

11th Standard

Biology

Reg.No. : 

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Exam Time : 01:00:00 Hrs

Total Marks : 50

50 x 1 = 50

- 1) Identify the Archaeobacterium  
 (a) Acetobacter                      (b) Erwinia                      (c) Treponema                      (d) Methanobacterium
- 2) The correct statement regarding Blue green algae is  
 (a) lack of motile structures                      (b) presence of cellulose in cell wall                      (c) absence of mucilage around the thallus                      (d) presence of floridean starch
- 3) Living things are made of \_\_\_\_\_  
 (a) Organisms                      (b) Atoms                      (c) Organs                      (d) Cells
- 4) \_\_\_\_\_ are obligate aerobes.  
 (a) Streptococcus                      (b) Clostridium                      (c) Micrococcus                      (d) E. Coli
- 5) Who introduced the Gram staining method?  
 (a) Bergy                      (b) Christian Gram                      (c) Ehrenberg                      (d) Lederberg
- 6) Indicate the correct statement:  
 (a) Virion is a circular molecule of ss RNA without a capsid                      (b) Virion is a phage injects to linear DNA into the host cell                      (c) Virion is an intact infective virus particle, which is non - replicating outside a host cell                      (d) Virion's discovered by I.W Randles
- 7) Transfer of DNA from one bacterium to another is called:  
 (a) Conjugation                      (b) Transformation                      (c) Transduction                      (d) Binary fission
- 8) Porin is present in the cell wall of \_\_\_\_\_.  
 (a) Virus                      (b) Mosquito                      (c) Housefly                      (d) Bacteria
- 9) The bacterial plasma membrane is made up of \_\_\_\_\_.  
 (a) Protein                      (b) Lipids                      (c) Lipoprotein                      (d) Carbohydrates
- 10) Plasmids occur in \_\_\_\_\_.  
 (a) Bacteria                      (b) Viruses                      (c) Chloroplast                      (d) Chromosome
- 11) Cup fungus belongs to \_\_\_\_\_.  
 (a) zygomycetes                      (b) oomycetes                      (c) ascomycetes                      (d) actinomycetes
- 12) Which group of fungus is called as Sac fungi?  
 (a) Deuteromycetes                      (b) Zygomycetes                      (c) Ascomycetes                      (d) Oomycetes
- 13) Number of ascospores in an asci is \_\_\_\_\_.  
 (a) 2                      (b) 4                      (c) 6                      (d) 8
- 14) Which of following represent generation in pteridophytes?  
 (a) Prothallus                      (b) Thallus.                      (c) Cone                      (d) Rhizophore
- 15) The haploid number of chromosome for an Angiosperm is 14, the number of chromosome in its endosperm would be  
 (a) 7                      (b) 14                      (c) 42                      (d) 28
- 16) Algae growing in snow are called \_\_\_\_\_.  
 (a) Cryophytic                      (b) Epiphytic                      (c) Terrestrial                      (d) Epizoic
- 17) Algae grown on the surface of aquatic plants are called \_\_\_\_\_.  
 (a) Cryophytic                      (b) Epiphytic                      (c) Terrestrial                      (d) Epizoic
- 18) Match the following  
 A) Unicellular motile                      - 1. Volvox  
 B) Unicellular non - motile                      - 2. Hydrodictyon  
 C) Colonial motile                      - 3. Chalmydomonas  
 D) Colonial non - motile                      - 4. Chlorella

- (a) A - 3, B - 4, C - 1, D - 2      (b) A - 4, B - 3, C - 2, D - 1      (c) A - 1, B - 2, C - 3, D - 4      (d) A - 4, B - 3, C - 2, D - 1
- 19) When the root is thick and fleshy, but, does not taken a definite shape, it said to be  
 (a) Nodulose root      (b) Tuberos root      (c) Monilliform root      (d) Fasciculated root
- 20) Example for negatively geotropic roots  
 (a) Ipomoea, Dahlia      (b) Asparagus, Ruellia      (c) Vitis, Portulaca      (d) Avicennia, Rhizophora
- 21) Foliar roots are seen in \_\_\_\_\_  
 (a) Bryophyllum      (b) Dendrobium      (c) White cotton      (d) Pandanus
- 22) Stilt roots are seen in \_\_\_\_\_  
 (a) Zea mays      (b) Delonix regia      (c) Begonia      (d) Ficus
- 23) Identify the wrong statement  
 (a) Branches of stem arise endogenously      (b) Stem bears multicellular hairs      (c) Stem is positively phototropic      (d) Stem bears floral buds
- 24) Musa is an example for \_\_\_\_\_.  
 (a) climber      (b) runner      (c) stolon      (d) sucker
- 25) Eichhornia exhibit \_\_\_\_\_ type of stem modification  
 (a) stolon      (b) offset      (c) runner      (d) sucker
- 26) Underground stems are generally called as \_\_\_\_\_  
 (a) root caps      (b) root stocks      (c) root pockets      (d) root modification
- 27) In an inflorescence where flowers are borne laterally in an acropetal succession the position of the youngest floral bud shall be  
 (a) Proximal      (b) Distal      (c) Intercalary      (d) Anywhere
- 28) A true fruit is the one where  
 (a) Only ovary of the flower develops into fruit      (b) Ovary and calyx of the flower develops into the fruit      (c) Ovary, calyx, and thalamus of the flower develops into the fruit      (d) All floral whorls of the flower develop into fruit:
- 29) Which of the following is a flowering plant with nodules containing filamentous nitrogen fixing micro-organisms?  
 (a) Crotalaria juncea      (b) Cycas revoluta      (c) Cicer arietinum      (d) Casuarina equisetifolia
- 30) Flowers are zygomorphic in  
 (a) Ceropogia      (b) Thevetia      (c) Datura      (d) Solanum
- 31) Sequences of which of the following is used to know the phylogeny  
 (a) mRNA      (b) rRNA      (c) tRNA      (d) Hn RNA
- 32) If mitotic division is restricted in G1 phase of the cell cycle then the condition is known as  
 (a) S Phase      (b) G<sub>2</sub> Phase      (c) M Phase      (d) G<sub>0</sub> Phase
- 33) In S phase of the cell cycle  
 (a) Amount of DNA doubles in each cell      (b) Amount of DNA remains same in each cell      (c) Chromosome number is increased      (d) Amount of DNA is reduced to half in each cell
- 34) A group of organisms having similar traits of a rank is  
 (a) Species      (b) Taxon      (c) Genus      (d) Family
- 35) Every unit of classification regardless of its rank is  
 (a) Taxon      (b) Variety      (c) Species      (d) Strain
- 36) Cladogram considers the following characters  
 (a) Physiological and Biochemical      (b) Evolutionary and Phylogenetic      (c) Taxonomic and systematic      (d) None of the above
- 37) Which of the following animals has a true coelom?  
 (a) Ascaris      (b) Pheretima      (c) Sycon      (d) Taenia solium
- 38) The respiratory pigment in cockroach is  
 (a) Haemoglobin      (b) Haemocyanin      (c) Oxyhaemoglobin      (d) Haemoerythrin
- 39) Pneumatic bones are seen in  
 (a) Mammalia      (b) Aves      (c) Reptilia      (d) Sponges
- 40) The ciliated epithelium lines the  
 (a) Skin      (b) Digestive tract      (c) Gall bladder      (d) Trachea

- 41) Prevention of substances from leaking across the tissue is provided by  
(a) Tight junction (b) Adhering junction (c) Gap junction (d) Elastic junction
- 42) How many abdominal segments are present in male and female Cockroaches?  
(a) 10, 10 (b) 9, 10 (c) 8, 10 (d) 9,9
- 43) Which of the following does not have an open circulatory system?  
(a) Frog (b) Earthworm (c) Pigeon (d) Cockroach
- 44) Buccopharyngeal respiration in frog  
(a) is increased when nostrils are closed (b) Stops when there is pulmonary respiration (c) is increased when it is catching fly (d) stops when mouth is opened.
- 45) Absorption of glycerol, fatty acids and monoglycerides takes place by  
(a) Lymph vessels within villi (b) Walls of stomach (c) Colon (d) Capillaries within villi
- 46) First step in digestion of fat is  
(a) Emulsification (b) Enzyme action (c) Absorption by lacteals (d) Storage in adipose tissue
- 47) Asthma is caused due to  
(a) bleeding in the pleural cavity (b) infection of nose (c) damage of diaphragm (d) infection of lungs
- 48) The Oxygen Dissociation Curve is  
(a) sigmoid (b) straight line (c) curved (d) rectangular hyperbola
- 49) At the venous end of the capillary bed, the osmotic pressure is  
(a) Greater than the hydrostatic pressure (b) Result in net outflow of fluids (c) Results in net absorption of fluids (d) No change occurs
- 50) A patient's chart reveals that he has a cardiac output of 7500mL per minute and a stroke volume of 50 mL. What is his pulse rate (in beats/min)?  
(a) 50 (b) 100 (c) 150 (d) 400

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- 1) Nerium exhibits \_\_\_\_\_ phyllotaxy.  
 (a) ternate (b) whorled (c) decussate (d) alternate
- 2) Ashwagandha refers to .....  
 (a) Datura sp (b) Withania sp (c) Atropa (d) Capsicum
- 3) Photosynthetic roots are present in \_\_\_\_\_.  
 (a) Viscum (b) Tinospora (c) Cassytha (d) Orabanche
- 4) Which of the following is advantageous for the animals in locomotion, food capture etc.?  
 (a) asymmetrical (b) radially symmetrical (c) biradially symmetrical (d) bilaterally symmetrical
- 5) \_\_\_\_\_ is a catalytic RNA.  
 (a) mRNA (b) Ribozyme (c) Ribonuclease (d) rRNA
- 6) \_\_\_\_\_ are superior among all living things as they have an additional ability of self-consciousness.  
 (a) Animals (b) Plants (c) Humans (d) Monera
- 7) Which of the following has open type of circulation?  
 (a) frogs (b) garden lizard (c) man (d) cockroach
- 8) Sucrose is a  
 (a) Polysaccharide (b) Disaccharide (c) Monosaccharide (d) Triglyceride
- 9) Spiral arrangement of leaves show vertical rows called \_\_\_\_\_.  
 (a) decussate (b) bifarious (c) orthostichies (d) distichous
- 10) A branched corymb is called \_\_\_\_\_.  
 (a) Compound corymb (b) Homogamous head (c) Heterogamous head (d) Disc florets
- 11) Parallel venation is the characteristic feature of \_\_\_\_\_.  
 (a) angiosperms (b) gymnosperms (c) dicots (d) mono cots
- 12) Mostly perennial herbs persisting by means of a sympodial rhizome in \_\_\_\_\_.  
 (a) Liliaceae (b) Polygonatum (c) Bulb (d) Corm
- 13) \_\_\_\_\_ are obligate aerobes.  
 (a) Streptococcus (b) Clostridium (c) Micrococcus (d) E. Coli
- 14) Palmately parallel divergent venation is seen in \_\_\_\_\_.  
 (a) Carica papaya (b) Borassus flabellifer (c) Zizyphus (d) Cinnamomum
- 15) \_\_\_\_\_ are also known as metachromatic granules.  
 (a) Sulphur granules (b) Nucleus (c) Pore complex (d) Perinuclear space
- 16) What is the fruit in Petunia?  
 (a) Didynamous (b) Berry (c) Capsule (d) Endospermous
- 17) What is the name of Lily family?  
 (a) Liliaceae (b) Polygonatum (c) Bulb (d) Corm
- 18) \_\_\_\_\_ protects the end of the chromosomes from damage  
 (a) Satellite (b) Kinetochore (c) Primary constriction (d) Telomere
- 19) What is the seed of Solanaceae?  
 (a) Didynamous (b) Berry (c) Capsule (d) Endospermous
- 20) \_\_\_\_\_ is an important unit of cell which control II activities of the cell.  
 (a) Sulphur granules (b) Nucleus (c) Pore complex (d) Perinuclear space
- 21) Indicate a macromolecule:  
 (a) Amino acid (b) Protein (c) Nucleotide (d) Glucose
- 22) Which is not a pyrimidine base?

- (a) Cytosine (b) Uracil (c) Guanine (d) Thymine

23) In Greek, 'taxis' means \_\_\_\_\_.

- (a) crowding (b) spreading (c) arrangement (d) attachment

24) \_\_\_\_\_ at the centre of the head are tabular and bisexual.

- (a) Compound corymb (b) Homogamous head (c) Heterogamous head (d) Disc florets

25) Mad cow disease is caused by \_\_\_\_\_

- (a) Prions (b) Virion (c) Viroid (d) Phage

26) Source of illumination for image formation in dark field microscope is:

- (a) Electron (b) ultra violet light (c) X- rays (d) Visible light

27) The word cell was first used by:

- (a) Robert brown (b) Robert Hooke (c) Zemike (d) Robert schwann

28) Give an example for foliar buds \_\_\_\_\_.

- (a) Agave (b) Bryophyllum (c) Citrus (d) Duranta

29) How many times is the genetic material replicated during meiosis?

- (a) Twice (b) Once (c) Four times (d) None of the above

30) Prickles are seen in .....

- (a) Solanum tuberosum (b) Solanum xanthocarpum (c) Solanum nigrum (d) Solanum trilobatum

31) In ..... of solanaceae flowers are zygomorphic.

- (a) Physalis (b) Schizanthus (c) Salpiglossis (d) Capsicum

32) Idea of cell theory was first proposed by:

- (a) Matthias Schleiden (b) Theodor schwann (c) H.J. Dutrochet (d) Rudolf Virchow

33) In the plant cell, cytokinesis occurs by \_\_\_\_\_

- (a) Separation of the cytoplasm from the periphery to central region. (b) Separation of the cytoplasm throughout the equatorial plane simultaneously. (c) Separation of the cytoplasm from cell centre to side at right angles to the plane of its periphery (d) Following of cytoplasm from two spindle pole

34) Sum total of constructive reactions is called as \_\_\_\_\_

- (a) Anabolism (b) Catabolism (c) Metabolism (d) Embolism

35) Which is not a class of Gymnosperm?

- (a) Lycopodia (b) Cycadopsida (c) Coniferopsida (d) Gnetopsida

36) More than 6 tepals are seen in .....of Liliaceae.

- (a) Paris (b) Allium (c) Gloriosa (d) Scilla

37) Which of them has Haustorial roots?

- (a) Cuscuta (b) Trapa (c) Tinospora (d) Avecinia

38) Cytokinesis is generally, but not always, seen in mitosis. If cells undergo mitosis and do not follow cytokinesis then it would result in:

- (a) Cells with abnormal small nuclei (b) Ensuring genetic homogeneity of cell (c) A cell with a single large nucleus (d) A cell with two or more nuclei

39) The number of sugar units present in oligosaccharides:

- (a) 14 to 15 (b) 6 to 8 (c) 2 to 10 (d) 11 to 12

40) Match the following.

A) Malic acid	i) Mimosa pudica
B) Tannins	ii) Apple
C) Raphide	iii) Dandelionstem
D) Heavy metals	iv) Dieffenbachia
E) Latex	v) Mustard

- (a) A - i), B - ii), C - iii), D - iv), (b) A - v), B - iv), C - iii), D - ii), (c) A - v), B - i), C - iii), D - iv), (d) A - ii), B - i), C - iv), D - v), E - v) E - i) E - ii) E - iii)

41) Coralloid roots of cycas have symbiotic association with \_\_\_\_\_

- (a) Blue green algae                      (b) Mycorrhiza                      (c) Euglena                      (d) Rhizobium
- 42) Phase contrast microscope was invented by:  
 (a) Zemike                      (b) Robert brown                      (c) Sigmondy                      (d) Robert hooke
- 43) Pinus roots are in symbiotic relationship with \_\_\_\_\_  
 (a) Blue green algae                      (b) Mycorrhiza                      (c) Euglena                      (d) Rhizobium
- 44) Detection of changes in their living place by organisms is called  
 (a) Interactions                      (b) Consciousness                      (c) Autotropic                      (d) Meterotropic
- 45) \_\_\_\_\_ type of inflorescence exhibits single kind of florets.  
 (a) Compound corymb                      (b) Homogamous head                      (c) Heterogamous head                      (d) Disc florets
- 46) The inflorescence possesses both types of florets \_\_\_\_\_.  
 (a) Compound corymb                      (b) Homogamous head                      (c) Heterogamous head                      (d) Disc florets
- 47) Assertion (A): Dead space is not involved in gaseous exchange.

Reason (R): Some of the inspired air never reaches the gas exchange areas but fills the respiratory passages where exchange of gases does not occur. This air is called dead space.

- (a) (R) is correct but (A) is wrong  
 (b) Both (A) and (R) are wrong  
 (c) (A) is correct but (R) is wrong  
 (d) (A) is correct and (R) explains (A)

- 48) Assertion (A): The Prokaryotes which have the ability to grow in extreme condition.

Reason (R): Prokaryotes can grow in volcano vents, hot springs and polar ice caps, hence are called extremophites. They are capable of synthesizing their food without sunlight and oxygen by utilizing hydrogen sulphide and other chemicals from the volcanic vents.

- (a) Both (A) and (R) are wrong  
 (b) (A) is correct and (R) explains (A)  
 (c) (A) is wrong and (R) is correct  
 (d) (R) is wrong and (A) is correct

- 49) Assertion (A): Cockroaches can survive without a head.

Reason (R): A cockroach can live for a week without its head. Due to their open circulatory system, and the fact that they breathe through little holes on each of their body segments.

- (a) (A) is correct but (R) is wrong  
 (b) Both (A) and (R) are wrong  
 (c) (A) is correct and (R) explains (A)  
 (d) (R) is correct but (A) is wrong

- 50) Assertion (A): Liver fluke is hermaphrodite or monoecious.

Reason (R): Schistosoma is commonly called hydatid worm.

- (a) Both (A) and (R) are correct  
 (b) (A) and (R) are correct but (R) is not a correct explanation of the (A)  
 (c) (A) is correct, (R) is wrong  
 (d) Both (A) and (R) are wrong

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# BOTANY MODEL 1

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Exam Time : 01:30:00 Hrs

Total Marks : 35

8 x 1 = 8

- 1) Identify the correctly matched pair  
 (a) Actinomycete - Late blight      (b) Mycoplasma - Lumpy jaw      (c) Bacteria - Crown gall      (d) Fungi - Sandal spike
- 2) Endosperm in Gymnosperm is formed  
 (a) At the time of fertilization.      (b) Before fertilization.      (c) After fertilization.      (d) Along with the development of embryo .
- 3) Bryophyllum and Dioscorea are example for  
 (a) Foliar bud, apical bud      (b) Foliar bud, cauline bud      (c) Cauline bud, apical bud      (d) Cauline bud, foliar bud
- 4) A true fruit is the one where  
 (a) Only ovary of the flower develops into fruit      (b) Ovary and calyx of the flower develops into the fruit      (c) Ovary, calyx, and thalamus of the flower develops into the fruit      (d) All floral whorls of the flower develop into fruit:
- 5) Flowers are zygomorphic in  
 (a) Ceropogia      (b) Thevetia      (c) Datura      (d) Solanum
- 6) Match the columns and identify the correct option:

	Column I		Column II
A	Thylakoids	1.	Disc-shaped sacs in Golgi apparatus
B.	Cristae	2.	Condensed structure of DNA
C.	Cisternae	3.	Flat membranous sacs in stroma
D	Chromatin	4.	Infoldings in mitochondria

(a)

A	B	C	D
3	4	2	1

(b)

A	B	C	D
4	3	1	2

(c)

A	B	C	D
3	4	1	2

(d)

A	B	C	D
3	1	4	2

- 7) Anastral mitosis is the characteristic feature of  
 (a) Lower animals      (b) Higher animals      (c) Higher plants      (d) All living organisms
- 8) Grafting is successful in dicots but not in monocots because the dicots have  
 (a) Vascular bundles arranged in a ring      (b) Cambium for secondary growth      (c) Vessels with elements arranged end to end      (d) Cork cambium

ANSWER 4

4 x 2 = 8

- 9) Why do farmers plant leguminous crops in crop rotations/mixed cropping?
- 10) Do you agree with the statement 'Bryophytes I need water for fertilization'? Justify your answer.
- 11) Compare pinnate unicostate and palmate multicostate venation.
- 12) Write any three significance of mitosis.
- 13) List out the non-photosynthetic parts of a plant that needs a supply of sucrose?
- 14) When there is plenty of light and the higher concentration of O<sub>2</sub>, what kind of pathway does the plant undergo? Analyse the reasons.

ANSWER 3

3 x 3 = 9

- 15) How symbiotic relationship is executed in mycorrhiza?
- 16) Compare the anatomical features between Dicots & Monocots.
- 17) Make a tabular column showing types of terrestrial plants and their environmental adaptation with examples
- 18) Write systematic position of liliaceae based of Bentham and Hooker Classification?
- 19) Draw the Structure of Peroxisome's.

ANSWER ALL

2 x 5 = 10

- 20) Give a general account on lichens.
- 21) Differentiate cytokinesis in plant cells and animal cells.
- 22) Explain sclereids with their types.
- 23) A transverse section of the trunk of a tree shows concentric rings which are known as growth rings. How are these rings formed? What is the significance of these rings?

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- 1) A living organism is differentiated from non- living structure based on  
(a) Reproduction (b) Growth (c) Metabolism (d) Movement
- 2) The symmetry exhibited in cnidarians is  
(a) Radial (b) Bilateral (c) Pentamerous radial (d) Asymmetrical
- 3) The main function of the cuboidal epithelium is  
(a) Protection (b) Secretion (c) Absorption (d) Both (b) and (c)
- 4) The clitellum is a distinct part in the body of earthworm *Lampito mauritii*, it is found in?  
(a) Segments 13 - 14 (b) Segments 14 - 17 (c) Segments 12 - 13 (d) Segments 14 - 16
- 5) Choose the incorrect sentence from the following:  
(a) Bile juice emulsifies the fat. (b) Chyme is a digestive acidic food in the stomach. (c) Pancreatic juice converts lipid into fatty acid and glycerol. (d) Enterokinase stimulates the secretion of pancreatic juice.
- 6) Breathing is controlled by  
(a) cerebrum (b) medulla oblongata (c) cerebellum (d) pons
- 7) What is the function of lymph?  
(a) Transport of O<sub>2</sub> into brain (b) Transport of CO<sub>2</sub> into lungs (c) Bring interstitial fluid in blood (d) Bring RBC and WBC in lymph node
- 8) Concentration of urine depends upon which part of the nephron  
(a) Bowman's capsule (b) Length of Henle's loop (c) P.C.T. (d) Network of capillaries arising from glomerulus

ANSWER 4

4 x 2 = 8

- 9) Differentiate between probiotics and pathogenic bacteria
- 10) Why are spongin and spicules important to a sponge?
- 11) Some epithelia are pseudostratified. What does this mean?
- 12) What characteristics are used to identify the earthworms?
- 13) Why are villi present in the intestine and not in the stomach?
- 14) Name the respiratory organs of flatworm, earthworm, fish, prawn, cockroach and cat.

ANSWER 3

3 x 3 = 9

- 15) List any five salient features of the family Felidae.
- 16) Compare Schizocoelom with enterocoelom.
- 17) Differentiate between elastic fibres and elastic connective tissue.
- 18) Write the types of respiration seen in frog.
- 19) Bile juice contains no digestive enzymes, yet it is important for digestion. Why?

ANSWER 2

2 x 5 = 10

- 20) What is the role of Charles Darwin in relation to concept of species
- 21) Write the classification of connective tissue and their functions.
- 22) How respiration takes place in cockroach?
- 23) Diffusion of gases occurs in the alveolar region only and not in any other part of the respiratory system. Discuss

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**BOTANY MODEL 2**

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8 x 1 = 8

- 1) Basidiomycetes do not possess this feature.  
(a) Clamp connection                      (b) Club Fungi                      (c) Dolipore septum                      (d) Lack sexual reproduction
- 2) Bacterial cell wall contains \_\_\_\_\_  
(a) peptidoglycan                              (b) glucose                              (c) flagellin                              (d) chitin
- 3) Unifoliate leaf is found in \_\_\_\_\_  
(a) Pea                              (b) Citrus                              (c) Royal palm                              (d) Oil palm
- 4) \_\_\_\_\_ species is the basic unit of evolutionary process.  
(a) Davis and Heywood                      (b) Simpson                              (c) carolus Linnaeus                      (d) Stebbins
- 5) Inflorescence of spikes in \_\_\_\_\_.  
(a) Ruscus                              (b) Similax                              (c) Yucca                              (d) Aloe
- 6) The term protoplasm was coined by \_\_\_\_\_.  
(a) A Purkinje                              (b) Mohl                              (c) Schultze                              (d) Felix
- 7) \_\_\_\_\_ central part of the centriole is called hub, is connected to the tubules.  
(a) Glyoxysome                              (b) Microbodies                              (c) Sphaerosome                              (d) Centrioles
- 8) Fungi and other microbes synthesizes a number of \_\_\_\_\_.  
(a) Water                              (b) Hydrogen                              (c) Organic compounds                              (d) Primary metabolites

4 x 2 = 8

- 9) How do living things grow?
- 10) Name some eminent algologists.
- 11) What are geophytes?
- 12) Mention the types of special inflorescence.
- 13) Define Taxonomy.
- 14) Name the two kinds of electron microscopes
- 15) Briefly discuss on five kingdom classification, Add a note on merits and demerits.
- 16) Discuss the process of reproduction.
- 17) What are the three types of sexual reproduction occur in algae?
- 18) Explain the different types of placentation with example.
- 19) Distinguish between prokaryotes and eukaryotes.
- 20) Explain the insectivorous mode of nutrition in angiosperms?

3 x 3 = 9

- 21) List out some plant diseases caused by Bacteria.
- 22) Write the similarities and differences between  
(i) Avicennia and Trapa.  
(ii) Banyan and Silk cotton.  
(iii) Fusiform and Napiform root.
- 23) Give the floral characters of Clitoria ternatea.
- 24) Briefly outline the classification of enzymes.

2 x 5 = 10

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## ZOOLOGY MODEL 2

11th Standard

Biology

Reg.No. : 

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Exam Time : 01:30:00 Hrs

Total Marks : 35

8 x 1 = 8

- 1) The word Taxonomy was coined by \_\_\_\_\_ .  
(a) Linnaeus                      (b) Candolle                      (c) Aristotle                      (d) John Ray
- 2) Choose the correct statement with regard to Sponges.  
i) They have a opening called spongocoel.  
ii) They reproduce asexually by gemma formation.  
iii) Nutrition is intracellular.  
iv) Canal system is present  
(a) ii & iii                      (b) iii & iv                      (c) i only                      (d) All the above
- 3) Microvilli and Goblet cells are the modifications of  
(a) cuboidal epithelium                      (b) columnar epithelium                      (c) squamous epithelium                      (d) ciliated epithelium
- 4) \_\_\_\_\_ helps in digestion in cockroach.  
(a) Malpighian tubules                      (b) Hepatic caecae                      (c) Rectum                      (d) Crop
- 5) Sphincter of Oddi is seen between \_\_\_\_\_  
(a) ileum and jejunum                      (b) small intestine and large intestine                      (c) bile duct and duodenum                      (d) pancreatic duct and bile duct
- 6) Painful respiration is called \_\_\_\_\_  
(a) Dyspnoea                      (b) Narcosis                      (c) Hypoxia                      (d) Decompression sickness.
- 7) Choose the wrong statement:  
(a) RBC are                      (b) There are about 5-5.5 million RBC in 1                      (c) The RBC's are devoid of                      (d) Liver is the  
biconcave in shape                      cubic mm of blood.                      Mitochondria, Ribosomes etc.                      graveyard of RBC
- 8) The ureter, blood vessels enter the kidney through \_\_\_\_\_  
(a) Hilum                      (b) Renal columns of Bertini                      (c) Hilus                      (d) Renal pelvis

ANSWER 4

6 x 2 = 12

- 9) Why mule is sterile in nature?
- 10) What are the four characteristics common to most animals
- 11) Differentiate white adipose tissue from brown adipose tissue.
- 12) What are earthworm casts?
- 13) Name the enzyme that catalyses the bicarbonate formation in RBCs.
- 14) Differentiate cortical from medullary nephrons

ANSWER 3

5 x 3 = 15

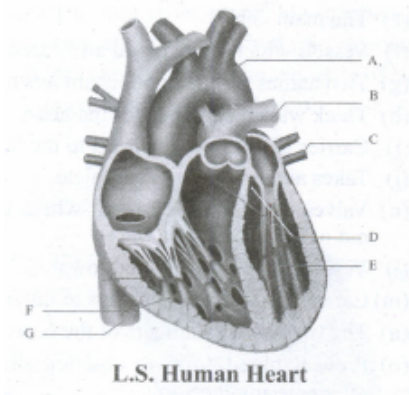
- 15) Concept Mapping - Use the following terms to create a concept map that shows the major characteristic features of the phylum nematode: Roundworms, pseudocoelomates, digestive tract, cuticle, parasite, sexual dimorphism.
- 16) Name any four important functions of epithelial tissue and provide at least one example of a tissue that exemplifies each function.
- 17) Differentiate between peristomium and prostomium in earthworm.
- 18) List the chemical changes that starch molecule undergoes from the time it reaches the small intestine.
- 19) Why is pneumonia considered a dangerous disease?

ANSWER 2

4 x 5 = 20

- 20) What are the rules of Nomenclature?
- 21) Sketch a flow chart to show the path way of air flow during respiration.

22) Name and Label the given diagrams to show A, B, C, D, E, F, and G



23) What is the function of antidiuretic hormone? Where is it produced and what stimuli increases or decreases its secretion?

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### BOTANY MODEL 3

11th Standard

Biology

Reg.No. : 

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Exam Time : 01:30:00 Hrs

Total Marks : 35

8 x 1 = 8

- 1) Consider the following statements:  
In spring season vascular cambium
- is less active.
  - produces a large number of xylary elements.
  - forms vessels with wide cavities of these
- (a) (i) is correct but (ii) and (iii) are not correct  
(b) (i) is not correct but (ii) and (iii) are correct  
(c) (i) and (ii) are correct but (iii) is not correct  
(d) (i) and (ii) are not correct but (iii) is correct.
- 2) The wood formed in spring season is called \_\_\_\_\_  
(a) Hard wood (b) Soft wood (c) Early wood (d) Non porous wood
- 3) In a fully turgid cell  
(a) DPD = 10 atm; OP = 5 atm; TP = 10 atm  
(b) DPD = 0 atm; OP = 10 atm; TP = 10 atm  
(c) DPD = 0 atm; OP = 5 atm; TP = 10 atm  
(d) DPD = 20 atm; OP = 20 atm; TP = 10 atm
- 4) Which of the following physical force is responsible for ascent of sap?  
(a) Imbibition (b) Capillary force (c) Transpiration pull and cohesion (d) Root pressure
- 5) Identify correct match:
- |                               |          |
|-------------------------------|----------|
| 1. Die back disease of citrus | (i) Mo   |
| 2. Whip tail disease          | (ii) Zn  |
| 3. Brown heart of turnip      | (iii) Cu |
| 4. Little leaf                | (iv) B   |
- (a) 1(iii) 2(ii) 3(iv) 4(i) (b) 1(iii) 2(i) 3(iv) 4(ii) (c) 1(i) 2(iii) 3(ii) 4(iv) (d) 1(ii) 2(iv) 3(ii) 4(i)
- 6) **Assertion (A):** Increase in Proton gradient inside lumen responsible for ATP synthesis  
**Reason (R):** Oxygen-evolving complex of PS I located on thylakoid membrane facing Stroma, releases H<sup>+</sup> ions  
(a) Both Assertion and Reason are True. (b) Assertion is True and Reason is False. (c) Reason is True and Assertion is False. (d) Both Assertion and Reason are False.
- 7) The number of ATP molecules formed by complete oxidation of one molecule of pyruvic acid is  
(a) 12 (b) 13 (c) 14 (d) 15
- 8) Select the wrong statement from the following:  
(a) Formative phase of the cells retains the capability of cell division. (b) In elongation phase development of central vacuole takes place. (c) In maturation phase thickening and differentiation take place. (d) In maturation phase, the cells grow further.

ANSWER 4

4 x 2 = 8

- 9) In which season the vessels of angiosperms are larger in size, why?
- 10) List out the non-photosynthetic parts of a plant that needs a supply of sucrose?
- 11) Write the role of nitrogenase enzyme in nitrogen fixation?
- 12) When there is plenty of light and the higher concentration of O<sub>2</sub>, what kind of pathway does the plant undergo? Analyse the reasons.
- 13) Respiratory quotient is zero in succulent plants. Why?
- 14) What are the parameters used to measure growth of plants?

ANSWER 3

3 x 3 = 9

- 15) A timber merchant bought 2 logs of wood from a forest & named them A & B, The log A was 50 year old & B was 20 years old. Which log of wood will last longer for the merchant? Why?

- 16) The nitrogen is present in the atmosphere in huge amount but higher plants fail to utilize it. Why?
- 17) What are enzymes involved in phosphorylation and dephosphorylation reactions in EMP pathway?
- 18) What is plasticity?

ANSWER 2

2 x 5 = 10

- 19) A transverse section of the trunk of a tree shows concentric rings which are known as growth rings. How are these rings formed? What is the significance of these rings?
- 20) An artificial cell made of selectively permeable membrane immersed in a beaker (in the figure). Read the values and answer the following questions?



- Draw an arrow to indicate the direction of water movement.
  - Is the solution outside the cell isotonic, hypotonic or hypertonic?
  - Is the cell isotonic, hypotonic or hypertonic?
  - Will the cell become more flaccid, more turgid or stay in original size?
  - With reference to artificial cell state, the process is endosmosis or exosmosis? Give reasons
- 21) Explain Cytochrome pump theory?
- 22) Explain Chemiosmotic theory.

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**ZOOLOGY MODEL 3**

11th Standard

Biology

Reg.No. : 

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Exam Time : 01:30:00 Hrs

Total Marks : 35

8 x 1 = 8

- 1) Peyer's patches are seen in the \_\_\_\_\_  
(a) mouth                      (b) stomach                      (c) ileum                      (d) duodenum
- 2) In humans, digestion is  
(a) Intercellular                      (b) Intracellular                      (c) Extracellular                      (d) Both A and B
- 3) Insects respire through  
(a) body surface                      (b) trachea                      (c) gills                      (d) book lungs
- 4) Vocal cords occur in  
(a) Pharynx                      (b) Larynx                      (c) Glottis                      (d) Bronchial tube
- 5) Ventricular depolarisation is represented by \_\_\_\_\_ in a ECG.  
(a) ST segment                      (b) T wave                      (c) QRS complex                      (d) PQ interval
- 6) What P indicates in ECG?  
(a) End of atrium systole                      (b) Starting of atrium systole                      (c) End of ventricle systole                      (d) Starting of ventricle systole
- 7) There are \_\_\_\_\_ pairs of thoracic nerves.  
(a) 8                      (b) 5                      (c) 1                      (d) 12
- 8) Facial nerve is a \_\_\_\_\_ nerve.  
(a) Sensory                      (b) Mixed                      (c) Motor                      (d) Efferent

ANSWER 4

6 x 2 = 12

- 9) What is BMI?
- 10) Define respiration.
- 11) What are basophils?
- 12) Which myofilament has the binding sites for calcium?
- 13) What is the significance of vitamin A in vision?
- 14) What is swarming in lac culture?

ANSWER 3

5 x 3 = 15

- 15) What is lymph? Write its function.
- 16) When a molecule or ion is reabsorbed from the lumen of the nephron, where does it go? If a solute is filtered and not reabsorbed from the tubule, where does it go?
- 17) How is the process of micturition altered by toilet training?
- 18) How does an isotonic contraction take place?
- 19) The choroid plexus secretes cerebrospinal fluid. List the function of it.

ANSWER 2

4 x 5 = 20

- 20) Explain the internal structure of the gut.
- 21) Differentiate hyperglycaemia from hypoglycaemia
- 22) Animal husbandry is the science of rearing, feeding and caring, breeding and disease control of animals. It ensures supply of proper nutrition to our growing population through activities like increased production and improvement of animal products like milk, eggs, meat, honey, etc.
  - a. Poultry production depends upon the photoperiod. Discuss
  - b. Polyculture of fishes is of great importance.
- 23) Explain the principle involved in PET scan

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**BOTANY MODEL 4**

11th Standard

Biology

Reg.No. : 

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Exam Time : 01:30:00 Hrs

Total Marks : 35

8 x 1 = 8

- 1) Thick walled aplanospores are called \_\_\_\_\_  
(a) akinete                      (b) hormogone                      (c) hypnospor                      (d) tetraspor
- 2) Petiole is present in:  
(a) Calotropis                      (b) Hibiscus                      (c) Gloriosa                      (d) None of the above
- 3) Pappus is seen in \_\_\_\_\_  
(a) Potato                      (b) Hibiscus                      (c) Papaya                      (d) Tridax
- 4) Engler and Prantl proposed ..... system of classification.  
(a) Natural                      (b) Sexual                      (c) Phylogenetic                      (d) Artificial
- 5) Mitosis can occur in \_\_\_\_\_  
(a) Haploid and diploid cells both                      (b) Pollen mother cells                      (c) Haploid cell only                      (d) Diploid cell only
- 6) Gymnosperm wood is known as \_\_\_\_\_  
(a) non porous wood                      (b) hard wood                      (c) porous wood                      (d) sap wood
- 7) Identify the wrong statement with reference to Diffusion  
i) It is seen in gases and liquids.  
ii) It is a active process and hence no energy expenditure is required.  
(iii)The rate of diffusion is determined by concentration gradient.  
(iv) It is independent of the living system.  
(a) ii and iii                      (b) i and iv                      (c) ii only                      (d) i only
- 8) \_\_\_\_\_ is not linked to protein - lecithin theory.  
(a) phosphatidic acid                      (b) ATP4                      (c) Choline                      (d) Dehydrogenase

4 x 2 = 8

- 9) Name the methods of asexual reproduction seen in algae.
- 10) Define Meristematic zone.
- 11) What is a Syconus?
- 12) Give the Binomials of a) Sun hemp b) Flame of the forest
- 13) What is closed mitosis?
- 14) Mention any two sulphur containing amino acids.

3 x 3 = 9

- 15) Mention three salient features of Brown algae.
- 16) What are hook climbers?
- 17) Mention any three functions of fruit
- 18) What is Karyotaxonomy / Cytotaxonomy?
- 19) What is Endomitosis?

2 x 5 = 10

- 20) Write down the characteristic features of Chlorophyceae.
- 21) Write a note on the regions of the root.
- 22) Write a note on Schizocarpic fruits.
- 23) List the ICN principles.

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**ZOOLOGY MODEL 4**

11th Standard

Biology

Reg.No. : 

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Exam Time : 01:30:00 Hrs

Total Marks : 35

8 x 1 = 8

- 1) \_\_\_\_\_ is called the bird man of India.  
(a) Dr. Subramaniam (b) Dr. Salim Ali (c) Whittaker (d) Varad Giri
- 2) The special flagellated cells lining the spongocoel is:  
(a) Choanocytes (b) Cnidocytes (c) Nematocyst (d) Lasso cells
- 3) Radiata include  
(a) diploblastic and bilaterally symmetrical animals. (b) Triploblastic and radially symmetrical animals. (c) Diploblastic and radially symmetrical animals. (d) Triploblastic and bilaterally symmetrical animals.
- 4) Squid, cuttle fish and Octopus belongs to class of  
(a) decapoda (b) scaphopoda (c) cephalopoda (d) apods
- 5) What distinguishes an insects from crustacean?  
(a) number of eyes (b) arrangement of nerve cords (c) number of appendages (d) presence of wings.
- 6) \_\_\_\_\_ are described as tubular blind processes.  
(a) Hepatic caecae (b) Malpighian tubules (c) Nephridia (d) Colleterial gland
- 7) Find the incorrect statement.  
(a) Gaseous exchange continues in the lungs because some air remains inside the lungs even after deepest exhalation (b) The blood is the tissue capillaries contains higher pO<sub>2</sub> than tissue fluid. (c) Deoxygenation of blood promotes the release of carbon di oxide from the blood in the lungs. (d) All the above
- 8) Respiratory centre of brain is stimulated by  
(a) Carbon dioxide content in venous blood (b) Carbon dioxide content in arterial blood (c) Oxygen content in venous blood (d) Oxygen content in arterial blood

ANSWER 4

6 x 2 = 12

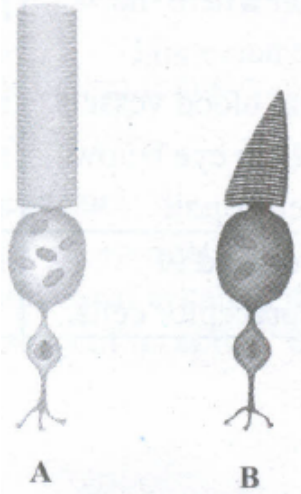
- 9) Write down the binomial names for the following  
(i) National Bird of India,  
(ii) National Animal of India,  
(iii) Tamil Nadu State Bird.
- 10) Why are round worms so called?
- 11) Which is longest species of earthworm in South India and in Africa?
- 12) Name the three layers of alveoli.
- 13) Give examples of fishes grown in Brackish water aquaculture.
- 14) Write about the unique flight taken by the queen bee during the breeding season

ANSWER 3

5 x 3 = 15

- 15) What is genus? Mention the types.
- 16) Differentiate Chordates and Non-Chordates.
- 17) Describe the economic importance of earthworm.
- 18) Discuss the five primary functions of the respiratory system.

19) Identify A and B. Write the significance of each.



ANSWER 2

4 x 5 = 20

20) What is the difference between a Zoo and Wild Life Sanctuary

21) Explain the human respiratory system.

22) Animal husbandry is the science of rearing, feeding and caring, breeding and disease control of animals. It ensures supply of proper nutrition to our growing population through activities like increased production and improvement of animal products like milk, eggs, meat, honey, etc.

a. Poultry production depends upon the photoperiod. Discuss

b. Polyculture of fishes is of great importance.

23) Explain the stages involved in rearing of poultry.

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## BOTANY MODEL 5

11th Standard

Biology

Reg.No. : 

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Exam Time : 01:30:00 Hrs

Total Marks : 35

8 x 1 = 8

- 1) The correct statement regarding Blue green algae is  
(a) lack of motile structures      (b) presence of cellulose in cell wall      (c) absence of mucilage around the thallus      (d) presence of floridean starch
- 2) Monotropa derives nutrition by \_\_\_\_\_  
(a) Root Nodules      (b) Lichens      (c) Mycorrhizae      (d) Roots
- 3) Curcuma amada, Curcuma domestica, Asparagus, Maranta are example of  
(a) Tuberos root      (b) Beaded root      (c) Moniliform root      (d) Nodulose root
- 4) Which of the following is a flowering plant with nodules containing filamentous nitrogen fixing micro-organisms?  
(a) Croton juncea      (b) Cycas revoluta      (c) Cicer arietinum      (d) Casuarina equisetifolia
- 5) Centromere is required for  
(a) transcription      (b) crossing over      (c) cytoplasmic cleavage      (d) movement of Chromosome towards pole
- 6) Enzymes that catalyse interconversion of optical, geometrical or positional isomers are  
(a) Ligases      (b) Lyases      (c) Hydrolases      (d) Isomerases
- 7) Read the following sentences and identify the correctly matched sentences.  
i. In exarch condition, the protoxylem lies outside of metaxylem.  
ii. In endarch condition, the protoxylem lie towards the centre.  
iii. In centarch condition, metaxylem lies in the middle of the protoxylem.  
iv. In mesarch condition, protoxylem lies in the middle of the metaxylem.  
(a) i, ii and iii only      (b) ii, iii and iv only      (c) i, ii and iv only      (d) All of these
- 8) Which chlorophyll molecule does not have a phytol tail?  
(a) Chl- a      (b) Chl-b      (c) Chl- c      (d) Chl -d

6 x 2 = 12

- 9) Why do farmers plant leguminous crops in crop rotations/mixed cropping?
- 10) What is the unique feature of cell membrane of Archaeobacteria?
- 11) Compare sympodial branching with monopodial branching.
- 12) Potato has scale leaves and not foliage leaves. Give reason.
- 13) How phosphorylase enzyme open the stomata in starch sugar interconversion theory?
- 14) A tree is believed to be releasing oxygen during night time. Do you believe the truthfulness of this statement? Justify your answer by giving reasons?

5 x 3 = 15

- 15) Write down the non- living characteristic features of virus.
- 16) Describe the Functions of the stem.
- 17) Mention any three roles of Botanical gardens
- 18) Microspores are produced is the multiples of four. why?
- 19) What are the steps involved in phloem loading?

4 x 5 = 20

- 20) Explain the characteristic features of Mycoplasma or Mollicutes.
- 21) Compare the location, cellular types and the functions of different zones of root.
- 22) Write down the economic importance of Family Fabaceae.
- 23) What are enzyme Inhibitors? Explain the two types of inhibitors?

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**ZOOLOGY MODEL 5**

11th Standard

Biology

Reg.No. :

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Total Marks : 35

8 x 1 = 8

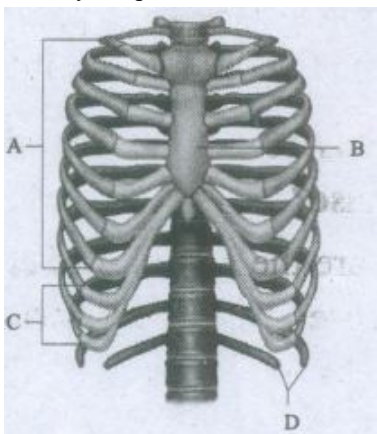
Exam Time : 01:30:00 Hrs

- 1) Book written by Darwin \_\_\_\_\_  
 (a) Historia Generalis                      (b) Origin of species                      (c) Systema Naturae                      (d) Phylogeny of plants
- 2) According to Aristotle, the animals with red blood cells are called:  
 (a) Anaima                      (b) chromista                      (c) Enaima                      (d) Protozoa
- 3) The first segmented animals to evolve were the  
 (a) Annelids                      (b) Arthropods                      (c) Molluscs                      (d) Echinoderms
- 4) Which of the following shows metamerically segmented body?  
 (a) Aschelminthes                      (b) Annelida                      (c) Arthropoda                      (d) Platyhelminthes
- 5) Wuchereria is found in  
 (a) lymph nodes                      (b) lungs                      (c) eye                      (d) gonds
- 6) ----- helps to stop substances from leaking across a tissue.  
 (a) Gap junction                      (b) Tissue junction                      (c) Tight junction                      (d) Adhering junction
- 7) 'Angina' refers to \_\_\_\_\_  
 (a) Heart muscle                      (b) Stroke                      (c) Coronary heart disease                      (d) Chest pain
- 8) Erythroblastosis foetalis is a condition of incompatibility related to \_\_\_\_\_.  
 (a) Rh antigen and Rh antibodies                      (b) anti A and antigen B                      (c) anti B and antigen A                      (d) antigens A and B

ANSWER 4

6 x 2 = 12

- 9) Define the following terms - (i) Halophiles  
 (ii) Methanogens  
 (iii) Thermoacidophiles
- 10) Expand the abbreviations DAISY and ABIS.
- 11) How does crocodile differ from the rest of the reptiles?
- 12) Write the location of compound epithelium
- 13) What is aneurysm? How much it is dangerous?
- 14) Identify the parts marked as A, B, C and D for the below diagram



	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(a)	True ribs	Sternum	False ribs	Floating ribs
(b)	Sternum	False ribs	Floating ribs	True ribs
(c)	False ribs	Floating ribs	True ribs	Sternum
(d)	Floating ribs	True ribs	Sternum	False ribs

ANSWER 3

5 x 3 = 15

- 15) How did Aristotle classify organisms?
- 16) Give an account of the General features of subphylum caphalochorelata.
- 17) What is ECG?
- 18) Draw a L.S. of Kidney and label  
(a) Ureter, (b) Capsule, (c) Pelvis
- 19) Name the different methods of poultry farming.

ANSWER 2

4 x 5 = 20

- 20) Can we use recent molecular tools to identify and classify organisms
- 21) Observe the animal below and answer the following questions.



- a. Identify the animal
  - b. What type of symmetry does this animal exhibit?
  - c. Is this animal Cephalized?
  - d. How many germ layers does this animal have?
  - e. How many openings does this animal's digestive system have?
  - f. Does this animal have neurons?
- 22) List the hormones of the anterior lobe of the pituitary gland?
  - 23) Explain the stages involved in rearing of poultry.

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