 - b. Sucrose
 - c. Glycogen
 - d. Lactic acid

5. **Oxygen as a waste product occurs in which process**
 - a. anaerobic respiration
 - b. aerobic respiration
 - c. fermentation
 - d. photosynthesis

6. **The stage of plasmodium that is transmitted from gut of mosquito and infected to man**
 - a. oocyst
 - b. merozoite
 - c. sporoblast
 - d. sporozoite

7. **In human body, which cell has no nucleus**
 - a. WBC
 - b. RBC
 - c. nerve cell
 - d. plasma cell

8. **Transformers are used**
 - a. in DC circuits only
 - b. in AC circuits only
 - c. in both DC and AC circuits
 - d. neither in DC nor in AC circuits

9. **Gene mutation is due to**
 - a. Reproduction

- b. Linkage
- c. Changes in the sequence of gene in DNA
- d. Changes in the sequences of nitrogen bases

10. Which is a sudden change in a gene on chromosome?

- a. Allele
- b. Mutation
- c. Genotype
- d. Phenotype

11. Anemia may be caused by

- a. Hookworm
- b. Roundworm
- c. Earthworm
- d. Tapeworm

12. The term 'Biology' was coined by

- a. Aristotle
- b. Lamarck and Treviranus
- c. Theophrastus
- d. Hippocrates

13. Guard cells differ from epidermal cells in having:

- a. Mitochondria
- b. Vacuoles
- c. Cell wall
- d. Chloroplasts,

14. The organ of corti in mammals is found in:

- a. Vestibular canal
- b. Tympanic canal
- c. Ear drum
- d. Cochlear canal

15. Corpus luteum is formed in:

- a. Ovary
- b. Fallopian tube
- c. Uterus
- d. Urethra

16. In which of the following does oxygen have an oxidation number of -1?

- a. H₂O
- b. H₂O₂
- c. O₂
- d. H₂O

17. Cellular Unit of Nervous system is:

- a. Nephron
- b. Neuron
- c. Mycocyte

d. Red Blood Cell

18. The density of ice is

- a. more than that of water
- b. less than that of water
- c. equal to that of water
- d. 3 times that of water

19. RNA is stored in

- a. Nucleus
- b. Nucleolus
- c. Golgi bodies
- d. ER

20. Penicillin is

- a. algae
- b. Fungi
- c. bacteria
- d. BGA

21. The Study of human teeth is

- a. Osteology
- b. Odontology
- c. Carinology
- d. Conchology

22. At first, life originated on

- a. Land
- b. Water
- c. Both
- d. None

23. Synergids are

- a. Haploid
- b. Diploid
- c. Triploid
- d. Hexaploid

24. Which is basis of evolution?

- a. Cell
- b. Species
- c. Individual
- d. Population

25. Lipids are important to biological systems because they are

- a. Rich source of energy
- b. Good for repelling water on organisms surface
- c. Building block of vitamin and hormones
- d. All of the above.

26. Which vertebrae do not possess Ligament ?

- a. Sacral
- b. Cervical
- c. Thoracic
- d. Lumbar

27. Mature virus particle is

- a. Viriod
- b. Virion
- c. Capsid
- d. Peplomer

28. The gland mainly responsible for calcium homeostasis is

- a. Thymus
- b. Thyroid
- c. Parathyroid
- d. Adrenal

29. The centre of reflex action is

- a. Peripheral nerves
- b. Spinal cord
- c. Medulla oblongata
- d. Cerebellum

30. In myopia, image is formed:

- a. Beyond the retina
- b. before the retina
- c. At the retina
- d. none of the above

31. Wings of birds and insects are organ

- a. Homologous
- b. Analogous
- c. Structural
- d. identical

32. Pituitary gland is situated in the sella tursica of bone

- a. Frontal
- b. Ethmoid
- c. Sphenoid
- d. Maxillary

33. Thyroid hormone is involved in

- a. metabolism of sugar
- b. bone formation
- c. maintenance of BP
- d. growth & development

34. Mineralocorticoids (aldosterone), glucocorticoids (cortisol) and sex hormones (androgen) are produced by

- a. Adrenal cortex
- b. Adrenal medulla
- c. Testis
- d. Ovary

35. Muscle spasm may occur due to the deficiency of

- a. Thyroxine
- b. Testosterone
- c. Parathyroid hormone
- d. Vasopressin

36. A woman started developing male characteristics. It may be due to

- a. over production of adrenal androgen
- b. over production of estrogen
- c. damage of mammary glands
- d. damage of posterior pituitary

37. Complete absence of melanin in body is

- a. vitiligo
- b. leucoderma
- c. albinism
- d. galactorrhoea

38. Of the following is used by drug abuser

- a. Smack
- b. LSD
- c. Heroine
- d. all of these

39. The commonest hazard of alcohol is

- a. Infection
- b. Lung cancer
- c. Liver tumour
- d. Cirrhosis of liver

40. Which of the following has a high risk of getting AIDS?

- a. Colorblind
- b. Night-blind
- c. Hemophiliac
- d. All of the above

41. Explosive loose watery stool with foul smell is the characteristic of

- a. Cholera
- b. Giardiasis
- c. Amoebiasis
- d. Typhoid fever

42. The bacterium that causes typhoid resides in chronic carriers in

- a. duodenum
- b. ileum
- c. gall bladder

- d. urinary bladder
43. **Most common cancer among females worldwide is and among Nepalese female is**
- a. breast, cervix
 - b. cervix, breast
 - c. lung, breast
 - d. cervix, colon
44. **There is highest risk of AIDS transmission during blood transfusion but major route of AIDS transmission worldwide is**
- a. Sexual route
 - b. Saliva
 - c. I.V. drug users
 - d. Unsterilized syringes
45. **Collagenous bundle of connective tissue which connects bone to bone is called**
- a. Ligament
 - b. Aponeurosis
 - c. Tendon
 - d. Fascia
46. **Cardiac Muscles are different from skeletal muscles as**
- a. They are involuntary
 - b. They are non-striated
 - c. They are smooth
 - d. They are striated and voluntary
47. **Paralysis means**
- a. Inability to move
 - b. Loss of sensation
 - c. Loss of blood supply
 - d. Loss of lymphatic drainage
48. **You remove your hand involuntarily when it is contact with fire. This an example of**
- a. Hypersensitivity
 - b.
 - c. Reflex action
 - d. Hyperconsciousness
 - e. Unconsciousness
49. **Purely motor cranial nerves are:**
- a. I, II, VIII
 - b. III, IV, XI, XII
 - c. V, VII, IX, X
 - d. III, VI, XI, X
50. **Utriculus and semicircular canals help in**
- a. hearing
 - b. equilibrium

- c. both a and b
- d. amplification of sound

51. Optical fiber is based on phenomenon

- a. Total internal reflection
- b. Interference
- c. Diffraction.
- d. Polarization

52. In periodic table on moving left to right what happens

- a. Ionization energy decreases
- b. Electronegativity decreases
- c. Metallic character decreases
- d. Non Metallic Character decreases

53. What is the method of variation in asexually reproducing organisms

- a. Mutation
- b. Crossing over
- c. Fertilization
- d. Replication

54. Lichen is ecologically important because

- a. It is the association of algae and fungi
- b. It has mycorrhizal roots
- c. are earliest settlers of barren rocks
- d. can grow in polluted area

55. Sudden change in the gene is due to

- a. mutation
- b. crossing over
- c. translocation
- d. translation

56. Inheritance of ABC blood group shows

- a. polygeny
- b. incomplete dominance
- c. multiple alleles
- d. polyploidy

57. Centre of balance in brain is

- a. cerebrum
- b. medulla oblongata
- c. cerebellum
- d. pons varolli

58. Which of the following is not a disaccharide?

- a. Lactose
- b. Maltose
- c. Mannose
- d. Sucrose

59. Which one of the following is mainly responsible for Green House Effect?

- a. SO₂
- b. CO
- c. CO₂
- d. O₂

60. Both eukaryotes and prokaryotes cells have these organelles

- a. Ribosomes
- b. Golgi apparatus
- c. Mitochondria
- d. Chloroplasts

61. Which one of the human cell do not contain mitochondria

- a. Nerve cells
- b. Red blood cells
- c. Liver cells
- d. White blood cells

62. By the statement 'survival of the fittest', Darwin meant that

- a. The strongest of all species survives
- b. The most intelligent of the species survives
- c. The cleverest of the species survives
- d. The most adaptable of the species to change survives

63. Which of the following is not a form of asexual reproduction in plants?

- a. Grafting
- b. Pollination
- c. Layering
- d. Runners

64. The process of inheritance of character in living beings is called:

- a. Heredity
- b. Evolution
- c. Variation
- d. Migration

65. Most common nitrogenous waste in blood is:

- a. Urea
- b. Ammonia
- c. Nitric acid
- d. Uric acid

66. Cleavage is:

- a. Reorganization of cells
- b. Division of cells
- c. Reorientation of cells
- d. Differentiation of cells

67. In which of the following does oxygen have an oxidation number of -1?

- e. H₂O
- f. H₂O₂
- g. O₂
- h. H₂O

68. An ester used as medicine is:

- a. Ethyl aceate
- b. Methyl acetate
- c. Methyl salicylate
- d. Ethyl benzoate

69. The melting point of pure ice at standard atmospheric pressure is:

- a. 100°C
- b. 0°C
- c. 32°C
- d. 212°C

70. The surface tension of liquid ----- on increasing temperature

- a. increases
- b. decreases
- c. may increase or decreases
- d. remains same

71. Ribosome synthesizes

- a. Lipid
- b. Protein
- c. Carbohydrate
- d. All

72. Which of the following is not a protein?

- a. Glycogen
- b. Glycine
- c. Alanine
- d. Tryptophan

73. Which of the following is not explained by Charles Darwin?

- a. Law of inheritance of acquired character
- b. Law of natural selection
- c. Struggle for existence
- d. Origin of new species

74. Lack of insulin leads to

- a. Hypertension
- b. Hypotension
- c. Diabetes
- d. Arthritis

- 75. In a mature fertilized ovule n , $2n$ $3n$ condition respectively are**
- Antipodals, synergids and integuments
 - Egg, nucellus and endosperm**
 - Egg, antipodals and nucellus
 - Endosperm, nucellus and egg
- 76. The response of an organism to electric current is called .**
- Rheotaxis .
 - Galvanotaxis**
 - Geotaxis
 - Thigmotaxis
- 77. Which of the following is a mixed gland ?**
- Pancreas**
 - Adrenal gland
 - Thyroid gland
 - All
- 78. Root hairs are present in**
- Hypodermis
 - Epidermis**
 - Cortex
 - Hypodermis
- 79. Bile is secreted by**
- Gall bladder
 - Intestine
 - Liver**
 - Kidneys
- 80. Hormone mainly responsible for ovulation is**
- Leutinizing hormone (L.H.)**
 - Follicle stimulating hormone (FSH)
 - Oxytocin
 - Mineralocorticoids
- 81. Alcoholism leads to:**
- Cirrhosis**
 - emphysema
 - Muscular dystrophy
 - Cancer
- 82. "Malaria is caused by plasmodium" was discovered by:**
- Ronald Ross**
 - Robert Koch
 - Pastur
 - Charak
- 83. Gland responsible for calcium metabolism is**

- a. Thymus
- b. Thyroid
- c. Parathyroid
- d. Adrenal
- e. Ovary

84. Which of the following hormone belongs to catecholamine?

- a. Aldosterone
- b. Adrenaline
- c. Oxytocin
- d. Melatonin

85. Moon face, buffalo hump, thin skin, muscle wasting & osteoporosis are the features of

- a. Cushing's syndrome
- b. Addison's disease
- c. Diabetes mellitus
- d. Dwarfism

86. Which of the following hormone requires zinc for synthesis?

- a. Aldosterone
- b. Insulin
- c. Thyroxine
- d. Oxytocin

87. Pancreatic secretion is stimulated by

- a. secretin
- b. cholecystokinin-pancreozymin
- c. enterogastrone
- d. gastrin

88. Which of the following disease is common in AIDS patient?

- a. TB
- b. Malaria
- c. Diabetes
- d. Typhoid

89. A teenage lady has wrinkled arm & thigh. There is also scar in the inner aspect of her arms. What do you suspect?

- a. Pregnancy
- b. recent delivery
- c. drug abuse
- d. excessive caloric intake

90. Which of the following is the commonest problem that result from smoking?

- a. Pneumonia
- b. Lung cancer
- c. Chronic bronchitis
- d. Asthma

91. **Food poisoning is caused by ingestion of food or drink contaminated with living bacteria or their toxins, inorganic chemical substances and poisons derived from plants & animals. The most common form of food poisoning is**
- Salmonella food poisoning
 - Staphylococcus food poisoning
 - Clostridial food poisoning
 - Botulism food poisoning
92. **The test carried out for the conformity of irregular growth of cells or malignant cancer is known as**
- Radiography
 - Autopsy
 - Biopsy
 - Chemotherapy
93. **Opportunistic infections are common in AIDS patient because of**
- Excessive intake of anti viral drugs
 - Immunodeficiency state due to CD4 T cell depletion
 - Excessive viral infection in body
 - They need regular blood transfusion
94. **Heavy collagenous bundle of connective tissue which provide intermediate connection between muscle and bone is called.**
- Ligament
 - Aponeurosis
 - Tendon
 - Fascia
95. **Phagocytic cells derived from monocytes in blood are**
- Macrophages
 - Plasma cells
 - Fibroblasts
 - Goblet cells
96. **The stiffening of muscles after death is due to permanent contraction of all skeletal muscles. This condition is known as**
- Muscle spasm
 - Tetany
 - Rigor mortis
97. **Which of the following elements help in muscle contraction.**
- Na and K
 - Na and Ca
 - Ca and Mg
 - Ca and K
98. **Muscle fatigue is due to accumulation of**
- Keton bodies
 - Pyruvic acid
 - Lactic acid

- d. Oxaloacetic acid
- 99. Final image formed by microscope is**
- Real and diminished
 - Virtual and diminished
 - Virtual and magnified
 - Real and magnified
- 100. Pelvic girdle is not formed by**
- Ilium
 - Coracoid
 - Ischium
 - Pubis
- 101. If the half life of a radioactive radium is 1600 years. Find the radium left after 4800 years.**
- $\frac{1}{8}$
 - $\frac{1}{2}$
 - $\frac{1}{16}$
 - $\frac{1}{4}$
- 102. Which of the salts below will produce an alkaline solution when dissolved in water?**
- NH_4Cl
 - Na_2CO_3
 - NaNO_3
 - NaCl
- 103. Who is regarded as the father of genetic engineering**
- Bateson
 - Paul berg
 - T.H. morgan
 - Karl Ereky
- 104. Edible fungus is**
- Mucor
 - Rhizopus
 - Puccinia
 - Agaricus
- 105. What is the contribution of Watson and Crick**
- single stranded linear structure
 - double helix structure of DNA
 - single coiled structure
 - double linear structure
- 106. Nissl's granules are found in**
- RBC
 - Nerve cell
 - Bone
 - Muscular cell

107. **When two capillary tubes of different diameters are dipped vertically in liquid, the height of the liquid is**
- More in the tube of larger diameter
 - Less in the tube of smaller diameter
 - More in the tube of smaller diameter
 - Same in the both tubes
108. **Cane sugar on hydrolysis gives**
- Glucose and Lactose
 - Glucose and Maltose
 - Glucose and Fructose
 - Only Glucose
109. **A virus must do what to reproduce**
- Form a latent virus
 - Infect a cell
 - Undergo transformation
 - Conjugate
110. **The science of the classification of animals and plants is known as**
- Geometrics
 - Biometrics
 - Systematics
 - Zoom
111. **Which of the following is the correct pathway for propagation of cardiac impulse?**
- SA node-AV node-Bundle of His-Purkinje fibers
 - AV node-Bundle of His-SA node-Purkinje fibers
 - SA node-Purkinje fibre-AV node-Bundle of His
 - Purkinje fibres-AV node-SA node-Bundle of His
112. **Causative agent of Malaria is**
- Bacteria
 - Protozoa
 - Virus
 - Helminth
113. **Virus is chemically composed of**
- Starch and Proteins
 - Fat and nuclei acid
 - DNA and lipids
 - Protein and Nuclei Acid
114. **The number of ATP produced when a molecule of glucose undergoes fermentation is:**
- 4
 - 36
 - 2
 - 38

115. **Mycobacterium causes:**
- Typhoid
 - Tuberculosis
 - Malaria
 - Meningitis
116. **In the middle of a round pool lies a beautiful water – lily. The water lily doubles in size every day. After exactly 20 days the complete pool will be covered by the lily. After how many days will half of the pool be covered by the water lily?**
- 15
 - 16
 - 17
 - 19
117. **Which one of the following gases are highest in percentage by volumes in atmosphere:**
- Argon
 - Carbon dioxide
 - Oxygen
 - Nitrogen
118. **A person cannot see more nearer than 75cm. Find the power of lens to be used to have normal vision**
- 8.67D
 - 2.6D
 - 3.67D
 - 7.67D
119. **Nucleic acid is absent in**
- Golgi bodies
 - Chloroplast
 - Nucleus
 - Mitochondria
120. **The first enzyme used in the Dark reaction**
- transketolase
 - aldolase
 - Carboxylase
 - Kinase
121. **Urinogenital ducts are lined by**
- Pseudostratified columnar epithelium
 - Glandular epithelium
 - Simple squamous epithelium
 - Stratified squamous epithelium
122. **α and β cells are found in**
- Liver
 - Pancreas
 - Thymus

d. Thyroid gland

123. Earthworm respire by

- a. Moist skin
- b. Clitellum
- c. Typhlosole
- d. Ctenidia

124. Which of the following is used in medicinal purpose?

- a. Methyl salicylate
- b. Ethyl Acetoacetate
- c. Acetic Acid
- d. Phenol

125. In the life cycle of malarial parasite, Sexual cycle do not occur in man because of

- a. low temperature
- b. rapidly changing temperature
- c. high temperature
- d. slow changing temperature

126. Coffee and tea contains little amount of

- a. Cocaine
- b. Caffeine
- c. Nicotine
- d. None

127. Molecular scissors used in genetic engineering is

- a. DNA polymerase
- b. DNA ligase
- c. Restriction endonuclease
- d. Helicase

128. Wings of bird and insect represents

- a. Analogous organ
- b. Homologous organ
- c. Atavism
- d. Vestigial organ

129. Atoms having same atomic no. but different mass number are called

- a. Isotopes
- b. Isobars
- c. Isotones
- d. Isomers

130. Hyoid bone is present at the root of

- a. Tongue
- b. jaws
- c. Teeth
- d. Eyes

131. **The number of cranial nerves in man is**
- a. 5 pairs
 - b. 6 pairs
 - c. 8 pairs
 - d. 12 pairs
132. **Gigantism is due to excess of**
- a. GH
 - b. ISH
 - c. ADH
 - d. T₃/T₄
133. **Hypothyroidism (deficiency of thyroxine) in Adults results in**
- a. Diabetes mellitus
 - b. Diabetes insipidus
 - c. Myxoedema
 - d. Exophthalmic goiter
134. **Parathormone cause**
- a. increased serum calcium level
 - b. decrease serum calcium level
 - c. increased blood sugar level
 - d. decrease blood sugar level
135. **Adrenal cortex is controlled in its activity by a hormone of pituitary known as**
- a. FSH
 - b. TSH
 - c. ACTH
 - d. ADH
136. **Which of the following glands atrophies after puberty?**
- a. ovary
 - b. Pineal gland
 - c. Parathyroid gland
 - d. Adrenal gland
137. **Which is not a catecholamine?**
- a. Adrenaline
 - b. Nor adrenaline
 - c. Dopamine
 - d. Thyroxine
138. **Functions of thyroid hormones are**
- a. Metabolic function
 - b. Growth function
 - c. CNS development
 - d. All of the above

139. **Genes involved in cancer are called**
- Cancer genes
 - Oncogenes**
 - Tumor genes
 - Regulator genes
140. **The full form of "DOTS" strategy, now used in treatment of TB is**
- Directly observed treatment short course**
 - Directly observed treatment and surveillance
 - Desirable observation of therapy situation
 - Disease obstacle total surveillance
141. **Brown sugar is**
- very sweet and expensive sugar
 - by product of sugarcane
 - addictive drug**
 - drug used in mental illness
142. **In AIDS patient which one is common?**
- Cryptococcosis
 - Histoplasmosis
 - Cytomegalo virus
 - Tuberculosis**
143. **Enteric fever (Typhoid) is caused by**
- Shigella species
 - Vibrio cholera
 - Microbacterium avium complex
 - Salmonella typhi & Paratyphi**
144. **Rose-red spots on upper abdomen & back are found in**
- cholera
 - typhoid**
 - whooping cough
 - malaria
145. **A pathologic condition in which malignant cancerous cells spread to distant organ is known as**
- Anaplasia
 - Metastasis**
 - Local invasion
 - Rapid growth rate
146. **Giardiasis is due to**
- Bacterial infection
 - Protozoal parasite**
 - Viral infection
 - Worm infestation
147. **Which is not the function of epithelial tissue**

- a. Protection
- b. Secretion
- c. Absorption
- d. Conduction

148. Fat cells are

- a. Epithelial tissue
- b. Connective tissue
- c. Muscular tissue
- d. Adipose tissue

149. Immediate source of energy for muscle contraction is

- a. Glucose
- b. ATP
- c. GTP
- d. Creatinine phosphate

150. A resting nerve cell has

- a. Low K^+ inside and high Na^+ inside
- b. High K^+ inside and high Na^+ inside
- c. High K^+ outside and high Na^+ inside
- d. Low K^+ outside and high Na^+ inside

151. Quantum theory gives the theory of

- a. Electron
- b. Photon
- c. Paroton
- d. Neutron

152. What pressure would be required to compress 1.00 mol of oxygen into a 5.00 l container held at 100°C?

- a. 12.24 atm
- b. 1.64 atm
- c. 6.12 atm
- d. 3.76 atm

153. Chondrocyte cell is found in

- a. Bone
- b. Blood
- c. Cartilage
- d. Nerve

154. Annual ring in tree helps in

- a. apical growth
- b. secondary growth
- c. healing of wound
- d. ageing of tree

155. **The term cell was first used by**
- Schleiden
 - Robert Hooke
 - Schwann
 - Annelida
156. **DOTS stands for**
- Directly observed treatment system
 - Directly observed treatment short course
 - Daily observed treatment system
 - Daily observed treatment short course
157. **Which one of the following statements is true for cathode rays?**
- It is stream of positively charged particles
 - It emits x-rays on striking a metal
 - It is an electromagnetic wave
 - It is not deflected by magnetic field
158. **Acetic acid and methanol are obtained on a large scale by destructive distillation of**
- Wood
 - Turpentine
 - Coal
 - Crude oil
159. **The number of ATP produced when a molecule of glucose undergoes fermentation is**
- 4
 - 2
 - 36
 - 38
160. **A condition when the blood glucose level exceeds its normal value is called**
- Hypertension
 - Hyperglycine
 - Hyperglycemia
 - Hyperglycosuria
161. **Which centre is stimulated during increase in body temperature?**
- Anterior hypothalamus
 - Limbic system
 - Posterior hypothalamus
 - Red nucleus
162. **Total number of oxygen molecules that can bind to a single haemoglobin molecule under normal partial pressure**
- 8
 - 2
 - 6
 - 4

- 163. In which process is oxygen a waste product?**
- a. Active transport
 - b. Aerobic respiration
 - c. Anaerobic respiration
 - d. Photosynthesis
- 164. Scientific forms for upper jaw bones is:**
- a. Maxilla
 - b. Mandible
 - c. Molar
 - d. Incisor
- 165. Lumbar vertebrae are located in:**
- a. Neck region
 - b. Thoracic region
 - c. Abdominal region
 - d. Tail region
- 166. Collagen fibres are the components of:**
- a. Epithelial tissue
 - b. Muscular tissue
 - c. Connective tissue
 - d. Nervous tissue
- 167. If it takes five minutes to boil one egg. How long will it take to boil four eggs?**
- a. 5
 - b. 10
 - c. 15
 - d. 20
- 168. Medicine is:**
- a. Science and technology
 - b. Science and art
 - c. Art
 - d. Science
- 169. Transformer is used to**
- a. Convert a.c. into d.c
 - b. Convert d.c into a.c
 - c. increase or decrease voltage of a.c. circuit
 - d. increase or decrease voltage of d.c. circuit
- 170. Which is called as powerhouse of cell?**
- a. Mitochondria
 - b. Nucleus
 - c. Golgi body
 - d. ER
- 171. True fish is**
- a. Star fish

- b. Cuttle fish
 - c. Dog fish
 - d. Cray fish
172. **Spores in fern are found in**
- a. leaves
 - b. stem
 - c. root
 - d. branches
173. **HCl is secreted by**
- a. Goblet cells
 - b. Peptic cell
 - c. Oxyntic cell
 - d. Zymogen cell
174. **Emulsification is seen in**
- a. Fats
 - b. Carbohydrates
 - c. Proteins
 - d. All
175. **Calcium carbide on treating with Nitrogen forms**
- a. Calcium oxalate
 - b. Calcium cyanamide
 - c. calcium silicate
 - d. Urea
176. **Migration in bird is initiated by**
- a. Gonadotropic hormone
 - b. Thyroid hormone
 - c. parathyroid hormone
 - d. Insuline hormone
177. **BCG Vaccination is done against**
- a. Tuberculosis
 - b. Typhoid
 - c. AIDS
 - d. Measles
178. **The vaccines produces by DNA recombinant technology falls under**
- a. 1st generation vaccines
 - b. 3rd generation vaccines
 - c. 2nd generation vaccines
 - d. None
179. **Socket in pelvic girdle in which head of femur articulates is formed by the fusion of**
- a. Ischium and pubis
 - b. Ilium and pubis
 - c. Ilium and ischium

d. Ilium, ischium and pubis

180. Which of the following is a biofertilizer?

- a. Anabaena
- b. Azolla
- c. Mucoar
- d. Moss

181. The number of chambers of heart is Rana tigrina is:

- a. 1
- b. 2
- c. 3
- d. 4

182. Many people around hilly region are seen with swollen neck due to "goiter". This is the benign enlargement of

- a. Larynx
- b. Thyroid gland
- c. Thymus
- d. Oesophogus

183. Diabetes insipidus is caused by imbalance of

- a. glucose level
- b. insulin
- c. ADH
- d. Glycogenolysis

184. Cushing's disease is caused by hyperactivity of

- a. GH
- b. TSH
- c. Glucocorticoids
- d. Insulin

185. Endocrine pancreas (Islets of Langerhans) consist of α , β ad δ cells. These cells produces hormones respectively.

- a. insulin, glucagon & somatostatin
- b. glucagon, insulin & Somatostatin
- c. Somatostatin, glucagon & insulin
- d. glucagon, somatostatin & insulin

186. Which of the following is an endocrine structure

- a. liver
- b. placenta
- c. prostate
- d. lymph node

187. Cancerous state of blood is called

- a. Proteinemia
- b. Uraemia
- c. Azotemia
- d. Leukemia

188. Which of the following is the most commonly abused substance in the world.

- a. Heroin
- b. alcohol
- c. Cocaine
- d. Codeine

189. The causative agent of AIDS is

- a. Retrovirus
- b. Rotavirus
- c. Rhabdovirus
- d. Poxvirus

190. HIV virus can be transmitted by all except:

- a. amniotic fluid
- b. saliva
- c. blood
- d. semen

191. Typhoid is mainly transmitted through

- a. droplets
- b. faeco-oral route
- c. Sexual contact
- d. Direct contact

192. Giardiasis is caused by Giardia lamblia and transmitted by

- a. Faeco-oral route
- b. Blood transfusion
- c. Droplet infection
- d. Direct contact

193. Sarcoma is the cancer of

- a. bone
- b. adipose tissue
- c. connective & muscular tissue
- d. all of the above

194. Branch of science that deals with study of tissues is called

- a. Cytology
- b. Cell biology
- c. Histology
- d. Anatomy

195. Which of the following is keratinized?

- a. conjunctivae
- b. Mucous membrane of oral cavity
- c. Lining of vagina
- d. Skin

196. Synovial membrane is found in

- a. Joints
- b. Heart
- c. Lungs
- d. Glands

197. The basic anatomical unit of nervous system is

- a. Neuron
- b. Oligodendrocytes
- c. Astrocytes
- d. Ependymal cell

198. Common neurotransmitter of peripheral nervous system is

- a. Colchine
- b. Epinephrine
- c. Dopamine
- d. Acetylcholine

199. Adam's apple is the prominence of

- a. Thyroid cartilage
- b. Cricoid cartilage
- c. Epiglottic cartilage
- d. Areytenoid cartilage

200. Alcohol poisoning occurs due to the presence of the following compound

- a. Formic acid
- b. Ethanol
- c. Methyl alcohol
- d. Carbonic acid

201. Greenhouse effect is caused by

- a. Infrared rays
- b. UV rays
- c. X-rays
- d. Visible rays

202. The process in which pyruvic acid is converted into acetyl CoA

- a. Glycolysis
- b. Photophosphorylation
- c. Dephosphorylation
- d. Oxidative decarboxylation

203. Intercalated disc is found in

- a. Muscle of heart
- b. Muscle of arm
- c. Muscle of leg
- d. Muscle of thorax

204. Osmosis is flow of

- a. solutes from dilute to concentrated solution
- b. solvent from dilute to concentrated solution
- c. solute from concentrated to dilute solution
- d. solvent from concentrated to dilute solution

205. The term biology was coined by

- a. Aristotle
- b. Theophrastus
- c. Lamarck and Trevenius
- d. Linnaeus

206. Which of the following is not secreted by the anterior lobe of pituitary gland?

- a. TSH
- b. Prolactin
- c. GH
- d. Oxytocin

207. Inheritance of ABO group shows

- a. Polygeny
- b. Incomplete dominance
- c. Polyloidy
- d. Multiple allelism

208. The two strands of DNA are

- a. Similar in structure and complementary
- b. Ant parallel and complementary*
- c. Basically different in nature
- d. Parallel and complementary

209. Which of the following enzymes is not proteinacious in nature?

- a. Trypsin
- b. Pepsin
- c. Renin
- d. Riboyme

210. The conversion of protein waste, the ammonia into urea occurs mainly in

- a. Kidney
- b. Liver
- c. Lungs
- d. Intestine

211. All cells have:

- a. a cell wall and cytoplasm
- b. a nucleus and a cell wall
- c. cell membrane and cytoplasm
- d. vacuoles and centrioles

212. Heart beat is controlled by which cranial nerve:

- a. Xth
- b. IXth
- c. IIIrd
- d. Vth

213. Non nucleated RBC is found in the class:

- a. Amphibia
- b. Reptilian
- c. Aves
- d. Mammalia

214. Centre of Balance in the brain is:

- a. Cerebral hemisphere
- b. Diencephalon
- c. Cerebellum
- d. Medulla Oblongata

215. Kinetic energy is measured in:

- a. Meter/ second
- b. mgh
- c. $1/2 mv^2$
- d. Joules

216. Which is the odd one out:

- a. Muscle
- b. Blood
- c. Bone
- d. Pancreas

217. United Nation summit on 19-20 September 2011 in New York is going to address on:

- a. Polio
- b. HIV
- c. Non-Communicable Disease
- d. Road Traffic Accidents

218. Positron has

- a. no change on spin
- b. has some mass and some charge
- c. no mass, on spin
- d. has some mass but no charge

219. Bacteriophage is

- a. Fungus
- b. Virus**
- c. Bacteria
- d. Mycoplasma

220. Head of tapeworm is know as

- a. Capitulum
- b. Proglotid
- c. Scolex**
- d. Pygidium

221. Ascariasis is cause by

- a. Round worm**
- b. Tapeworm
- c. Whipworm
- d. Pinworm

222. Secondary xylem is modified to a hard wood in

- a. Grasses
- b. Shrubs
- c. Sal trees**
- d. Climbers

223. Antibodies are formed in

- a. Bone marrow
- b. Spleen
- c. Liver
- d. Lymphoid tissue**

224. vinegar is an example of

- a. Strong Acid
- b. Weak acid**
- c. Strong base
- d. Weak base

225. Ischium and pubis are separated by

- a. Acetabulum**
- b. Acromian process
- c. Cotyloid bone
- d. Coracoid process

226. The end product of glycolysis is

- a. Pyruvic acid**
- b. Acetyl COA
- c. Oxaloacetic acid
- d. Lactic acid

227. Salmonella Typhi mainly affects

- a. Large Intestine
- b. Liver
- c. Ileum
- d. Duodenum

228. Which of the following is a pearl secreting group.

- a. Mollusca
- b. Coelentrata
- c. Porifera
- d. Echinodermata

229. Pigmented part of eye is:

- a. Sclera
- b. Choroid
- c. Retina
- d. Lens

230. Blood is

- a. Connective tissue
- b. epithelial tissue
- c. adipose tissue
- d. nervous tissue

231. Substances formed at one place and expressing its effect at a distant place are called.

- a. Pheromones
- b. Enzymes
- c. Hormones
- d. WBCS

232. Which of the following hormone is mainly responsible for controlling of BMR (Basal Metabolic Rate) in body

- a. Thyroxine
- b. Insulin
- c. Growth hormone
- d. Adrenaline

233. Iodine is required for functioning of

- a. Thyroid gland
- b. Adrenal gland
- c. Pituitary
- d. Islets of langerhans.

234. All of the following hormones are responsible for maintenance of body calcium level except

- a. Calcitonin
- b. thyroxine
- c. Parathormone

d. vitamin D.

235. Hormone controlling Na^+ - K^+ ion concentration is

- a. Aldosterone
- b. Anti-diuretic hormone
- c. Progesterone
- d. Insulin

236. A man suffering from diabetes mellitus has

- a. high sugar level in blood
- b. high insulin level in blood
- c. low sugar level in blood
- d. no sugar in blood

237. Insulin is

- a. protein
- b. carbohydrate
- c. glycoprotein
- d. steroid

238. Most common worm infestation in Nepal is

- a. Hook worm
- b. Round worm
- c. Whipworm
- d. Tapeworm

239. Nicotine causes

- a. Chronic bronchitis
- b. Asthma
- c. Low blood pressure
- d. Addiction

240. AIDS stands for

- a. Active immune deficiency syndrome
- b. Acquired immune deficiency syndrome
- c. Acquired immune destruction syndrome
- d. Active immune destruction syndrome

241. ELISA stands for

- a. Enzyme linked immunodeficiency assay
- b. Enzyme linked immunosorbent assay
- c. Enzyme linked immune sorbent assay
- d. Enzyme limit immune sorbent assay

242. Which of the following organs are affected most in enteric fever

- a. Peritoneum
- b. Duodenum
- c. Payer's patch
- d. Large intestine & small intestine

243. Giardiasis is treated by

- a. Metronidazole and tinidazole
- b. Albendazole & mebendazole
- c. DEC (Diethyl carbamazine)
- d. sodium stibogluconate

244. Alcohol is mainly absorbed from ...

- a. Stomach
- b. Duodenum
- c. Ileum
- d. Large intestine

245. The connective tissue which is responsible for wound healing is

- a. Mast cells
- b. Plasma cells
- c. Fibroblast
- d. Fat cell

246. Which is the most abundant tissue in the body

- a. Epithelial tissue
- b. Connective tissue
- c. Nervous tissue
- d. Muscle tissue

247. Actin, myosin and tropomyosin are part of

- a. Skeletal muscle fibre
- b. Hemoglobin molecule
- c. Cartilage
- d. Neuron

248. Characteristic property of neuron is

- a. Contractility and excitability
- b. Irritability and conductivity
- c. Conductivity and contractility
- d. Rhythmicity and irritability

249. Depolarization of nerve cell involves

- a. Influx of K^+
- b. Influx of Na^+
- c. Influx of Ca^{+2} and Cl^-
- d. Efflux of Na^+

250. Fermentation of glucose by yeast (*saccharomyces cervisiae*) results in the formation of

- a. Ethanol and oxygen
- b. Ethanol and CO_2
- c. Ethanol and H_2O
- d. Ethanol only

251. When the margins of sepals and petals overlap one another without any particular direction, the condition is termed as:
- Vexillary
 - Imbricate**
 - Twisted
 - Valvate
252. Function of filiform apparatus is to:
- Recognize the suitable pollen at stigma
 - Stimulate division of generative cell
 - Produce nectar
 - Guide the entry of pollen tube**
253. Which one of the following plants are Amphibians?
- Algae
 - Bryophytes**
 - Ferns
 - Gymnosperms
254. Person with blood group AB is considered as universal recipient because he has:
- Both A and B antigens on RBC but no antibodies in the plasma**
 - Both A and B antibodies are present in the plasma
 - No antigen on the RBC's and no antibodies in the plasma
 - Both A and B antigens in the plasma but no antibodies
255. Stimulation of a muscle fiber by a motor neuron occurs at:
- The neuromuscular junction**
 - The transverse tubules
 - The myofibril
 - The sarcoplasmic reticulum
256. The shared terminal duct of the reproductive and urinary system in the human male is:
- Vas deferens
 - Urethra**
 - Vasa efferentia
 - Ureter
257. Formation of fruits without fertilization is known as:
- Polygamy
 - Polyembryony
 - Parthenocarpy**
 - Parthenogenesis

258. The most abundant intracellular cation is:

- a. Na^+
- b. Ca^{2+}
- c. H^+
- d. K^+

259. Common cold is not cured by antibiotics because it is:

- a. Caused by virus
- b. Caused by a gram positive bacteria
- c. Caused by a gram negative bacteria
- d. Not an infectious disease

260. Heart beat is controlled by which cranial nerve?

- a. Xth
- b. IXth
- c. IIIrd
- d. Vth

261. The fungus absorbs the food by:

- a. Mycelium
- b. Root
- c. Rhizome
- d. Thallus

262. Which of the following in a cell is non-living?

- a. Mitochondria
- b. Vacuole
- c. Ribosome
- d. Chloroplast

263. Sudden change in the gene is due to

- a. mutation
- b. crossing over
- c. translocation
- d. translation

264. In human body, which cell has no nucleus

- a. WBC
- b. RBC
- c. nerve cell
- d. plasma cell

265. Origin of species is postulated by

- a. Charles Darwin**
- b. Robert Wallace
- c. Lamarck
- d. Speneor

266. Who is known as the father of Biology?

- a. Theophrastus
- b. Aristotle**
- c. Santapau
- d. Carl Linnaeus

267. The study related to the structure and function of cells is known as

- a. Palynology
- b. Histology
- c. Anatomy
- d. Cytology**

268. Which of the following is called energy currency of cells?

- a. ADP
- b. GDP
- c. AMP
- d. ATP**

269. Basic unit of nucleic acid is

- a. Nucleotide**
- b. Nitrogen base
- c. Phosphoric acid
- d. Pentose sugar

270. Living cells contain 60 to 90% water. Water in human body is

- a. 60-65%
- b. 50-55%
- c. 75-80%
- d. 65-70%**

271. Digestive enzymes are

- a. Ligases
- b. Lyases
- c. Hydrolases**
- d. Isomerases

272. Plasma membrane is composed of
- Proteins
 - Proteins and Phospholipids
 - Proteins, Phospholipids and Carbohydrates**
 - Proteins and nucleotides
273. Gas produced by paddy fields and causes global warming is
- Chlorine
 - CO₂
 - Methane**
 - H₂S
274. The pigment that protects the plants from damage by UV radiation is
- Chlorophyll
 - Xanthophylls
 - Phycocyanin
 - Carotenoids**
275. Which of the following are prokaryotes?
- Viruses
 - Protozoans
 - Fungi
 - Bacteria**
276. The smallest, free living organism is
- Virus
 - Virioid
 - Mycoplasma**
 - Prions
277. Aerobic respiration is performed by
- Glyxisomes
 - Lysosomes
 - Mitochondria**
 - Chloroplast
278. Ripening fruits softens due to
- Jelly formation at acidic pH
 - Solubilisation of pectate of middle lamella**
 - Conversion of starch into sugar
 - Incorporation of pectate in the lamella
279. Krebs cycle begins with
- Pyruvic acid**
 - Glycogen

- c. Lysine
- d. Glucose

280. Cardiac muscles are

- a. Striated and voluntary
- b. Striated and Involuntary**
- c. Smooth and voluntary
- d. Smooth and Involuntary

281. Which of the following human cells do not contain mitochondria?

- a. Nerve cell
- b. Red blood cell**
- c. Liver cell
- d. White blood cell

282. Gerontology is the study of

- a. Regeneration
- b. Ageing**
- c. Death
- d. Growth

283. Male genital aperture in Earthworm is found in

- a. 14th segment
- b. 17th segment
- c. 18th segment**
- d. 19th segment

284. The number of cranial nerves in man is

- a. 5 pairs
- b. 6 pairs
- c. 8 pairs
- d. 12 pairs**

285. Study of fossils is

- a. Palentology**
- b. Gerontology
- c. Anthology
- d. Ostelogy

Chemistry

286. Which statement about an element in the periodic table is correct?

- a. Magnesium is a metalloid, has a giant structure and is a good conductor of electricity
- b. Silicon is a metalloid, has a simple molecular structure and is a semi-conductor of electricity.
- c. Sodium is a metal, has a giant structure and is a good conductor of electricity**
- d. Sulfur is a non-metal, has a giant structure and is a poor conductor of electricity

287. Which of the following molecules has the maximum dipole moment?

- a. CO_2
- b. CH_4
- c. NH_3**
- d. NF_3

288. Artificial sweetener which is stable under cold conditions only is:

- a. Saccharine
- b. Sucralose
- c. Aspartame**
- d. Alitame

289. Which is the strongest acid in the following:

- a. H_2SO_4
- b. HClO_3
- c. HClO_4**
- d. H_2SO_3

290. In the last century the Haber process was sometimes run at pressures of 1000 atm and higher. Now it is commonly run at pressures below 100 atm. What is the reason for this change?

- a. An iron catalyst is used
- b. Maintaining the higher pressures is more expensive**
- c. The equilibrium yield of ammonia is increased at lower pressures
- d. The rate of the reaction is increased at lower pressures

291. Which reagent when mixed and heated with ammonium sulfate liberates ammonia?

- a. Aqueous bromine
- b. Dilute hydrochloric acid
- c. Lime water**
- d. Potassium dichromate (VI) in acidic solution

292. Which one of the following is a mineral of iron?

- a. Malachite
- b. Cassiterite**
- c. Pyrolusite
- d. Magnetite

293. Separations of two substance by fractional crystallization depends upon:
- Crystalline shape
 - Viscosity
 - Solubility**
 - Density
294. With the rise in temperature, surface tension
- Increases
 - Decreases**
 - remains the same
 - Becomes zero
295. Aspirin is used as:
- Antiseptic property
 - Antipyretic property**
 - Antibiotic property
 - Antiacid property
296. Hydrolysis of table sugar produces
- two molecules of glucose
 - glucose and fructose**
 - glucose and galactose
 - glucose and lactose
297. The percentage of gold in 18 carat gold is
- 60%
 - 18%
 - 75%**
 - 80%
298. The percentage of oxygen by mass in magnesium oxide-
- 20%
 - 40%**
 - 50%
 - 60%
299. When 18gm of water (M.W. of water is 18gm) and 92 gm of ethyl alcohol is mixed. Find the mole fraction of water
- 0.4
 - 0.33**
 - 0.5
 - 0.67

300. The hydrogen phosphate of certain metal has a formula $MHPO_4$. The formula of metal chloride would be
- MCl
 - MCl₂**
 - M_2Cl_2
 - MCl₃
301. The relationship which describes the variation of vapour pressure with temperature is called
- Hess's law
 - Arrhenius equation
 - Kirchoff's law
 - Clausius – Clapeyron equation**
302. In long form of the periodic table, the properties of the elements are a periodic function of their
- Atomic size
 - Ionization energy
 - Atomic mass
 - Atomic number**
303. Which of the following element has the maximum electron affinity
- Cl**
 - Br
 - I
 - F
304. Which of the following is the smallest cation?
- Na⁺
 - Mg²⁺
 - Ca²⁺
 - Al³⁺**
305. Which of the following contains both covalent and ionic bonds?
- CCl₄
 - CaCl₂
 - NH₄Cl**
 - H₂O
306. With increase in temperature, ionic product of water
- Increases**
 - Decreases
 - Remains unaffected
 - May increase or decrease

307. Which anion is the weakest base?

- a. $\text{C}_2\text{H}_5\text{O}^-$
- b. NO_3^-
- c. F^-
- d. CH_3COO^-

308. The pH indicators are

- a. Salts of strong acids and strong bases
- b. Salts of weak acids and weak bases
- c. **Either weak acids or weak bases**
- d. Either strong acids or strong bases

309. During the electrolysis of fused NaCl, which of the following reactions occurs at the cathode?

- a. Na^+ ions are oxidized
- b. **Na^+ ions are reduced**
- c. Cl^- ions are reduced
- d. Cl^- ions are oxidized

310. During electrolysis of water, hydrogen and oxygen are liberated in the ratio of

- a. 1:1
- b. **2:1**
- c. 1:2
- d. 1:18

Physics

311. Optical fibers uses the phenomenon of:

- a. Refraction
- b. **Total internal reflection**
- c. Dispersion
- d. Scattering

312. Source of Sun's energy is:

- a. Burning of hydrogen
- b. **Fusion reaction involving hydrogen**
- c. Explosions
- d. Some other source

313. Light travels through a glass plate of thickness t and having a refractive index μ . If C is the velocity of light in vacuum, the time taken by light to travel this thickness of glass is:

- a. $t \mu c$
- b. $t c / \mu$
- c. $t / \mu c$
- d. **$\mu t / c$**

314. If force (F) velocity (V) and time (T) are taken as fundamental units, then the dimensions of mass are:
- $[FVT^1]$
 - FvT^2
 - $[Fv^{-1}T^{-1}]$
 - $[Fv^{-1}T]$**
315. The wettability of a surface by a liquid depends primarily on:
- Viscosity
 - Surface tension
 - Density
 - Angle of contact between the surface and liquid**
316. When a mass is rotating in a plane about a fixed point, its angular momentum is directed along:
- A line perpendicular to the plane of rotations**
 - The line making an angle of 45° to the plane of rotation
 - The radius
 - The tangent to the orbit
317. Out of the following which one is not a possible energy for a photon to be emitted by hydrogen atom according to Bohr's atomic model:
- 1.9 eV
 - 11.1 eV**
 - 13.6 eV
 - 0.65 eV
318. If the biconvex lens is silvered on one side than it will behave as:
- Concave mirror**
 - Convex mirror
 - plane mirror
 - Converging lens
319. The time period of simple pendulum is double when
- Length is increased by 2 times
 - Mass is increased by 2 times
 - Length is increased by 4 times**
 - length is reduced to half
320. When an electron moves through a uniform magnetic field, its speed
- Increases
 - Decreases
 - remains constant**
 - depends on field

321. On a day the relative humidity is 100%, the temperature of the room is equal to

- a. 4°C
- b. 0°C
- c. dew point**
- d. 20°C

322. Greenhouse effect is caused by

- a. Infrared rays
- b. UV rays**
- c. X-rays
- d. Visible rays

323. The fundamental quantity is

- a. Specific gravity
- b. Angle
- c. Temperature**
- d. Density

324. SI unit of pressure is

- a. Atmosphere
- b. Pascal**
- c. Bar
- d. mm of Hg

325. Which of the Newton's law is most general

- a. First law
- b. Second law
- c. Third law**
- d. All the three laws

326. A stone is released from a tower, its total mechanical energy during its fall

- a. Increases
- b. Decreases
- c. Remains constant**
- d. First increases then remains constant

327. If the speed of rotation of earth increases, then the weight of the body

- a. Increases
- b. Decreases**
- c. Remains unchanged
- d. May increase or decrease

328. The tidal waves in the sea are due to

- a. Sun's attraction
- b. Moon's attraction**
- c. Earth's atmosphere
- d. None of the above

329. Heater is 1000W then energy consumes in 2 Hours is

- a. 2J
- b. 20 KJ
- c. 2KWHr**
- d. 200 W

330. Bernouli's theorem is based on conservation of

- a. Mass
- b. Momentum
- c. Pressure
- d. Energy**

331. The resultant of two vectors \vec{a} and \vec{b} acting at angle ' θ ' bisects the angle between them. Then:

- a. $a = 2 b$
- b. $a = b$**
- c. $a = \sqrt{3}b$
- d. $a = \sqrt{2}b$

332. A particle is thrown vertically upward with speed 100 m/s. The time to reach the body on earth is:

- a. 10 s
- b. 20 s**
- c. 15 s
- d. 5 s

333. For hitting a target, one must aim:

- a. directly at the target
- b. higher than target**
- c. lower than target
- d. higher or lower than target depending on velocity of projection

334. A force 'F' is applied on a body and it moves with a velocity V, the power will be:

- a. Fv**
- b. F/v
- c. Fv²
- d. F/v²

335. Escape velocity of a body from earth is about 11 km/s. Assuming the mass and radius of earth to be about 81 and 4 times the mass and the radius of moon, the escape velocity in km/s from the surface of the moon will be:

- a. 0.54
- b. 2.44**
- c. 11
- d. 49.5

336. A watch based on oscillating spring gives correct time, on earth. If it is taken to moon, it
- becomes fast
 - becomes slow
 - remains unaffected**
 - stops
337. Force required to separate two glass plates each of area 200 cm^2 with a thin film of water 0.05 mm thick is (S.T. of water = 0.072 Nm^{-1})
- 28.8 N
 - 57.6 N**
 - 14.4 N
 - 7.2 N
338. A cubical wooden block is just floating in water with a 200 g body on its top. When the body is removed the block rises by 2 cm . Then each side of the block will be:
- 20 cm
 - 16 cm
 - 10 cm**
 - 8 cm
339. The temperature of a patient is 40°C . This temperature on Fahrenheit scale will be:
- 104°F**
 - 72°F
 - 96°F
 - 100°F
340. The relative humidity range between which a man feels most comfortable is:
- 30 to 40%
 - 40 to 45%
 - 60 to 65%**
 - 80 to 85%
341. When an ideal diatomic gas is heated at constant pressure, the fraction of the heat energy supplied which increases the internal energy of the gas is:
- $2/5$
 - $3/5$
 - $3/7$
 - $5/7$**
342. The two tuning forks A and B sounded together produce 4 beats/sec. Then A is slightly flat and sounded again with B, they produce 2 beats/sec. The frequency of A is 256 Hz . The frequency of B will be:
- 259 Hz
 - 252 Hz
 - 260 Hz**
 - 262 Hz
343. Doppler's effect is applicable for:
- light waves only
 - sound waves only
 - both light and sound waves**
 - neither light nor sound but cathode rays

344. If critical angle for a material to air is 30° , the refractive index of the material will be:
- 1.0
 - 1.5
 - 2.0**
 - 2.5
345. If, in a plano-convex lens, radius of curvature of convex surface is 10 cm, and the focal length of the lens is 30 cm, the refractive index of the material of the lens will be:
- $3/2$
 - $5/3$
 - $4/3$**
 - 3
346. Two light sources are said to be co-herent if they are obtained from:
- Two independent point sources emitting light of same wavelength**
 - a single point source
 - a wide source
 - two ordinary bulbs emitting light of different wavelengths
347. A beam of light strikes a piece of glass at an angle of incidence 60° . It is found that the reflected beam is completely plane polarised. Then refractive index of glass is:
- 1.5
 - $\sqrt{3}$**
 - 2
 - $3/2$
348. The unit of electric field is not equivalent to:
- N/C
 - J/C**
 - V/m
 - J/(C.m)
349. A parallel plate air capacitor is connected to a battery. If the battery remains connected and a dielectric slab is now introduced to fill the space between the plates. Then the charge stored by a capacitor:
- increases**
 - decreases
 - remain unchanged
 - first increases and then decreases to original value
350. Kirchhoff's junction law is based on the principle of conservation of:
- charge**
 - energy
 - momentum
 - mass

351. A proton of kinetic energy 2 MeV is moving perpendicular to a uniform magnetic field of 2.5 T. The force on the proton is:
- $8 \times 10^{-12} \text{ N}$
 - $2.5 \times 10^{-10} \text{ N}$
 - $2.5 \times 10^{-11} \text{ N}$
 - $8 \times 10^{-11} \text{ N}$
352. An inductor may store energy in:
- It's electric field
 - It's coils
 - It's magnetic field
 - Both in electric and magnetic field
353. A coil has a resistance of 8Ω and an inductive reactance 6Ω . The impedance of coil is:
- 8Ω
 - 6Ω
 - 10Ω
 - 14Ω
354. The conduction current arises due to:
- time varying electric field
 - flow of conduction electrons
 - flow of holes
 - flow of ions
355. In CRO the pressure of gas is:
- $10^{-2} - 10^{-3} \text{ mm of Hg}$
 - 1 atmosphere
 - 1 mm of Hg
 - 10^{-6} mm of Hg
356. The energy of photon corresponding the visible light of maximum wavelength is nearly:
- 1 eV
 - 1.6 eV
 - 3.2 eV
 - 7 eV
357. For Balmer series that lies in the visible region the shortest wavelength corresponds to quantum number:
- $n = 1$
 - $n = 3$
 - $n = 4$
 - $n = \infty$

358. In radiotherapy X-rays used to:

- a. detect bone fracture
- b. treat cancer**
- c. detect heart disease
- d. detect fault in radio receiving ckt

359. At absolute zero temperature, a crystal of pure Germanium:

- a. behaves as perfect conductor
- b. behaves as perfect insulator**
- c. contain no electron
- d. none of above

360. The half life of a radioactive substance is 20 min difference between the points of time when it is 33% disintegrated and 67% disintegrated is approximately?

- a. 10 min
- b. 30 min
- c. 20 min**
- d. 40 min

361. Air at sea level is dense. This is practical application of:

- a. Boyle's law
- b. Newtonic law
- c. Charle's law**
- d. Avogadro's law

362. In a set of degenerate orbitals, the electrons distribute themselves to have like spins as far as possible. This statement is known as:

- a. Pauli's is exclusion principle
- b. Aufbau principle
- c. Hund's rule**
- d. Slater rule

363. Which particle may be removed from a stable neutral atom with least energy change?

- a. An α -particle
- b. A neutron
- c. A proton
- d. An electron**

364. As the s-character of hybrid orbital increases, the bond angle:

- a. increases**
- b. decreases
- c. does not change
- d. becomes zero

365. Which main group elements have a different number of outermost electrons than their group number?

- a. Alkali
- b. Noble gas**
- c. Halogens
- d. Pnicogens

366. Which property is commonly exhibited by covalent compound?

- a. high solubility in water
- b. low m.p**
- c. high electrical conductivity
- d. high b.p.

367. 2.76 g of silver carbonate on being strongly heated yields a residue weighing:

- a. 2.16 g**
- b. 2.48 g
- c. 2.32 g
- d. 2.64 g

368. 3.0 molal NaOH solution has a density of 1.110 g/ml. the molarity of the solution is:

- a. 2.9732**
- b. 3.05
- c. 3.64
- d. 3.0504

369. The oxidation number of Fe in $K_4Fe(CN)_6$ is:

- a. +2 b. 3 c. +4 d. +6

370. Calculate the volume of hydrogen at NTP obtained by passing a current of 0.4 ampere through acidified water for 30 minutes:

- a. 0.0836 Liter b. 0.1672 liter c. 0.0432 Liter d. 0.836 Liter

371. The time for half-life of a first order reaction is 1 hr. What is the time taken for 87.5% completion of the reaction?

- a. 1 hour b. 2 hour c. 3 hour d. 4 hour

372. In the reaction, $C(s) + CO_2(g) \rightleftharpoons 2CO(g)$, the equilibrium pressure is 12 atm. If 50% of CO_2 reacts, K_p for the change is:

- a. 12 atm b. 16 atm c. 20 atm d. 6 atm

373. The blue litmus is turned red by an aqueous solution of:

- a. potassium nitrate b. aluminium sulphate c. sodium acetate d. barium chloride

374. 10^{-6} M HCl is diluted to 100 times, its pH is:

- a. 6.0 b. 8.0 c. 6.95 d. 9.5

375. When a liquid boils, there is an increase in:

- a. free energy b. kinetic energy c. potential energy d. heat of vapouration

376. Heating of ore in presence of air to remove impurity of sulphur is called:

- a. calcinations b. roasting c. smelting d. none of these

377. Atomic hydrogen is obtained by:

- a. electrolysis of heavy water
b. reaction of water with metals
c. thermal decomposition of water
d. passing silent electric discharge through hydrogen at low-pressure

378. Manufacture of NaOH is done by:

- a. Castner-Kellner process b. Solvay process
c. Brine process d. Mond process

379. Milk of magnesia is:

- a. $Mg(OH)_2$ b. $Ca(OH)_2$ c. $ba(OH)_2$ d. None of these

380. The gas which is absorbed by ferrous sulphate solution giving blackish brown colour is:

- a. NH_3 b. N_2 c. CO d. NO

381. The gas that can't be collected over water is:

- a. N₂ b. O₂ **c. SO₂** d. pH₃

382. The stability of 2, 2 - dimethylbut-2-ene is more than 2-butene. This can be explained in terms of:

- a. resonance **b. hyper conjugation** c. electromeric effect d. inductive effect

383. IUPAC name of urea is:

- a. diaminoketone b. 1 - amino ethanamide
c. 1 - aminomethan amide d. amino acetamide

384. The treatment of CH₃MgX with CH₃C ≡ H produces:

- a. CH₄** b. CH₂CH = CH₂ c. CH₃C ≡ CCH₃ d. CH₃CH = CHCH₃

385. Indane is:

- a. commercial propane **b. commercial butane and propane mixture**
c. methane, propane mixture d. butane, ethane mixture

386. Which of the following is least reactive in a nucleophilic substitution reaction?

- a. (CH₃)₃CCl **b. CH₂ = CHCl** c. CH₃CH₂Cl d. CH₂ = CHCH₂Cl

387. Cyclohexanol is a:

- a. Phenol b. Primary alcohol **c. Secondary alcohol** d. Tertiary alcohol

388. Amides may be converted into amines by reaction named after:

- a. Perkin b. Claisen **c. Hofmann** d. Kekule

389. When aniline is heated with benzaldehyde, the product is:

- a. Benzoin **b. Schiff's base** c. Unsaturated acid d. Azoxybenzene

390. Hydrolysis of fats and oils yield:

- a. dihydric alcohol **b. trihydric alcohol** c. esters d. unsaturated acid

391. Which of the following is lichen?

- a. Spike moss b. Club moss **c. reindeer moss** d. iris moss

392. Cryptophytic algae are found on:

- a. Cortex of barks b. Sea bottom c. Deserts **d. Snow**

393. Anulus movement occur when:

- a. water is absent** b. chemical is present c. water is present d. chemical is absent

394. Formation of sporophyte directly from prothallus is:

- a. parthenogamy b. diplospory c. apospory **d. apogamy**

395. Non-porous wood occurs in:

- a. Dalbergia b. Ficus c. Magnifera **d. Cedrus**

396. Vernation refers to arrangement of:

- a. cotyledonary leaves b. leaves on stem
c. leaf on the bud condition d. leaves on Young stem

397. In which of the following only the seed is edible?

- a. Litchi b. Grape c. Pomegranate **d. Groundnut**

398. Versatile, dithecous anthers are characteristic of:

- a. Lilliacae b. Papilionaceae c. Malvaceae **d. Graminae**

399. The water from soil is absorbed by:

- a. region of root elongation b. region of maturation
c. root hairs d. all of these

400. Every respiration produce.....ATP outside mitochondria:

- a. 4 **b. 2** c. 8 d. 6

401. Hormone differs from enzymes in that the hormones:

- a. proteinaceous in nature b. found only in animal
c. found only in plants **d. completely used up during metabolism**

402. The nuclear membrane separates:

- a. nucleoplasm and nucleus **b. nucleoplasm and cytoplasm**
c. cytoplasm and nucleus d. nucleus and nucleolus

403. Which of the following is not a Carbohydrate?

- a. Methionine** b. Chitin c. Insulin d. Dextrin

404. A female would be colourblind only if:

- a. only father is colourblind b. only mother is colourblind
c. mother is carrier and father is normal **d. mother is carrier and father is colourblind**

405. Pollen sac is:

- a. Microsporophyll b. Megasporophyll c. Megasporangium **d. Microsporangium**

406. The primary endospermic nucleus (PEN) of gymnosperm is:

- a. triploid b. diploid **c. absent** d. haploid

407. Suspensor of dicot embryo is:

- a. one celled b. one or two celled **c. many celled** d. absent

408. Minmata disease is related with:

- a. soil pollution **b. water pollution** c. thermal pollution d. air pollution

409. Erythromycin and chloramphenicol are obtained from:

- a. penicillium **b. streptomyces** c. Aspergillus d. Bacillus

410. Bacterial genome is widely used in:

- a. production of antibiotics b. production of antibodies
c. genetic engineering d. production of medicines

411. Evolutionary history of a group of organism is called:

- a. ontogeny b. taxonomy **c. phylogeny** d. systematic

412. Haversian system is found in bones of:

- a. frogs b. birds **c. Mammals** d. Lizards

413. Massive amount of yolk present in the vegetal region of the egg makes an egg:

- a. Telolecithal** b. Mesolecithal c. Oligolecithal d. Centrolecithal

414. In mammals failure of testes to descend into the scrotum is known as:

- a. castration **b. cryptorchidism** c. Oxytocin d. Progesterone

415. Hormone related with birth and helps in the contraction of Uterus is:

- a. Relaxin b. Estrogen **c. Oxytocin** d. Progesterone

416. Distal end of humerus articulates with:

- a. Foramen magnum b. Glenoid cavity **c. Sigmoid notch** d. Acetabulum

417. In rabbit, axis vertebra is identified by:

- a. Sigmoid notch b. Odontoblast **c. odontoid process** d. olecranon process

418. Which of the following are analogous organs?

- a. Wings of bird and Bat **b. Wings of insects and bird**
c. Forelegs of horse and Arms of man d. Flipper of Whales and Forelimbs of man

419. Which of the following had the feeling of worship and used to bury clothes with dead bodies?

- a. Java ape man b. African man c. Peking man **d. Neanderthal man**

420. The colour of skin in amphibian is due to:

- a. Chromatophores** b. Myosin c. Keratin d. Melanophores

421. The anterior abdominal vein in frog is formed by the union of:

- a. Femoral b. Sciatic vein **c. Pelvic vein** d. Renal Vein

422. Which of the following helps in anchorage and defense in paramecium?

- a. Nematocyst b. Oocyst **c. Trichocyst** d. Statocyst

423. Fertilization of male gamete and female gamete of plasmodium takes place in:

- a. Stomach of mosquito** b. Blood of Anopheles
c. Salivary glands of Anopheles d. Blood stream of man

424. Which of the following drug induces sleep like that of normal sleep?

- a. Hypnotic** b. Sedative c. Tranquilizer d. Opiate

425. Circulatory system of earthworm is:

- a. open type with haemoglobin in RBCs plasma **b. closed type with haemoglobin in plasma**
c. open type with haemoglobin in plasma d. closed type with haemoglobin in RBCs

426. Which type of the respiratory organs are present in spider and scorpions?

- a. Gills b. Lungs c. Book gills **d. Book lungs**

427. Zymogen cells of gastric glands secrete:

- a. Pepsinogen** b. Chymotrypsin c. pepsin d. Trypsin

428. Orientation of some animals depends upon some complex stimuli is:

- a. Menotaxis **b. Mnemotaxis** c. Telotaxis d. Tropotaxis

429. Presence of single functional ovary and much developed cerebellum is for adaptation:

- a. Arboreal **b. Volant** c. Saltatorial d. Fossorial

430. In snake, the poison glands are modifications of:

- a. Lingual gland **b. Parotid glands** c. Sublingual glands d. Molar glands

431. When the margins of sepals and petals overlap one another without any particular direction, the condition is termed as:

- a. Vexillary **b.Imbricate** c.Twisted d.Valvate

432. Function of filiform apparatus is to:

- a.Recognize the suitable pollen at stigma b.Stimulate division of generative cell
c.Produce nectar **d.Guide the entry of pollen tube**

433. Which one of the following plants are Amphibians?

- a. Algae **b. Bryophytes**
c. Ferns d. Gymnosperms

434. Person with blood group AB is considered as universal recipient because he has:

- a. Both A and B antigens on RBC but no antibodies in the plasma**
b. Both A and B antibodies are present in the plasma
c. No antigen on the RBC's and no antibodies in the plasma
d. Both A and B antigens in the plasma but no antibodies

435. Stimulation of a muscle fiber by a motor neuron occurs at:

- a. The neuromuscular junction** b. The transverse tubules
c. The myofibril d. The sarcoplasmic reticulum

436. The shared terminal duct of the reproductive and urinary system in the human male is:

- a. Vas deferens **b. Urethra**
c. Vasa efferentia d. Ureter

437. Formation of fruits without fertilization is known as:

- a. Polygamy b. Polyembryony
c. Parthenocarpy d. Parthenogenesis

438. The most abundant intracellular cat ion is:

- a. Na+ b. Ca²⁺
c. H+ **d. K+**

439. Common cold is not cured by antibiotics because it is:

- a. Caused by virus** b. Caused by a gram positive bacteria
c. Caused by a gram negative bacteria d. Not an infectious disease

440. Heart beat is controlled by which cranial nerve?

- a. **Xth**
- b. IXth
- c. IIIrd
- d. Vth

441. The fungus absorbs the food by:

- a. **Mycelium**
- b. Root
- c. Rhizome
- d. Thallus

442. Which of the following in a cell is non-living?

- a. Mitochondria
- b. **Vacuole**
- c. Ribosome
- d. Chloroplast

443. Sudden change in the gene is due to

- a. **mutation**
- b. crossing over
- c. translocation
- d. translation

444. In human body, which cell has no nucleus

- a. WBC
- b. **RBC**
- c. nerve cell
- d. plasma cell

445. Origin of species is postulated by

- a. **Charles Darwin**
- b. Robert Wallace
- c. Lamarck
- d. Speneor

446. Who is known as the father of Biology?

- a. Theophrastus
- b. **Aristotle**
- c. Santapau
- d. Carl Linnaeus

447. The study related to the structure and function of cells is known as

- a. Palynology
- b. Histology
- c. Anatomy
- d. **Cytology**

448. Which of the following is called energy currency of cells?

- a. ADP
- b. GDP
- c. AMP
- d. **ATP**

449. Basic unit of nucleic acid is

- a. **Nucleotide**
- b. Nitrogen base
- c. Phosphoric acid
- d. Pentose sugar

450. Living cells contain 60 to 90% water. Water in human body is

- a. 60-65%
- b. 50-55%
- c. 75-80%
- d. 65-70%**

451. Digestive enzymes are

- a. Ligases
- b. Lyases
- c. Hydrolases**
- d. Isomerases

452. Plasma membrane is composed of

- a. Proteins
- b. Proteins and Phospholipids
- c. Proteins, Phospholipids and Carbohydrates**
- d. Proteins and nucleotides

453. Gas produced by paddy fields and causes global warming is

- a. Chlorine
- b. CO₂
- c. Methane**
- d. H₂S

454. The pigment that protects the plants from damage by UV radiation is

- a. Chlorophyll
- b. Xanthophylls
- c. Phycocyanin
- d. Carotenoids**

455. Which of the following are prokaryotes?

- a. Viruses
- b. Protozoans
- c. Fungi
- d. Bacteria**

456. The smallest, free living organism is

- a. Virus
- b. Virioid
- c. Mycoplasma**
- d. Prions

457. Aerobic respiration is performed by

- a. Glyxisomes
- b. Lysosomes
- c. Mitochondria**
- d. Chloroplast

458. Ripening fruits softens due to

- a. Jelly formation at acidic pH
- b. Solubilisation of pectate of middle lamella**
- c. Conversion of starch into sugar
- d. Incorporation of pectate in the lamella

459. Krebs cycle begins with

- a. **Pyruvic acid** b. Glycogen
c. Lysine d. Glucose

460. Cardiac muscles are

- a. Striated and voluntary b. **Striated and Involuntary**
c. Smooth and voluntary d. Smooth and Involuntary

461. Which of the following human cells do not contain mitochondria?

- a. Nerve cell b. **Red blood cell**
c. Liver cell d. White blood cell

462. Gerontology is the study of

- a. Regeneration b. **Ageing**
c. Death d. Growth

463. Male genital aperture in Earthworm is found in

- a. 14th segment b. 17th segment
c. **18th segment** d. 19th segment

464. The number of cranial nerves in man is

- a. 5 pairs b. 6 pairs
c. 8 pairs d. **12 pairs**

465. Study of fossils is

- a. **Palentology** b. Gerontology
c. Anthology d. Ostelogy

466. Which statement about an element in the periodic table is correct?

- a. Magnesium is a metalloid, has a giant structure and is a good conductor of electricity
b. Silicon is a metalloid, has a simple molecular structure and is a semi-conductor of electricity.
c. **Sodium is a metal, has a giant structure and is a good conductor of electricity**
d. Sulfur is a non-metal, has a giant structure and is a poor conductor of electricity

467. Which of the following molecules has the maximum dipole moment?

- a. CO₂ b. CH₄ c. **NH₃** d. NF₃

468. Artificial sweetener which is stable under cold conditions only is:

- a. Saccharine b. Sucralose **c. Aspartame** d. Alitame

469. Which is the strongest acid in the following:

- a. H_2SO_4 b. HClO_3 **c. HClO_4** d. H_2SO_3

470. In the last century the Haber process was sometimes run at pressures of 1000 atm and higher. Now it is commonly run at pressures below 100 atm. What is the reason for this change?

- a. An iron catalyst is used
b. Maintaining the higher pressures is more expensive
c. The equilibrium yield of ammonia is increased at lower pressures
d. The rate of the reaction is increased at lower pressures

471. Which reagent when mixed and heated with ammonium sulfate liberates ammonia?

- a. Aqueous bromine b. Dilute hydrochloric acid
c. Lime water d. Potassium dichromate (VI) in acidic solution

472. Which one of the following is a mineral of iron?

- a. Malachite **b. Cassiterite**
c. Pyrolusite d. Magnetite

473. Separations of two substance by fractional crystallization depends upon:

- a. Crystalline shape b. Viscosity
c. Solubility d. Density

474. With the rise in temperature, surface tension

- a. Increases **b. Decreases**
c. remains the same d. Becomes zero

475. Aspirin is used as:

- a. Antiseptic property **b. Antipyretic property**
c. Antibiotic property d. Antacid property

476. Hydrolysis of table sugar produces

- a. two molecules of glucose **b. glucose and fructose**
c. glucose and galactose d. glucose and lactose

477. The percentage of gold in 18 carat gold is
a. 60% b. 18% **c. 75%** d. 80%
478. The percentage of oxygen by mass in magnesium oxide-
a. 20% **b. 40%** c. 50% d. 60%
479. When 18gm of water (M.W. of water is 18gm) and 92 gm of ethyl alcohol is mixed. Find the mole fraction of water
a. 0.4 **b. 0.33** c. 0.5 d. 0.67
480. The hydrogen phosphate of certain metal has a formula $MHPO_4$. The formula of metal chloride would be
a. MCl **b. MCl_2** c. M_2Cl_2 d. MCl_3
481. The relationship which describes the variation of vapour pressure with temperature is called
a. Hess's law b. Arrhenius equation
c. Kirchoff's law **d. Clausius – Clapeyron equation**
482. In long form of the periodic table, the properties of the elements are a periodic function of their
a. Atomic size b. Ionization energy
c. Atomic mass **d. Atomic number**
483. Which of the following element has the maximum electron affinity
a. Cl b. Br c. I d. F
484. Which of the following is the smallest cation?
a. Na^+ b. Mg^{2+} c. Ca^{2+} **d. Al^{3+}**
485. Which of the following contains both covalent and ionic bonds?
a. CCl_4 b. $CaCl_2$ **c. NH_4Cl** d. H_2O
486. With increase in temperature, ionic product of water
a. Increases b. Decreases
c. Remains unaffected d. May increase or decrease
487. Which anion is the weakest base?
a. $C_2H_5O^-$ b. NO_3^- c. F^- d. CH_3COO^-

488. The pH indicators are

- a. Salts of strong acids and strong bases b. Salts of weak acids and weak bases
c. **Either weak acids or weak bases** d. Either strong acids or strong bases

489. During the electrolysis of fused NaCl, which of the following reactions occurs at the cathode?

- a. Na^+ ions are oxidized **b. Na^+ ions are reduced**
c. Cl^- ions are reduced d. Cl^- ions are oxidized

490. During electrolysis of water, hydrogen and oxygen are liberated in the ratio of

- a. 1:1 **b. 2:1** c. 1:2 d. 1:18

491. Optical fibers uses the phenomenon of:

- a. Refraction **b. Total internal reflection**
c. Dispersion d. Scattering

492. Source of Sun's energy is:

- a. Burning of hydrogen **b. Fusion reaction involving hydrogen**
c. Explosions d. Some other source

493. Light travels through a glass plate of thickness t and having a refractive index μ . If C is the velocity of light in vacuum, the time taken by light to travel this thickness of glass is:

- a. $t \mu c$ b. $t c / \mu$
c. $t / \mu c$ **d. $\mu t / c$**

494. f force (F) velocity (V) and time (T) are taken as fundamental units, then the dimensions of mass are:

- a. $[FVt^1]$ b. $FvT^2]$
c. $[Fv^{-1}T^{-1}]$ **d. $[Fv^{-1}T]$**

495. The wettability of a surface by a liquid depends primarily on:

- a. Viscosity b. Surface tension
c. Density **d. Angle of contact between the surface and liquid**

496. When a mass is rotating in a plane about a fixed point, its angular momentum is directed along:

- a. A line perpendicular to the plane of rotations** b. The line making an angle of 45° to the plane of rotation
c. The radius d. The tangent to the orbit

497. Out of the following which one is not a possible energy for a photon to be emitted by hydrogen atom according to Bohr's atomic model:
- a. 1.9 e V **b. 11.1 e V** c. 13.6 e V d. 0.65 e V
498. If the biconvex lens is silvered on one side than it will behave as:
- a. Concave mirror** b. Convex mirror
c. plane mirror d. Converging lens
499. The time period of simple pendulum is double when
- a. Length is increases by 2 times b. Mass is increases by 2 times
c. Length is increases by 4 times d. length is reduced to half
500. When an electron moves through a uniform magnetic field, its speed
- a. Increases b. Decreases
c. remains constant d. depends on field
501. On a day the relative humidity is 100%, the temperature of the room is equal to
- a. 40C b. 0 oC
c. dew point d. 20 oC
502. Greenhouse effect is caused by
- a. Infrared rays **b. UV rays**
c. X-rays d. Visible rays
503. The fundamental quantity is
- a. Specific gravity b. Angle
c. Temperature d. Density
504. SI unit of pressure is
- a. Atmosphere **b. Pascal**
c. Bar d. mm of Hg
505. Which of the Newton's law is most general
- a. First law b. Second law
c. Third law d. All the three laws
506. A stone is released from a tower, its total mechanical energy during its fall
- a. Increases b. Decreases
c. Remains constant d. First increases the remains constant

507. If the speed of rotation of earth increases, then the weight of the body

- a. Increases
- b. Decreases**
- c. Remains unchanged
- d. May increase or decrease

508. The tidal waves in the sea are due to

- a. Sun's attraction
- b. Moon's attraction**
- c. Earth's atmosphere
- d. None of the above

509. Heater is 1000W then energy consumes in 2 Hours is

- a. 2J
- b. 20 KJ
- c. 2KWHr**
- d. 200 W

510. Greenhouse effect is caused by

- a. Infrared rays
- b. UV rays
- c. X-rays
- d. Visible rays**

511. Five kingdom system of classification suggested by RH Whittaker is not based on:

- a. Presence or absence of a well-defined nucleus**
- b. mode of reproduction
- c. mode of nutrition
- d. complexity of body organization

512. When the margins of sepals and petals overlap one another without any particular direction, the condition is termed as:

- a. Vexillary
- b. Imbricate**
- c. Twisted
- d. Valvate

513. The solid linear cytoskeletal elements having a diameter of 6 nm and made up of a single type of monomer are known as:

- a. Microtubules
- b. Microfilaments**
- c. Intermediate filaments
- d. Lamins

514. The osmotic expansion of a cell kept in water is chiefly regulated by:

- a. mitochondria
- b. Vacuoles**
- c. Plastids
- d. Ribosomes

515. During which phase (S) of cell cycle, amount of DNA in a cell remains at 4C level if the initial amount is denoted as 2C?

- a. G0 and G1
- b. G1 and S
- c. Only G2
- d. G2 and M

516. Anoxygenic photosynthesis is characteristic of:

- a. Rhodospirillum
- b. Spirogyra
- c. Chlamydomonas
- d. UPva

517. Function of filiform apparatus is to:

- a. Recognize the suitable pollen at stigma
- b. Stimulate division of generative cell
- c. Produce nectar
- d. Guide the entry of pollen tube

518. Ovule integument gets transformed into:

- a. Seed
- b. Fruit wall
- c. Seed coat
- d. Cotyledons

519. The vegetative reproduction in spirogyra takes place by:

- a. Conjugation
- b. Fragmentation
- c. Akinetes formation
- d. Hormogones formation

520. Which one of the following plants are Amphibians?

- a. Algae
- b. Bryophytes
- c. Ferns
- d. Gymnosperms

521. The initial step in the digestion of milk in Humans is carried out by:

- a. Lipase
- b. Trypsin
- c. Renin
- d. Pepsin

522. Person with blood group AB is considered as universal recipient because he has:

- a. Both A and B antigens on RBC but no antibodies in the plasma
- b. Both A and B antibodies are present in the plasma
- c. No antigen on the RBC's and no antibodies in the plasma
- d. Both A and B antigens in the plasma but no antibodies

523. Stimulation of a muscle fiber by a motor neuron occurs at:

- a. The neuromuscular junction
- b. The transverse tubules
- c. The myofibril
- d. The sarcoplasmic reticulum

524. The main function of mammalian corpus luteum is to produce:

- a. Estrogen only
- b. Progesterone
- c. Human chorionic Gonadotropin
- d. Relaxin

525. The shared terminal duct of the reproductive and urinary system in the human male is:

- a. Vas deferens
- b. Urethra
- c. Vasa efferentia
- d. Ureter

526. A human female with turner's syndrome:

- a. Has one additional X-chromosome
- b. Exhibits male characters
- c. Is able to produce children with normal husband
- d. Has 45 chromosomes with XO

527. Commonly used vectors for human genome sequencing are :

- a. T-DNA
- b. T/A cloning vectors
- c. BAC and YAC
- d. Expression vectors

528. Formation of fruits without fertilization is known as:

- a. Polygamy
- b. Polyembryony
- c. Parthenocarpy
- d. Parthenogenesis

529. Mucor and Rhizopus belong to:

- a. Ascomycota
- b. Basidiomycota
- c. Deuteromycota
- d. Zygomycota

530. The most abundant intracellular cat ion is:

- a. Na⁺
- b. Ca²⁺
- c. H⁺
- d. K⁺

531. Which statement about an element in the periodic table is correct?

- a. Magnesium is a metalloid, has a giant structure and is a good conductor of electricity
- b. Silicon is a metalloid, has a simple molecular structure and is a semi-conductor of electricity.
- c. Sodium is a metal, has a giant structure and is a good conductor of electricity
- d. Sulfur is a non-metal, has a giant structure and is a poor conductor of electricity

532. in the compound $\text{Co}(\text{ClO}_3)_2$, the Cl atom has an oxidation state of +5. How many d-orbital electrons are present in the cobalt ion in this compound?

- a. 5
- b. 7
- c. 8
- d. 9

533. Which property of colloids is not dependent on the charge on colloidal particles?

- a. Coagulation
- b. Electrophoresis
- c. Electro-osmosis
- d. Tyndall effect

534. Which of the following molecules has the maximum dipole moment?

- a. CO_2
- b. CH_4
- c. NH_3
- d. NF_3

535. Acidity of diprotic acids in aqueous solutions increases in the order:

- a. $\text{H}_2\text{S} < \text{H}_2\text{Se} < \text{H}_2\text{Te}$
- b. $\text{H}_2\text{Se} < \text{H}_2\text{S} < \text{H}_2\text{Te}$
- c. $\text{H}_2\text{Te} < \text{H}_2\text{S} < \text{H}_2\text{Se}$
- d. $\text{H}_2\text{Se} < \text{H}_2\text{Te} < \text{H}_2\text{S}$

536. Artificial sweetener which is stable under cold conditions only is:

- a. Saccharine
- b. Sucralose
- c. Aspartame
- d. Alitame

537. Reason of lanthanoid contraction is:

- a. Negligible screening effect of 'f' orbitals
- b. Increasing nuclear charge
- c. Decreasing nuclear charge
- d. Decreasing screening effect

538. Which one of the following is not a common component of photochemical smog?

- a. Ozone
- b. Acrolein
- c. Peroxyacetylnitrate
- d. Chlorofluorocarbons

539. Maximum deviation from ideal gas is expected from:

- a. H₂ (g)
- b. N₂(g)
- c. CH₄ (g)
- d. NH₃ (g)

540. Which is the strongest acid in the following:

- a. H₂SO₄
- b. HClO₃
- c. HClO₄
- d. H₂SO₃

541. Optical fibers uses the phenomenon of:

- a. Refraction
- b. Total internal reflection
- c. Dispersion
- d. Scattering

542. Energy bond in solids are a consequence of:

- a. Ohm's law
- b. Paul's exclusion principle
- c. Bohr's theory
- d. Heisenberg's uncertainty principle

543. Source of Sun's energy is:

- a. Burning of hydrogen
- b. Fusion reaction involving hydrogen
- c. Explosions
- d. Some other source

- 544. The number of photons of wave length 540 nm emitted per second by an electric bulb of power 100 w is taking ($h=6 \times 10^{-34}$ Js)**
- 100
 - 1000
 - 3×10^{20}
 - 3×10^{18}
- 545. Light travels through a glass plate of thickness t and having a refractive index μ . If C is the velocity of light in vacuum, the time taken by light to travel this thickness of glass is:**
- $t \mu c$
 - $t c / \mu$
 - $t / \mu c$
 - $\mu t / c$
- 546. If force (F) velocity (V) and time (T) are taken as fundamental units, then the dimensions of mass are:**
- $[FvT^1]$
 - $[FvT^2]$
 - $[Fv^{-1}T^{-1}]$
 - $[Fv^{-1}T]$
- 547. Certain quantity of water cools from 700C to 600C in the first 5 min and to 540C in the next 5 min. The temperature of the surroundings is:**
- 450C
 - 200C
 - 420C
 - 100C
- 548. If the focal length of objective lens is increased, then magnifying power of:**
- Microscope will increase but that of telescope decrease
 - Microscope and telescope both will increase
 - Microscope and telescope both will decrease
 - Microscope will decrease but that of telescope will increase
- 549. The barrier potential of a p-n junction depends on:**
- Type of semiconductor material
 - amount of doping
 - temperature

Which of the following is correct?

- a. (i) and (ii) only
- b. (ii) only
- c. (ii) and (iii) only
- d. (i), (ii) and (iii)

550. The wettability of a surface by a liquid depends primarily on:

- a. Viscosity
- b. Surface tension
- c. Density
- d. Angle of contact between the surface and liquid

551. Which one of the following correctly represents the normal adult man dental formula:

- a. $3/3'$, $1/1'$, $3/2'$, $1/1$
- b. $2/2'$, $1/1'$, $3/2'$, $3/3$
- c. $2/2'$, $1/1'$, $2/2'$, $3/3$
- d. $3/3'$, $1/1'$, $3/3'$, $3/3$

552. The type of muscles present in our:

- a. Heart are involuntary and unstrained smooth muscles
- b. Intestine are striated and involuntary
- c. Thigh are striated and voluntary
- d. Upper arm are smooth muscle fibers fusiform in shape

553. The 24 hour (diurnal) rhythm of our body such as the sleep-wake cycle is regulated by the hormone:

- a. Calcitonin
- b. Prolactin
- c. Adrenaline
- d. Melatonin

554. Which one of the following techniques made it possible to genetically engineer living organism?

- a. Recombinant DNA techniques
- b. X-ray diffraction
- c. Heavier isotope labeling
- d. Hybridization

555. A good producer of citric acid is:

- a. Aspergillus
- b. Pseudomonas
- c. Clostridium
- d. Saccharomyces

556. Artificial insemination means:

- a. Transfer of sperms of a healthy male donor to a test tube containing ova
- b. Transfer of sperms of husband to a test tube containing wife's ova
- c. Artificial introduction of sperms of healthy donor into the vagina
- d. Introduction of sperms of healthy donor directly into the ovary

557. Infective stage of Malarial Parasites (Plasmodium) that enters human body is:

- a. Merozoite
- b. Sporozoite
- c. Trophozoite
- d. Minute form

558. Heart beat is controlled by which cranial nerve?

- a. Xth
- b. IXth
- c. IIIrd
- d. Vth

559. ABO blood group system is due to:

- a. Multifactor inheritance
- b. Incomplete dominance
- c. Multiple allelism
- d. Epistasis

560. Pila belongs to:

- a. Arthropoda
- b. Nematoda
- c. Annelida
- d. Mollusca

561. The diagram shows an important concept in the genetic implication of DNA. Fill in the blanks A to C.

A B C

DNA → in RNA → Protein → Proposed by

- a. A – transcription, B – replication, C – James Watson
- b. A – translation, B – transcription, C – Erevin chargaff
- c. A – transcription, B – translation, C – Francis crick
- d. A – Translation, B – Extension, C – Rosalind Franklin

562. The cell mediated immunity, inside the human body is carried out by:

- a. T- lymphocytes
- b. B-Lymphocytes
- c. Macrophages
- d. Granulocytes

563. One of the legal methods of birth control is:

- a. Abortion by taking an appropriate medicine
- b. By abstaining from coitus from day 10-17 of the menstrual cycle
- c. By having coitus at the time of day break
- d. By a premature ejaculation during coitus

564. A patient brought to a hospital with myocardial infarction (Heart attack) is normally immediately given:

- a. Penicillin
- b. Streptokinase
- c. Cyclosporin – A
- d. Statins

565. Cirrhosis of liver is caused by the chronic intake of:

- a. Opium
- b. Alcohol
- c. Tobacco (Chewing)
- d. Cocaine

566. Which one is the most abundant protein in the animal world?

- a. Trypsin
- b. Haemoglobin
- c. Collagen
- d. Insulin

567. Gymnosperms are also called soft wood spermatophytes because they lack:

- a. Cambium
- b. Phloem fibres
- c. Thick walled tracheids
- d. Xylem fibres

568. Bulk of carbon dioxide (CO₂) released from body tissues into the blood is present as:

- a. Bicarbonate in blood plasma and RBC's
- b. Free CO₂ in blood plasma
- c. 70% carbamino hemoglobin and 30% as bicarbonate
- d. Carbamino – hemoglobin in RBC's

569. Which one of the following conditions of the zygotic cell would lead to birth of a normal human female child?

- a. Two X-chromosomes
- b. Only one Y-Chromosome
- c. Only one X- chromosome
- d. One X and one Y chromosome

570. Which of the following is electron deficient?

- a. (CH₃)₂
- b. (SiH₃)₂
- c. (BH₃)₂
- d. PH₃

571. Which one of the following molecules contain no π – bond?

- a. CO_2
- b. H_2O
- c. SO_2
- d. NO_2

572. In the last century the Haber process was sometimes run at pressures of 1000 atm and higher. Now it is commonly run at pressures below 100 atm. What is the reason for this change?

- a. An iron catalyst is used
- b. Maintaining the higher pressures is more expensive
- c. The equilibrium yield of ammonia is increased at lower pressures
- d. The rate of the reaction is increased at lower pressures

573. Which reagent when mixed and heated with ammonium sulfate liberates ammonia?

- a. Aqueous bromine
- b. Dilute hydrochloric acid
- c. Lime water
- d. Potassium dichromate (VI) in acidic solution

574. Which factor can affect the value of the activation energy of a reaction?

- a. Changes in concentration of the reactants
- b. Decrease in temperature
- c. Increase in temperature
- d. The presence of a catalyst

575. Which one of the following is a mineral of iron?

- a. Malachite
- b. Cassiterite
- c. Pyrolusite
- d. Magnetite

576. Equimolar solutions of the following substances are prepared separately. Which one of these will record the highest pH value?

- a. Ba Cl_2
- b. Al Cl_3
- c. Li Cl
- d. Be Cl_2

577. Among the following compounds the one that is most reactive towards electrophilic nitration is:

- a. Benzoic Acid
- b. Nitrobenzene
- c. Toluene
- d. Benzene

578. Which of the following species contains three bond pairs and one lone pair around the central atom?

- a. H_2O
- b. BF_3
- c. NH_2^-
- d. PCl_3

579. What is the value of electron gain enthalpy of Na^+ if IE_1 of $\text{Na} = 5.1 \text{ eV}$?

- a. -5.1 eV
- b. -10.2 eV
- c. $+2.55 \text{ eV}$
- d. $+10.2 \text{ eV}$

580. If we study the vibration of a pipe open at both ends, then the following statement is not true:

- a. Open end will be anti-node
- b. Odd harmonics of the fundamental frequency will be generated
- c. All harmonics of the fundamental frequency will be generated
- d. Pressure change will be maximum at both ends

581. A current loop in a magnetic field:

- a. Experiences a torque whether the field is uniform or non-uniform in all orientations
- b. Can be in equilibrium in one orientation
- c. Can be in equilibrium in two orientations, both the equilibrium states are unstable

d. Can be in equilibrium in two orientations, one stable while the other is unstable

582. When a mass is rotating in a plane about a fixed point, its angular momentum is directed along:

a. A line perpendicular to the plane of rotations

- b. The line making an angle of 45° to the plane of rotation
- c. The radius
- d. The tangent to the orbit

583. When a biconvex lens of glass having refractive index 1.47 is dipped in a liquid, it acts as a plain sheet of glass. This implies that the liquid must have refractive index:

a. Equal to that of glass

- b. Less than one
- c. Greater than that of glass
- d. Less than that of glass

584. A compass needle which is allowed to move in a horizontal plane is taken to a geomagnetic pole. it:

a. will become rigid showing no movement

b. will stay in any position

- c. will stay in north-south direction only
- d. will stay in east west direction only

585. A geostationary satellite is orbiting the earth at a height of $5R$ above the surface of the earth. R being the radius of the earth. The time period of another satellite in hours at a height of $2R$ from the surface of the earth is:

a. 5

b. 10

c. $6\sqrt{2}$

d. $\frac{6}{\sqrt{2}}$

586. A particle of mass is thrown upwards from the surface of the earth, with a velocity u . The mass and the radius of the earth are, respectively, M and R . G is gravitational constant and g is acceleration due to gravity on the surface of the earth. The minimum value of u so that the particle does not return back to earth is:

a. $2GM/R$

b. $2GM/R^2$

c. $2gR^2$

d. $2GMR$

587. Out of the following which one is not a possible energy for a photon to be emitted by hydrogen atom according to Bohr's atomic model:

a. 1.9 eV

b. 11.1 eV

c. 13.6 eV

d. 0.65 eV

588. A short bar magnet of magnetic moment 0.4 JT^{-1} is placed in a uniform magnetic field of 0.16 T . The magnet is in stable equilibrium when the potential energy is:

a. -0.64 J

b. Zero

c. -0.082 J

d. 0.064 J

589. The Study of the Nuclear cytology is called

a) Serology b) Embryology c) Karyology d) Physiology

590. The fungus absorbs the food by:

a) Mycelium b) Root c) Rhizome d) Thallus

591. Which one is characteristic sugar of DNA

a) Deoxyribose b) Deoxyhexose c) Ribose d) Hexose

592. Organ of Bojanas Helps in

a) Reproduction b) Excretion c) Locomotion d) Digestion

593. Male genital aperture in Earthworm is found in

a) 14th Segment. b) 17th Segment. c) 18th Segment d) 19th Segment

594. Melatonin is produced by

- a) MSH b) TSH c) Hypothalamus d) Pineal gland

595. Gerontology is the study of

- a) Regeneration b) Ageing c) Death d) Growth

596. The protonema of the moss is:

- a) Haploid b) Diploid c) Sporophyte d) Sporophyll

597. Pollination in Cycas is carried out by:

- a) Wind b) Water c) insect d) man

598. Fruit is developed from

- a) Stigma b) Ovary c) Anther d) Calyx

599. Which one of the following can be used as biofertilizer?

- a) Rhizobium b) E.coli c) Agaricus d) Jatropha

600. The embryo sac develops from

- a) Embryo b) Nucellus c) Zygote d) Megaspore

601. Which of the following in a cell is non-living?

- a) Mitochondria b) Vacuole c) Ribosome d) Chloroplast

602. Which group is called vascular cryptogam?

- a) Thallophyta b) Bryophyta c) Pteridophyta d) Gymnosperm

603. Gizzard in an earthworm serves for:

- a) Crushing food b) Excretion c) Secreting slime d) Absorbing digested food

604. During strenuous exercise, the glucose is converted into

- a) acetic acid b) sucrose c) glycogen d) lactic acid

605. Endosperm of Angiosperm is

- a) Haploid b) Diploid c) Triploid d) Tetraploid

606. Sudden change in the gene is due to

- a) mutation b) crossing over c) translocation d) translation

607. Nissl's granules are found in

- a) RBC b) Nerve cell c) Bone d) Muscular cell

608. Which of the following is a biofertilizer?

- a) Anabaena b) Azolla c) Mucor d) Moss

609. The one attached with ribosomes is:

- a) m-RNA b) mitochondria c) Golgi bodies d) lysosomes

610. Multiple fruits are found in:

- a) Mango b) Apple c) Mulberry d) Grapes

611. Which one is a tetrapod?

- a) Spider b) Toad c) Python d) Prawn

612. The cavity present in Hydra is:

- a) Coelenteron b) Archenteron c) Coelom d) Blastocoel

613. The number of cranial nerves in man is

- a) 5 pairs b) 6 pairs c) 8 pairs d) 12 pairs

614. Study of fossils is

- a) Paleontology b) Gerontology c) Anthology d) Ostology

615. Respiration in lichen takes place by

- a) Cephaleium b) isidium c) soredia d) cyphella

616. Pieces of plant used in tissue culture is

- a) explant b) inplant c) stock d) scion

617. In human body, which cell has no nucleus

- a) WBC b) RBC c) nerve cell d) plasma cell

618. The undifferentiated mass of cells formed during the tissue culture is:

- a) Clones b) Callus c) Tissue d) Buds

619. Pseudomycelium is the characteristic feature of:

- a) Mucor b) Spirogyra c) Yeast d) Agaricus

620. The fruiting body of agaricus is called

- a) Basidiocap b) Ascocarp c) Rhizocarp d) Rhizine

621. Stilt roots are present in:

- a) Maize b) Wheat c) Rice d) Barley

622. Antibody producing blood cells are the:

- a) Lymphocytes b) Monocytes c) Basophils d) Neutrophils

623. Bruner's glands are related to:

- a) Digestive system b) Sweating system c) Male reproductive system d) Female reproductive system

624. Which one of the following is a fructose lichen?

- a) Graphis b) Parmelia c) Cladonia d) Rhizocarpon

625. A chordate may not have:

- a) Notochord b) Tubular nerve cord c) Gill slits d) Vertebral column

626. In which stage terinalization occurs?

- a) Pachytene b) Diplotene c) Zygotene d) Diakinesis

627. Origin of species is postulated by

- a) Charles Darwin b) Robert Wallace c) Lamarck d) Speneor

628. Acoustic spot in each ampula of human ear is known as

- a) Otolith b) Organ of Corti c) Crista d) Macula

629. Which of the following is always conserved in collision?

- a) Kinetic energy b) Angular momentum c) Linear momentum d) Torque

630. If the biconvex lens is silvered on one side than it will behave as:

- a) Concave mirror b) Convex mirror c) plane mirror d) Converging lens

631. Heater is 1000 W then energy consumed in 2hrs is

- a) 2J b) 20 KJ c) 2 KW hr d) 200 W

632. The time period of simple pendulum is double when

- a) Length is increases by 2 times b) Mass is increases by 2 times
b) c) Length is increases by 4 times d) length is reduced to half

633. Which of the following is vector

- a) Electric potential b) Electric flux c) Charge density d) Electric filed intensity

634. The force exerted by a passenger of mass 'M' on the floor of an elevator which is going down with an acceleration 'a' is

- a) Mg-Mg b) Ma c) M(g-a) d) Mg+Ma

635. Two tuning forks of frequency 256 and 258 vibrations per sec. are sounded together then the time interval between two consecutive maxima heard by an observer is

- a) 2 sec b) 0.5 sec c) 250 sec d) 2.52 sec

636. Cos Θ in the alternating current is called:

- a) energy factor b) phase c) resonance d) power factor

- 637. Two bodies, one held 1 m above the other directly, are released simultaneously and fall freely under gravity. After 3 second their relative separation will be**
- a) 0.98 m b) 1 m c) 4.9 m d) 9.8 m
- 638. NC-1 has the same dimension as**
- a) Volt meter b) Farad meter c) Farad/meter d) Volt/meter
- 639. The kinetic energy of a proton accelerated by 1 V is**
- a) $1/1840$ eV b) 1840 eV c) 1 eV d) $(1840)^{1/2}$ eV
- 640. When an electron moves through a uniform magnetic field, its speed**
- a.) increases b) deceases c) remains constant d) depends on field
- 641. How much leads of specific gravity 11 must be added to a piece of cork of specific gravity 0.2 weighing 10 g so that it just floats on water?**
- a) 2.2 g b) 4.4 g c) 44 g d) 440g
- 642. Time taken by a train of length 150 m and traveling with a uniform velocity of 60 km/hr to cross completely a bridge of length 1.5 km will be**
- a) 9 s b) 9.9 s c) 90 s d) 99 s
- 643. Two protons and a deuteron fuse to form a nucleus with a positron. The product nucleus may be**
- a) neutron b) proton c) neutrino d) alpha particle
- 644. Density of gold is 19.3 gm/cc and that of copper is 8.9 gm/cc. 10gm of gold and 10 gm of copper is mixed to form an alloy. The density of the alloy is**
- a) 10.4 gm/cc b) 11.4 gm/cc c) 12.4 gm/cc d) 9.4 gm/cc
- 645. On a day the relative humidity is 100% The temperature of the room is equal t**
- a) 4oC b) 0 oC c) dew point d) 20 oC
- 646. The illuminance at 10 m directly below a 40 cd lamp is**
- a) 4 lux b) 0.4 lux c) 40 lux d) 0.04 lux
- 647. One meter wire carrying 2A is placed in magnetic field of 2 Tesla. The force acting on wire is**
- a)1N b) 2N c) 3N d) 4N
- 648. 0.4 mole of hydrogen is made to react with seven gram of chlorine.The volume of HCl gas formed at NTP will be**
- a) 2.24 L b) 1.12 L c) 4.48 L d) 8.96 L dichromate (VI) in acidic solution

649. Greenhouse effect is caused by

- a) Infrared rays b) UV rays c) X-rays d) Visible rays

650. Unit of magnetic permeability is

- a) Am^{-1} b) Am^{-2} c) H d) Hm^{-1}

651. Bernoulli's theorem is based on conservation of

- a) Mass b) Momentum c) Pressure d) Energy

652. The force of friction is 50 N in a body weighing 50 kg. Find the coefficient of friction

- a) 0.5 b) 2.5 c) 0.102 d) 0.201

653. A couple produces

- a) no motion b) purely linear c) Purely rotational motion d) linear and rotational motion

654. The haploid no. of chromosome in gymnosperm is 12. What is the no of chromosomes in its endosperm?

- a) 6 b) 12 c) 24 d) 36

655. Aleurone layer is rich in

- a) Fat b) Starch c) Protein d) Vitamin

656. The ratio of charge to mass ratio of proton to α -particle equals

- a) 2 b) 4 c) $1/2$ d) $1/4$

657. The half-life of Radium is 1600 years. What is the fraction of sample remaining after 6400 years?

- a) $1/64$ b) $1/4$ c) $1/256$ d) $1/16$

658. A second pendulum has time period

- a) 1 sec b) 2 sec c) 0.5 sec d) 24 hr

659. Separations of two substances by fractional crystallization depends upon:

- a) Crystalline shape b) Viscosity c) Solubility d) Density

660. With the rise in temperature, surface tension

- a) Increases b) Decreases c) remains the same d) Becomes zero

661. Fractional atomic wt of an element is because

- a) Of existence of allotropic form b) Eq. wt are not whole no.
c) Of existence of isotopes d) Valency of element have fractional value

- 674. The percentage of oxygen by mass in magnesium oxide-**
a) 20% b) 40% c) 50% d) 60%
- 675. For which of the following molecules would the VSEPR theory predict a pyramidal structure:-**
a) BeF₂ b) CH₄ c) BF₃ d) NH₃
- 676. Grignard reagent reacts with formaldehyde to produce-**
a) an acid b) a primary alcohol c) an anhydride d) a secondary alcohol
- 677. What is the atomic weight of a metal whose specific heat and equivalent weight are 0.057 and 38.21 respectively?**
a) 112.28 b) 76.42 c) 110.56 d) 114.63
- 678. Element with atomic number 19 belongs to which block of the periodic table?**
a) s b) p c) d d) f
- 679. When 18gm of water (M.W. of water is 18gm) and 92 gm of ethyl alcohol is mixed. Find the mole fraction of water**
a) 0.4 b) 0.33 c) 0.5 d) 0.67
- 680. In periodic table on moving left to right what happens**
a) Ionization energy decreases b) Electronegativity decreases
c) Metallic character decreases d) Non-metallic character decreases
- 681. The type of precipitate that is most difficult to filter in quantitative analysis is**
a) Curdy b) Insoluble c) Gelatinous d) Crystalline
- 682. In an adiabatic system, if work is done the temperature must**
a) Decrease b) Increase c) Increase then decrease d) Remain constant
- 683. Radioactive decay is**
a) First order b) Second order c) Third order d) Zero order
- 684. How many moles of CO₂ are present in 220 mg?**
a) 5 moles b) 0.005 mole c) 5000 moles d) 10 moles
- 685. What is the correct order of electro negativity of the following halogens?**
a) Cl>Br>I>F b) F>Br>I>Cl c) F>Cl>Br>I d) Cl>F>I>Br
- 686. Which of the following is often called oil of bitter almond?**
a. Nitrobenzene b) Methyl salicylate c) Benzaldehyde d) Salicylic acid

687. Formation of cynohdrin from ketone is an example of

- a) Nucleophilic addition
- b) Nucleophilic substitution
- c) Electrophilic substitution
- d) Electrophilic addition

688. A nitrate salt on heating with Aluminium powder and NaOH gives which of the following

- a) N₂O
- b) NO
- c) NH₃
- d) NO₂

689. Virus is chemically composed of

- a. Starch and Protein
- b. Fat and nucleic acid
- c. DNA and lipids
- d. Protein and Nucleic Acid

690. A virus must do what to reproduce

- a. Form a latent virus
- b. Undergo transformation
- c. Infect a cell
- d. conjugate

691. The vegetative reproduction in Spirogyra takes place by

- a. Conjugation
- b. Fragmentation
- c. Akinetes formation
- d. Hormogones formation

692. Rhizoids are branched and multicellular in

- a. Marchantia
- b. Funaria
- c. Nostoc
- d. Agaricus

693. Mucor and Rhizopus belong to

- a. Zygomycota
- b. Deuteromycota
- c. Basidiomycotad.
- d. Ascomycota

694. Coralloid roots are present in

- a. Cycas
- b. Ephedra
- c. Pinus
- d. Cryptomeria

695. Formation of fruits without fertilization is known as

- a. Polyembryony
- b. Polygamy
- c. Parthenocarp
- d. Parthenogenesis

696. Lichens are ecologically important because they

- a. are associated with Algae and fungi
- b. are associated with mycorrhizal roots
- c. are earliest settlers of barren rocks
- d. can grow in polluted areas

697. Which one is an edible fungus

- a. Penicillium
- b. Rhizopus
- c. Mucor
- d. Agaricus

698. Which one of the following plants are Amphibians

- a. Algae
- b. Bryophytes
- c. Ferns
- d. Gymnosperms

699. On germination, each zygospor of Spirogyra gives rise to

- a. Four plants
- b. Three plants
- c. Two plants
- d. One plants

700. Ovule integument gets transformed into

- a. Seed b. Fruit wall c. Seed coat d. Cotyledons

701. The stalk of the ovule is called

- a. Petiole b. Funicle c. Pedicel d. hilum

702. Potato belongs to the family

- a. Cruciferae b. Liliaceae c. Gramineae d. Solanaceae

703. Stomata are organs which help in

- a. Transpiration b. Locomotion c. Digestion d. Growth

704. The protonema of the moss is

- a. Diploid b. Haploid c. Tetraploid d. Hexaploid

705. Annual rings in stem determine

- a. Number of branches b. Height of a plant c. Thickness of the trunk
d. Age of plant

706. Which one of the following is an example of chlorophyllous thallophyte

- a. Volvariella b. Spirogyra c. Nephrolepis d. Gnetum

707. Osmosis is flow of

- a. Solutes from dilute solution to concentrated solution b. solvent from dilute solution to concentrated solution
c. solvent from concentrated solution to dilute solution d. solute from concentrated solution to dilute solution

708. In which process is oxygen a waste product?

- a. Active transport b. Aerobic respiration c. Anaerobic respiration d. Photosynthesis

709. What happens to chromosomes in prophase of mitosis?

- a. They are formed by replication of DNA b. They attach to spindle fibres
c. They divide to form chromatids d. They shorten and become visible

710. Which of the following is not a dividing stage?

- a. Prophase b. Interphase c. Metaphase d. Telophase

711. In cell division, the phase following the metaphase is known as

- a. Prophase b. Anaphase c. Telophase d. Extophase

712. During which phase of the cell cycle are normal components of the cell synthesized and assembled

- a. The M1 phase b. The G1 phase c. The S1 phase d. The G2 phase

713. Which is a sudden change in a gene or chromosome

- a. Allele b. Genotype c. Mutation d. phenotype

714. The term “Biology” was coined by

- a. Aristotle b. Theophrastus c. Larmark and Treviranus d. Hippocrates

715. Which protist reproduces both by binary fission and conjugation?

- a. Amoeba b. Paramecium c. Euglena d. Monocysts

716. Infective stage of malarial parasites Plasmodium that enters human body is

- a. Merozoite b. Sporozoite c. Trophozoite d. Minute form

717. Chloragogen cell of Pheretima are specialized for

- a. Nutrition b. Reproduction c. Excretion d. Respiration

718. In Earthworm, setae are absent from

- a. Clitellum, first and last segment b. Clitellum c. First segment d. Clitellum and last segment

719. Pila belongs to

- a. Arthropoda b. Nematoda c. Annelida d. Mollusca

720. Development of frog is a complex and lengthy process which is completed in four phases. Which one of the following is the correct sequence of development phase?

- a. Cleavage → Blastulation → Gastrulation → Neurulation
b. Cleavage → Neurulation → Blastulation → Gastrulation
c. Blastulation → Gastrulation → Neurulation → Cleavage
d. Gastrulation → Cleavage → Blastulation → Neurulation

721. ABO blood group system is due to

- a. Multifactor inheritance b. Incomplete dominance c. Multiple allelism d. Epistasis

722. Nissl's granules are found in

- a. Mast cells b. Osteoblasts c. Chondroblasts d. Neurons

723. Heart beat is controlled by which cranial nerve

- a. Xth b. IXth c. IIIrd d. Vth

724. The full form of DOTS, used in treatment of Tuberculosis

- a. Directly Observed treatment short course b. Directly observed treatment situation
c. Directly observed therapy short course d. Directly observed total surveillance

- 725. Which of the following hormones is NOT secreted by anterior lobe of the pituitary gland**
- a. TSH b. Oxytocin c. Prolactin d. ACTH
- 726. The host that harbours the adult or sexually mature, parasite is called**
- a. Intermediate host b. Reservoir host c. Definitve host d. Symbiotic host
- 727. The organ of corti in mammals is found in**
- a. Vestibular canal b. Tympanic canal c. Ear drum d. Cochlear canal
- 728. The horizontal channels in the compact long bone are called**
- a. Volkmanns canal b. Haversian canal c. Osteal canal d. Vascular canal
- 729. The process of inheritance of character in living beings is called**
- a. Heredity b. Evolution c. Variation d. Migration
- 730. The Principle of inheritance of acquired characters was given by**
- a. Larmark b. Weismann c. Darwin d. Hugo de vries
- 731. Hamburger's phenomenon is also called**
- a. Bicarbonate shift b. Chloride shift c. Hydrogen shift d. Sodium shift
- 732. Succus entericus is secreted by which gland?**
- a. Pancrease b. Stomach c. Bartholin's gland d. Crypts of Lieberkuhn
- 733. Reflex action involves**
- a. Spinal cord b. Cerebellum c. Medulla oblongata d. Optic nerve
- 734. Name the hormone that has no role in menstruation**
- a. LH b. FSH c. GH d. TSH
- 735. Which one of the human cell do not contain mitochondria**
- a. Nerve cells b. Red blood cells c. Liver cells d. White blood cells
- 736. Which one of the following animal phyla does not possess a coelom**
- a. Platyhelminthes b. Annelid c. Mollusca d. Echinodermata
- 737. Which of the following is the correct pathway for propagation of cardiac impulse**
- a. SA node-AV node- Bundle of His-Purkinje fibres
- b. AV node- Bundle of His- SA node- Purkinje fibres
- c. SA node-Purkinje fibre- AV node- Bundle of His
- d. Purkinje fibres- AV node- SA node- Bundle of His

738. Which centre is stimulated during increase in body temperature

- a. Anterior hypothalamus b. Posterior hypothalamus
c. Limbic system d. Red nucleus

739. Which statement about an element in the Periodic Table is correct?

- A. Magnesium is a metalloid, has a giant structure and is a good conductor of electricity.
B. Silicon is a metalloid, has a simple molecular structure and is a semi-conductor of electricity.
C. Sodium is a metal, has a giant structure and is a good conductor of electricity.
D. Sulfur is a non-metal, has a giant structure and is a poor conductor of electricity.

740. In the compound $\text{Co}(\text{ClO}_3)_2$, the Cl atom has an oxidation state of +5. How many d-orbital electrons are present in the cobalt ion in this compound?

- A. 5 B. 7 C. 8 D. 9

741. Fluorine has anomalous properties in Group 7. Which statement is correct?

- a. Fluorine is intensely coloured. b. HF is a strong acid. c. the F–F bond is unusually weak.
d. The melting point of fluorine is high.

742. In the last century the Haber process was sometimes run at pressures of 1000 atm and higher. Now it is commonly run at pressures below 100 atm. What is the reason for this change?

- a. An iron catalyst is used. b. Maintaining the higher pressures is more expensive.
c. The equilibrium yield of ammonia is increased at lower pressures.
d. The rate of the reaction is increased at lower pressures

743. Why does the rate of a gaseous reaction increase when the pressure is increased at a constant temperature?

- a. More particles have energy that exceeds the activation energy.
b. The particles have more space in which to move. c. The particles move faster.
d. There are more frequent collisions between particles.

744. Magnesium nitrate, $\text{Mg}(\text{NO}_3)_2$, will decompose when heated to give a white solid and a mixture of gases. One of the gases released is an oxide of nitrogen, X. 7.4 g of anhydrous magnesium nitrate is heated until no further reaction takes place. What mass of X is produced?

- a 1.5 g b. 2.3 g c. 3.0 g d. 4.6 g

745. Which reagent, when mixed and heated with ammonium sulfate, liberates ammonia?

- a. aqueous bromine b. dilute hydrochloric acid c. limewater d. potassium dichromate(VI) in acidic solution

746. Bromine reacts with ethene to form 1,2-dibromoethane. What is the correct description of the organic intermediate in this reaction?

- a. It has a negative charge. b. It is a free radical. c. It is a nucleophile. d. It is an electrophile.

747. 2.30 g of ethanol were mixed with an excess of aqueous acidified potassium dichromate(VI). The reaction mixture was then boiled under reflux for one hour. The desired organic product was then collected by distillation. The yield of product was 60.0 %. What mass of product was collected?

- a. 1.32 g b. 1.38 g c. 1.80 g d. 3.20 g

748. Which factor can affect the value of the activation energy of a reaction?

- a. changes in concentration of the reactants b. decrease in temperature
c. increase in temperature d. the presence of a catalyst

749. Which energy change corresponds to the enthalpy change of atomization of hydrogen at 298K?

- a. the bond energy of a H – H bond b. half the bond energy of a H – H bond
c. minus half the bond energy of a H – H bond d. minus the bond energy of a H – H bond

750. What is true of every nucleophile?

- a. It attacks a double bond. b. It has a lone pair of electrons.
c. It is a single atom. d. It is negatively charged.

751. 10cm³ of a gaseous hydrocarbon required 20cm³ of oxygen for complete combustion. 10cm³ of carbon dioxide was produced. Calculate the molecular formula of the hydrocarbon.

- a. CH₄ b. C₂H₄ c. C₂H₆ d. C₂H₂

752. The saponification value of an oil or fat is measured in term of

- a. NH₄OH b. NaOH c. KOH d. C₆H₅OH.

753. With K₄Fe(CN)₆, Cu²⁺ ion gives

- A. a blue ppt. B. a bluish green ppt. C. a blood red ppt. D. a reddish brown ppt.

754. The isomerism observed in Urea molecule is

- A. Chain B. Position C. Geometrical D. Tautomerism.

755. Methyl acetate and ethyl acetate can be distinguished by

- A. hot alkaline KMnO_4 B. neutral FeCl_3 C. Iodoform test D. 2,4-DNPH test.

756. A current of 96.5A is passed for 18mins between nickel electrodes in 500ml solution of $2\text{M Ni}(\text{NO}_3)_2$. The molarity of the solution after electrolysis would be

- A. 0.46M B. 0.92M C. 0.625M D. 1.25M

757. The correct order of basic strength is

- A. $\text{H}_2\text{O} < \text{OH}^- < \text{CH}_3\text{OH} < \text{CH}_3\text{O}^-$ B. $\text{CH}_3\text{OH} < \text{H}_2\text{O} < \text{CH}_3\text{O}^- < \text{OH}^-$
C. $\text{OH}^- < \text{H}_2\text{O} < \text{CH}_3\text{O}^- < \text{CH}_3\text{OH}$ D. $\text{H}_2\text{O} < \text{CH}_3\text{OH} < \text{OH}^- < \text{CH}_3\text{O}^-$

758. The temperature dependence of rate constant(K) of a chemical reaction is written in terms of Arrhenius equation $K = A e^{-E_a/RT}$. Activation energy (E_a) of the reaction can be calculated by plotting

- A. $\text{Log}K$ vs T B. $\text{Log}K$ vs $1/T$ C. K vs T D. K vs $1/\text{Log}T$

759. In $[\text{Ag}(\text{CN})_2]^-$, the number of p bonds is

- A. 2 B. 3 C. 4 D. 6.

760. 40ml of 0.1M ammonia solution is mixed with 20ml of 0.1M HCl. What is the PH of the mixture ? (PK_b of the ammonia solution is 4.74)

- A. 4.74 B. 2.26 C. 9.26 D. 5.00

761. For a phase change $\text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{H}_2\text{O}(\text{s})$ at 0°C and 1bar atmospheric pressure.

- A. $\Delta G = 0$ B. $\Delta S = 0$ C. $\Delta H = 0$ D. $\Delta U = 0$

762. Optical fibers uses the phenomenon of

- a. Total internal reflection b. refraction c. dispersion d. scattering

763. Source of Sun's energy is

- a. Burning of hydrogen b. fission reactions involving hydrogen c. fusion reactions involving hydrogen
d. some other source

764. How many NAND gates are used to form AND gate

- a. 1 b. 2 c. 3 d. 4

765. Energy band in solids are a consequence of

- a. Ohm's law b. Pauli's exclusion principle c. Bohr's theory
d. Heisenberg's uncertainty principle

- 766. The half life of radium is 1600 years. The number of undecayed atoms of radium after 4800 years will be**
- a. $1/8$ b. $1/16$ c. $7/8$ d. $8/7$
- 767. Which of the following isotopes is used for treatment of cancer?**
- a. K40 b. Co60 c. Sr90 d. I131
- 768. Quantum theory of light gives concept of**
- a. Electrons b. photons c. positrons d. neutrons
- 769. The number of photons of wavelength 540 nm emitted per second by an electric bulb of power 100 W is (taking $h = 6 \times 10^{-34}$ Js)**
- a. 100 b. 1000 c. 3×10^{20} d. 3×10^{18}
- 770. A convex lens is dipped in a liquid whose refractive index is equal to the refractive index of the lens. Then its focal length will**
- a. Become zero b. become infinite c. reduce d. increase
- 771. Light travels through a glass plate of thickness t and having a refractive index μ . If c is the velocity of light in vacuum, the time taken by light to travel this thickness of glass is**
- a. $t \mu c$ b. $t c / \mu$ c. $t / \mu c$ d. $\mu t / c$
- 772. A plane mirror produces a magnification of**
- a. -1 b. +1 c. zero d. between zero and infinity
- 773. Soap bubble looks colored due to**
- a. Dispersion b. reflection c. interference d. diffraction
- 774. A young's double slit experiment uses a monochromatic source. The shape of the interference fringes formed on a screen is**
- a. Parabola b. straight line c. circle d. hyperbola
- 775. What is the cause of "Green house effect"?**
- a. Infrared rays b. ultraviolet rays c. X-rays d. Radio waves
- 776. A metal ring is held horizontally and bar magnet is dropped through the ring with its length along the axis of the ring. The acceleration of the falling magnet is**
- a. Equal to g b. less than g c. more than g d. depends on the diameter of ring and length of magnet
- 777. A 12Ω resistor and 0.21henry inductor are connected in series to an AC source operating at 20 volt, 50 cycles. The phase angle between the current and the source voltage is**
- a. 30° b. 40° c. 80° d. 90°

778. The unit of magnetic permeability is

- a. $A\ m^{-1}$ b. $A\ m^{-2}$ c. H d. $H\ m^{-1}$

779. A diamagnetic substance is

- a. Repelled when south pole of magnet is brought near it b. Repelled when north pole of magnet is brought near it c. Repelled by both the poles of magnet d. Attracted by both the poles of magnet

780. The net charge on a current carrying conductor is

- a. Positive b. negative c. zero d. constant

781. On connecting a battery to the two corners of a diagonal of a square conductor frame of side a , the magnitude of the magnetic field at the centre will be

- a. Zero b. $\mu_0 / \pi a$ c. $2 \mu_0 / \pi a$ d. $4 \mu_0 / \pi a$

782. A tap supplies water at 200°C. A man takes 1 liter of water per minute at 350°C from a geyser connected to the tap. The power of the geyser is

- a. 1050 W b. 2100 W c. 1500 W d. 3000 W

783. When there is a difference in temperature at the two ends of a conductor emf generated is called

- a. Seebeck emf b. Peltier emf c. Thomson's emf d. None of the above

784. Two bulbs when connected in parallel to a source take 60 W each. The total power consumed when they are connected in series with the same source is

- a. 15 W b. 30 W c. 60 W d. 120 W

785. A wire of resistance 20 Ω is covered with ice and a voltage of 210 V is applied across the wire, then rate of melting ice is

- a. 0.85 g/s b. 1.92 g/s c. 6.56 g/s d. all of these

786. The temperature coefficient of resistance is negative for

- a. Alloys and insulators b. copper and lead c. carbon and manganin
d. carbon and ebonite

787. Inheritance of ABO group shows

- a. Polygeny b. Polyploidy c. Incomplete dominance d. Multiple allelism

788. Watson and Krick are known for their contributions in discovering

- a. One gene one enzyme hypothesis b. Double helix structure of DNA c. Ascent of sap
d. C3 and C4 plants

789. Which one of the following is not found in DNA?

- a. Cytocine b. Guanine c. Adenine d. Uracil

790. Mendelian recombination is due to

- a.Independent assortment of genes b.Linkage of genes c.Mutation d.Dominance

791. The term “Cell” was first used by

- a.Schleiden b.Schwann c.Annelida d.Robert Hook

792. Evolution is a natural process. Who proposed the concept that evolution is due to mutation and not by gradual process?

- a.Charles Darwin b.Alfred Wallace c.Charles Lyell d.Hugo de Vries

793. Founder of binomial nomenclature was

- a.Engler b.Carolus Linnnaeus c.Darwin d.Bentham

794. The concept of the ecosystem was first given by

- a.E.P. Odum b.Carl Linnaeus c.Charles Darwin d. A. G. Tansley

795. The fusion of two nuclei is called

- a.Plasmogamy b.Karyogamy c.Somatogamy d.Monogamy

796. An Organelle in which respiration occurs is

- a.Golgi bodies b.Ribosomes c.Mitochindria d.Chloroplasts

797. Pollen grains are produced in

- a. Stigma b. Ovule c. Ovary d. Anther

798. The types of ribosomes found in prokaryotic cell are

- a.100S b.80S c.60S d.70S

799. Vacuoles are bound by definite membrane in plant cells called

- a.Plasma membrane b.Tonoplast c.Cellwall d.Peptidoglycan

800. The number of ATP produced when a molecule of glucose undergoes fermentation is

- a.4 b.36 c.2 d.38

801. The family Cruciferae is represented by the floral formula

- a.K₂+2, C₄, A₂+4, G (2) b.P₃+3, G₃ c.K₄-5,C₄-5, A₁₀, G 1 d.K(5), C(5), A₅, G(2)

802. Endosperm in angiosperm is

- a.Haploid b.Diploid c.Triploid d.Tetraploid

803. Which of the following considered as father of genetic engineering?

- a.Nirenberg b.Paul berg c.Nathan d.Twort

- 804. A tree carries out photosynthesis and provides organic compounds for other organisms in a forest. Which term applies to the description of the tree?**
- a.Ecosystem b.Habitat c.Niche d.Tropic level
- 805. Grafting tissue or organ between the two individuals of different species is called**
- a.Autograft b.Isograft c.Xenograft d.Allograft
- 806. Pollination brought about by wind is known as**
- a.Zoophily b.Hydrophily c.Anemophily d.Ornithophily
- 807. Ability of a plant or animal to repeatedly divide and differentiate into a complete organism is**
- a.Cloning b.Breeding c.Cellular totipotency d.Mitosis
- 808. Which of the following is not listed as an endangered animal in Nepal?**
- a.Tiger b.Elephant c.Wild water Buffalo d.Yak
- 809. Which one of the following is mainly responsible for Green House effect**
- a.SO₂ b.CO₂ c.CO d.O₂
- 810. Auxin inhibits the growth of**
- a.Apical buds b.Parthenocarpic development of fruits c.Lateral axillary buds d.Roots of cuttings
- 811. A tree carries out photosynthesis and provides organic compounds for other organisms in a forest. Which term applies to the description of the tree?**
- a.Ecosystem b.Habitat c.Tropic level d.Niche
- 812. The condition in which there is a decrease in the number of WBC in humans is known as**
- a.Leukocytosis b.Leucopenia c.Leukemia d.leukohyperia
- 813. Tissue differentiaton begins at which stage**
- a.Zygote b.Morula c.Blastula d.Gastrula
- 814. Protozoan group with two nuclei, macronucleus and micronucleus is**
- a.Flagellata b.Sarcodina c.Ciliate d.Sporozoa
- 815. In Platyhelminthes, the excretory organs are**
- a.Solenocytes b.Nephridia c.Cnidoblasts d.Archaeocytes
- 816. Animal group characterized by pseudocoelom is**
- a.Annelids b.Molluscs c.Aschelminthes d.Echinoderms

- 817. The conversion of protein waste, the ammonia into urea occurs mainly in**
a.Kidney b.Lungs c.Liver d.Intestine
- 818. In earthworm, septa are absent in**
a.First four segments b.5/6, 10/11 c.5/6, 7/8 d.6/7, 7/8
- 819. Amniocentesis is used for determining**
a.Heart diseases b.Brain diseases c.Metabolic diseases d.Prenatal diseases
- 820. The eggs having the yolk at one end are called**
a.Telolecithal b.Microlecithal c.Megalecithal d.Alelecithal
- 821. Causative agent of Malaria is**
a.Bacteria b.Virus c.Protozoa d.Helminth
- 822. The Molluscs which are considered as living fossils are**
a.Neoplina and Solon b.Neoplina and Monoplacophora
c.Pila and Unio d.Chiton and Teredo
- 823. Duct of bellini is associated with**
a.Spleen b.Liver c.Salivary glands d.Kidney
- 824. Paneth cells are found in**
a. Hepatic lobules b. Pancreatic islets c. Crypts of liberkuhn d. Payers patches
- 825. Total number of oxygen molecules that can bind to a single haemoglobin molecule under normal partial pressure**
a.8 b.6 c.2 d.4
- 826. The incomplete divided ventricle can be seen in the heart of**
a. Amphibians b. Reptiles c. Mammals d. Fish
- 827. Which component of tobacco smoke affects blood pressure**
a. Carbondioxide b. Carbonmonoxide c. Nicotine d.tar
- 828. A village has improved its supply of clean water, sewage treatment, insect control and milk pasteurization. Which disease, present in the village, will NOT be reduced by these measures**
a. Cholera b. HIV/AIDS c. Malaria d.Tuberculosis
- 829. By the statement, 'survival of the fittest', Darwin meant that**
a.The strongest of all species survives
b.The most intelligent of the species survives c.The cleverest of the species survives
d.The most adaptable of the species to change survives

- 830. Of the following, which is a basic need of all living things**
 a. Oxygen b. Light c. Carbondioxide d. water
- 831. Which of the following prevents the conversion of prothrombin to thrombin in an undamaged blood vessel**
 a. Calcium ions b. Thromboplastin c. Fibrinogen d. Heparin
- 832. For Origin of life most important condition is the presence of**
 a. Water b. Carbon c. Oxygen d. Nitrogen
- 833. The common feature of Plasmodium and Paramecium is the**
 a. Mode of nutrition b. Locomotary organ c.Reproduction by fission d.Habit
- 834. Open Vascular system is found in**
 a. Human b. Fish c. Prawn d. Reptiles
- 835. The mode of nutrition in Ascaris is**
 a.Holozoic b.Holophyte c.saprozoic d.saprophytic
- 836. Goiter is caused by**
 a. Excess secretion of thyroxin b. Deficiency of iodine
 c. Over eating d. Defective growth hormone
- 837. For the decolourization of 1 mole of KMnO_4 , the moles of H_2O_2 required is**
 A. $1/2$ B. $3/2$ C. $5/2$ D. $7/2$
- 838. For the electron affinity of the halogen which of the following is correct**
 A. $\text{Br} > \text{F}$ B. $\text{F} > \text{Cl}$ C. $\text{Br} > \text{Cl}$ D. $\text{F} > \text{I}$
- 839. Melting points are normally the highest for**
 A. 3° amide B. 2° amide C. 1° amide D. amine
- 840. Which of the following has the same number of atoms as present in 8gm of magnesium**
 A. 9gm Al B. 12gm C C. 16gm S D. 23gm Na
- 841. Compound X changes the colour of warm acidified sodium dichromate(VI) from orange to green. 1 mol of X reacts with 2 mol of HCN in the presence of KCN. What could X be?**
 A. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$ B. $\text{CH}_3\text{COCH}_2\text{COCH}_3$
 C. $\text{H}_2\text{C}=\text{CHCH}_2\text{CHO}$ D. $\text{OHCCH}_2\text{CH}_2\text{CHO}$

842. Calcination process is used in metallurgy for removal of

- A. Water and Sulphide B. Water and CO₂ C. CO₂ and H₂S D. H₂O and H₂S

843. Which one of the following is insoluble in dil.HCl?

- A. ZnS B. MnS C. BaCO₃ D. BaSO₄

844. Dalton's law of partial pressure will not apply to which of the following mixture of gases

- A. H₂ and SO₂ B. H₂ and Cl₂ C. H₂ and CO₂ D. CO₂ and Cl₂

845. Close packing is maximum in the crystal lattice of

- A. Face Centered B. Simple Cubic C. Body centered D. None

846. Spectrum produced due to transition of an electron from M to L shell is

- A. absorption B. emission C. X-rays D. Continuous.

847. Which one of the following is an acid anhydride

- A. Al₂O₃ B. CO₂ C. CO D. CaO

848. The reaction $A + B \rightleftharpoons C + D$ proceeds to right hand side up to 99.9%. The equilibrium constant k of the reaction will be

- A. 104 B. 105 C. 106 D. 107

849. The volume strength of the 1.5N H₂O₂ solution is

- A. 4.8 B. 8.4 C. 3.0 D. 8.0

850. The O-O bond length in Ozone is

- A. 1.27Å B. 1.10Å C. 1.33Å D. 1.48Å

851. When red phosphorous is heated with nitric acid ----- is formed.

- A. HPO₂ B. HPO₃ C. H₂PO₃ D. H₃PO₄

852. The most powerful reducing agent is

- A. HF B. HCl C. HBr D. HI

853. Iron is rendered passive by treating with concentrated

- A. H₂SO₄ B. H₃PO₄ C. HCl D. HNO₃

854. Vinegar contains acetic acid nearly

- A. 6-10% B. 70% C. 30% D. 100%

855. Aspirin is an acetylation product of

- A. o-hydroxy benzoic acid B. o- dihydroxy benzene
C. m- hydroxyl benzoic acid D. p- dihydroxy benzene.

856. Bell metal is an alloy of

- A. Zn and Cu B. Zn and Pb C. Cu and Sn D. Cu and Ni

857. Which mass of gas would occupy a volume of 3 dm³ at 25 °C and 1 atmosphere pressure?

- A. 3.2 g O₂ gas B. 5.6 g N₂ gas C. 8.0 g SO₂ gas D. 11.0 g CO₂ gas

858. How does concentrated sulfuric acid behave when it reacts with sodium chloride?

- A. as an acid only B. as an acid and oxidising agent C. as an oxidising agent only D. as a reducing agent only

859. Which property of Group II elements (beryllium to barium) decreases with increasing atomic number?

- A. reactivity with water B. second ionisation energy C. solubility of hydroxides
D. stability of the carbonates

860. Which reagent will give similar results with both butanone and butanal?

- A. acidified aqueous potassium dichromate(VI) B. an alkaline solution containing complexed Cu²⁺ ions (Fehling's solution)
C. an aqueous solution containing [Ag(NH₃)₂]⁺ (Tollens' reagent) D. 2,4-dinitrophenylhydrazine reagent

861. Which compound is a product of the hydrolysis of CH₃CO₂C₃H₇ by boiling aqueous sodium hydroxide?

- A. CH₃OH B. C₃H₇OH C. C₃H₇CO₂H D. C₃H₇ CO⁻ Na⁺

862. 76. For two resistance wires joined in parallel, the resultant resistance is 6/5 Ω. When one of the resistance wire breaks the effective resistance becomes 2 Ω. The resistance of the broken wire is

- a. 3/5 Ω b. 2 Ω c. 6/5 Ω d. 3 Ω

863. The conductivity of superconductor is

- a. Infinite b. very large c. very small d. zero

864. A soap bubble is charged to a potential of 16 V. It's radius is then doubled. The potential of the bubble now will be

- a. 16 V b. 8 V c. 4 V d. 2 V

865. An α-particle and a proton are accelerated through same potential difference from the rest. Find the ratio of their final velocity

- a. $\sqrt{2} : 1$ b. 1 : 1 c. $1 : \sqrt{2}$ d. 1 : 2

866. Ultrasound waves are produced by

- a. Piezoelectric effect b. Peltier's effect c. Doppler's effect d. Coulomb's law

- 867. A change in temperature affects which property of sound?**
a. Frequency b. amplitude c. wavelength d. loudness
- 868. The bob of simple pendulum is made of iron. If a magnet is placed below the central positions of the bob, it will**
a. Start losing time b. start gaining time c. still give correct time d. stop working
- 869. One-fourth length of a spring of force constant K is cut away. The force constant of the remaining spring will be**
a. $3K/4$ b. $4K/3$ c. K d. 4K
- 870. Which of the following qualities are best suitable for a cooking utensil?**
a. High specific heat and low thermal conductivity
b. High specific heat and high thermal conductivity
c. low specific heat and low thermal conductivity
d. low specific heat and high thermal conductivity
- 871. 22 gram of CO₂ at 27°C is mixed with 16 gram of oxygen at 37°C. The temp. of the mixture is**
a. 32°C b. 27°C c. 37°C d. 30°C
- 872. In old age arteries carrying blood in the human body become narrow resulting in an increase in the blood pressure. This follows from**
a. Pascal's law b. Stocks's law c. Bernoulli's principle d. Archimede's principle
- 873. The increase in pressure required to decrease the 200 liters volume of a liquid by 0.004% in KPa is (bulk modulus of the liquid = 2100 M Pa)**
a. 8.4 b. 84 c. 92.4 d. 168
- 874. Where will be the profitable to purchase one kilogram sugar?**
a. At poles b. at equator c. at 45° latitude d. at 40° latitude
- 875. If the radius of earth's orbit is made 1/4th , then duration of an year will become**
a. 8 times b. 4 times c. 1/8 times d. 1/4 times
- 876. In a uniform circular motion (horizontal) of a ball tied with a string, velocity at any time is at an angle θ with acceleration, then θ is**
a. $\theta = 60^\circ$ b. $\theta = 30^\circ$ c. $\theta = 90^\circ$ d. None of these
- 877. A solid sphere is moving on a horizontal plane. Ratio of its translational K.E. and rotational energy is**
a. 1/5 b. 5/2 c. 3/5 d. 5/7

878. If a body loses half its velocity on penetrating 3 cm on a wooden block, then how much will it penetrate more before coming to rest?
a. 1 cm b. 2 cm c. 3 cm d. 4 cm
879. An inelastic ball is dropped from a 100 m. Due to various reasons, it loses 20% of its energy. To what height will the ball rebound?
a. 80 m b. 40 m c. 60 m d. 20 m
880. Consider a car moving along a straight horizontal road with a speed of 72 km/h. If the coefficient of static friction between road and tires is 0.5, the shortest distance in which the car can be stopped is
a. 30 m b. 40 m c. 72 m d. 20
881. In a rocket of mass 1000 kg, fuel is consumed at a rate of 40 kg/s. The velocity of gases ejected from rocket is 5×10^4 m/s. The thrust on rocket is
a. 2×10^3 N b. 5×10^4 N c. 2×10^6 N d. 2×10^8 N
882. A block of mass 0.1 kg is held against a wall by applying a horizontal force of 5N on the block. If the coefficient of friction between the block and the wall is 0.5, the magnitude of frictional force acting on the block is
a. 2.5 N b. 0.98 N c. 4.9 N d. 0.49 N
883. If $|\mathbf{A} \times \mathbf{B}| = |\mathbf{A} \cdot \mathbf{B}|$, then angle between vector A and B will be
a. 30° b. 45° c. 60° d. 90°
884. Two trains, each 50 m long are travelling in opposite directions with velocity 10 m/s and 15 m/s. The time of crossing is
a. 2 s b. 4 s c. $2\sqrt{3}$ s d. $4\sqrt{3}$ s
885. The number of significant figures in 11.118×10^{-6} V is
a. 3 b. 4 c. 5 d. 6
886. A force is applied on a square plate of side L. If percentage error in determination of L is 2% and that in F is 4%, what is permissible error in pressure?
a. 2% b. 4% c. 6% d. 8%
887. If the half life of a radioactive radium is 1600 years. Find the radium left after 4800 years.
a. 1/8 b. 1/2 c. 1/16 d. 1/4
888. Which of the salts below will produce an alkaline solution when dissolved in water?
a. NH_4Cl b. Na_2CO_3 c. NaNO_3 d. NaCl
889. Who is regarded as the father of genetic engineering
a. Bateson b. Paul berg c. T.H.morgan d. Karl Ereky

890. Edible fungus is

- a. Mucor b. Rhizopus c. Puccinia d. Agaricus

891. What is the contribution of Watson and Crick

- a. single stranded linear structure b. double helix structure of DNA
c. single coiled structure d. double linear structure

892. Nissl's granules are found in

- a. RBC b. Nerve cell c. Bone d. Muscular cell

893. When two capillary tubes of different diameters are dipped vertically in liquid, the height of the liquid is

- a. More in the tube of larger diameter b. Less in the tube of smaller diameter
c. More in the tube of smaller diameter d. Same in the both tubes

894. Cane sugar on hydrolysis gives

- a. Glucose and Lactose b. Glucose and Maltose
c. Glucose and Fructose d. Only Glucose

895. A virus must do what to reproduce

- a. Form a latent virus b. Infect a cell c. Undergo transformation d. Conjugate

896. The science of the classification of animals and plants is known as

- a. Geometrics b. Biometrics c. Systematics d. Zoom

897. Which of the following is the correct pathway for propagation of cardiac impulse?

- a. SA node-AV node-Bundle of His-Purkinje fibers
b. AV node-Bundle of His-SA node-Purkinje fibers
c. SA node-Purkinje fibre- AV node-Bundle of His
d. Purkinje fibres-AV node-SA node-Bundle of His

898. Causative agent of Malaria is

- a. Bacteria b. Protozoa c. Virus d. Helminth

899. Virus is chemically composed of

- a. Starch and Proteins b. Fat and nuclei acid
c. DNA and lipids d. Protein and Nuclei Acid

900. The number of ATP produced when a molecule of glucose undergoes fermentation is:

- a. 4 b. 36 c. 2 d. 38

901. Mycobacterium causes:

- a. Typhoid b. Tuberculosis c. Malaria d. Meningitis

902. In the middle of a round pool lies a beautiful water – lily. The water lily doubles in size every day. After exactly 20 days the complete pool will be covered by the lily. After how many days will half of the pool be covered by the water lily?

- a.15 b.16 c.17 d.19

903. Which one of the following gases are highest in percentage by volumes in atmosphere:

- a. Argon b. Carbon dioxide c. Oxygen d. Nitrogen

904. A person cannot see more nearer than 75cm. Find the power of lens to be used to have normal vision

- a.8.67D b.2.6D c.3.67D d.7.67D

905. Nucleic acid is absent in

- a. Golgi bodies b. Chloroplast c. Nucleus d. Mitochondri

906. The first enzyme used in the Dark reaction

- a. Transketolase b. aldolase c. Carboxylase d. Kinase

907. Urinogenital ducts are lined by

- a. Pseudostratified columnar epithelium b. Glandular epithelium
c. Simple squamous epithelium d. Stratified squamous epithelium

908. α and β cells are found in

- a. Liver b. Pancreas c. Thymus d. Thyroid gland

909. Earthworm respire by

- a. Moist skin b. Clitellum c. Typhlosole d. Ctenidia

910. Which of the following is used in medicinal purpose?

- a. Methyl salicylate b. Ethyl Acetoacetate c. Acetic Acid d. Phenol

911. In the life cycle of malarial parasite, Sexual cycle do not occur in man because of

- a. low temperature b. rapidly changing temperature
c. high temperature d. slow changing temperature

912. Coffee and tea contains little amount of

- a. Cocaine b. Caffeine c. Nicotine d. None

913. Molecular scissors used in genetic engineering is

- a. DNA polymerase b. DNA ligase
- c. Restriction endonuclease d. Helicase

914. Wings of bird and insect represents

- a. Analogous organ b. Homologous organ c. Atavism d. Vestigial organ

915. Atoms having same atomic no. but different mass number are called

- a. Isotopes b. Isobars c. Isotopes d. Isomers

916. Hyoid bone is present at the root of

- a. Tongue b. jaws c. Teeth d. eyes

917. The number of cranial nerves in man is

- a. 5 pairs b. 6 pairs c. 8 pairs d. 12 pairs

918. Gigantism is due to excess of

- a. GH b. IGH c. ADH d. T3/T4

919. Hypothyroidism (deficiency of thyroxine) in Adults results in

- a. Diabetes mellitus b. Diabetes insipidus
- c. Myxoedema d. Exophthalmic goiter

920. Parathormone cause

- a. increased serum calcium level b. decrease serum calcium level
- c. increased blood sugar level d. decrease blood sugar level

921. Adrenal cortex is controlled in its activity by a hormone of pituitary known as

- a. FSH b. TSH c. ACTH d. ADH

922. Which of the following glands atrophies after puberty?

- a. Ovary b. Pineal gland c. Parathyroid gland d. Adrenal gland

923. Which is not a catecholamine?

- a. Adrenaline b. Nor adrenaline c. Dopamine d. Thyroxine

924. Functions of thyroid hormones are

- a. Metabolic function b. Growth function c. CNS development d. All of the above

925. Genes involved in cancer are called

- a. Cancer genes b. Oncogenes c. Tumor genes d. Regulator genes

926. The full form of "DOTS" strategy, now used in treatment of TB is

- a. Directly observed treatment short course
b. Directly observed treatment and surveillance
c. Desirable observation of therapy situation
d. Disease obstacle total surveillance

927. Brown sugar is

- a. very sweet and expensive sugar b. by product of sugarcane
c. addictive drug d. drug used in mental illness

928. In AIDS patient which one is common?

- a. Cryptococcosis b. Histoplasmosis c. Cytomegalo virus d. Tuberculosis

929. Enteric fever (Typhoid) is caused by

- a. Shigella species b. Vibrio cholera c. Microbacterium avium complex
d. Salmonella typhi & Paratyphi

930. Rose-red spots on upper abdomen & back are found in

- a. Cholera b. typhoid c. whooping cough d. malaria

931. A pathologic condition in which malignant cancerous cells spread to distant organ is known as

- a. Anaplasia b. Metastasis c. Local invasion d. Rapid growth rate

932. Giardiasis is due to

- a. Bacterial infection b. Protozoal parasite
c. Viral infection d. Worm infestation

933. Which is not the function of epithelial tissue

- a. Protection b. Secretion c. Absorption d. Conduction

934. Fat cells are

- a. Epithelial tissue b. Connective tissue c. Muscular tissue d. Adipose tissue

935. Immediate source of energy for muscle contraction is

- a. Glucose b. ATP c. GTP d. Creatinine phosphate

936. A resting nerve cell has

- a. Low K^+ inside and high Na^+ inside
- b. High K^+ inside and high Na^+ inside
- c. High K^+ outside and high Na^+ inside
- d. Low K^+ outside and high Na^+ inside

937. Optical fiber is based on phenomenon

- a. Total internal reflection
- b. Interference
- c. Diffraction
- d. Polarization

938. In periodic table on moving left to right what happens

- a. Ionization energy decreases
- b. Electronegativity decreases
- c. Metallic character decreases
- d. Non Metallic Character decreases

939. What is the method of variation in asexually reproducing organisms

- a. Mutation
- b. Crossing over
- c. Fertilization
- d. Replication

940. Lichen is ecologically important because

- a. It is the association of algae and fungi
- b. It has mycorrhizal roots
- c. are earliest settlers of barren rocks
- d. can grow in polluted area

941. Sudden change in the gene is due to

- a. mutation
- b. crossing over
- c. translocation
- d. translation

942. Inheritance of ABC blood group shows

- a. Polygeny
- b. Incomplete dominance
- c. Multiple alleles
- d. Polyploidy

943. Centre of balance in brain is

- a. Cerebrum
- b. Medulla oblongata
- c. Cerebellum
- d. Pons varolli

944. Which of the following is not a disaccharide?

- a. Lactose
- b. Maltose
- c. Mannose
- d. Sucrose

945. Which one of the following is mainly responsible for Green House Effect?

- a. SO_2
- b. CO
- c. CO_2
- d. O_2

946. Both eukaryotes and prokaryotes cells have these organelles

- a. Ribosomes
- b. Golgi apparatus
- c. Mitochondria
- d. Chloroplasts

947. Which one of the human cell do not contain mitochondria

- a. Nerve cells b. Red blood cells c. Liver cells d. White blood cells

948. By the statement 'survival of the fittest', Darwin meant that

- a. The strongest of all species survives b. The most intelligent of the species survives
c. The cleverest of the species survives d. The most adaptable of the species to change survives

949. Which of the following is not a form of asexual reproduction in plants?

- a. Grafting b. Pollination c. Layering d. Runners

950. The process of inheritance of character in living beings is called:

- a. Heredity b. Evolution c. Variation d. Migration