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GRADE 13

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**First Term Examination - 2020**

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**BIOLOGY – I**

9

 **Answer all questions.**

 **Select most suitable answer.**

01. Select correct statement regarding organic medecceles.

i. Hydrogen bonds found in keratin.

ii. Steroid is a hydrophobic molecule.

iii. Amylopectin a linear structural polymer.

iv. Amino acids may have one or more carboxyl groups.

v. Glycogen stoves fructose as energy source in animals and fungi.

02. Selecet correct statement regarding cell organeile,

i. Plant cell membrance contain cholesterol moleculs

ii. Nuclear matrix madeup of protein filameents chromatin and nucleolus.

iii. Rough ER synthesis steroids, phospholipids

iv. Inner membrance of chloroplast is convoluted.

v. Cytoskeleton consist of tubulin and actin proteins.

03. Which of the following is not taken place in cell cycle of eukaryotes,

i. Synthesis of centrioles

ii. Nuclear envelop fragments during prometaphase.

iii. Non kinetochore microtubule lengthen during anaphase.

iv. Two genetically identical nuclei are formed at the end of the mitotic phase.

v. All chromosomes located on the metaphase plate.

04. Which one of the following is incorrect regarding photosynthesis?

i. Photosystems of chloroplast contain chlorophyll molecules other organic molecules and

proteins.

ii. ATP and NADPH synthesize due to the excitation of P 680 and P 700 moleculs in

photosystems

iii. CO2 is accepted by PEP with in the bundle shcath cells.

iv. G3P will act as a precursor for glucose synthesis.

v. Photorespiration is leads to a net loss of CO2

05. Select the correct statement regarding citric acid cycle.

i. Oxalo acetate combines with acetyl CO-A to form 4 C citric acid.

ii. 2 ATP moleccules produced by oxidative phosphorylation.

iii. 6 NAD and 2 FADH2 molecules reduced during the process.

iv. Glucose molecced is completely reduced at the end of the cycle.

v. It takes place on the inner membrane of mitochondria.

06. Select incorrect statement regarding diversitication of eukaryotes.

i. Many present day animals phyla appeared in the late cambrian period.

ii. First food chain on earth appeared during cambrian period.

iii. Colonization of land by fungi and plants began after about 500 million years ago.

iv. Insects and spiders were the first group of animals to colonize the land.

v. origin of human species took place 195,000 years ages.

07. Select the correct comparison between *Anabaena* and *Halobacterium*

|  |  |
| --- | --- |
| ***Anabaena*** | ***Halobacterium*** |
| i. Genetic material contain histone.  ii. Introns present.  iii. Several kind of RNA polymarane  present.  iv. Cell wall material is peptidoglycan  ¹' All hydrocardons of membrane lipid are  branched | Genetic material lack of histone.  Introns present.  One kind RNA polymarane present.  Cell wall material is protein and complex lipid.  All hydrocardons of membrane lipid are branched |

08. Select correct combination.

**Organism** **Feature**

i. *Gelidium* Thallus contain leaf like blades

ii. *Amoeba* Mega and micronucleus present.

iii. *Paramaecium* Contractile and food vacuole present.

iv. *Ulva* Root like holdfast and stem like stipe present.

v. *Nostoc* Have glase like wall

09. Some teatures of plants given below.

**A** - Photosynthetic dependent sporophyte.

**B** - Posses ground hugging stem and heterosporus.

**C** - Male gametophyte dependon megaspore for nutrition.

**D** - Microscopic, monoecious photosynthetic gametophyte.

Select correct sequence of plants having above characteristics.

i. **A -** *Nephrolepis* **B -** *Lycopodium* **C -** *Hibiscus* **D -** *Poganatum*

ii. **A -** *Selaginella* **B -** *Poganatum* **C -** *Cycas* **D -** *Nephrolepis*

iii. **A -** *Poganatam* **B -** *Lycopadium* **C -** *Nephrolepis* **D -** *Cycas*

iv. **A -** *Hibiscas* **B -** *Nephrolepis* **C -** *Cycas* **D -** *Poganatam*

v. **A -** *Poganatam* **B -** *Selaginella* **C -** *Cycas* **D -** *Nephrolepis*

10. Select correct statement regarding Anthophyta.

i. Pollen grain contain polar nucleas, tube nucleas and generative nucleus.

ii. Carpels produce embryosac containing megaspore.

iii. A fruit always contain fertilized ovary and act contain dispersal units.

iv. Fibrous root system found all Anthophytes.

v. Female gametophyte is a 7 celled macroscopic structure.

11. Which one of the following is in correct regarding Fungi,

i. *Chytridium* produce flagellated zygospores.

ii. *Mucor* is a saprotrophic, coenocytic, genetically diverse spore producing fungi.

iii. *Aspergillus* produce conidia in chains in chains in sexual reproducetion.

iv. *Pennicillum* produce fruting bodies. Which contain asci.

v. Agaricus dominant stage is binucleate hyphae.

12. Select the in correct combihation.

**Organism** **Feature**

i. *Planaria* A pair of anterior ganglion and two longitudiral nerve cordes.

ii. *Octopus* Complex brain.

iii. Earth worm Primitivie dorsal brain ventral nerve chord.

iv. Spider Nerve chord is segmented, solid, verstrally located.

v. Regworm Dorsal cerebral ganglion.

13. Select incorrect statement regarding endorthermic chordates.

i. They have colour vision and excellent eye sight.

ii. Some have partially divided ventrticles.

iii. Bones formed with air cavities.

iv. Boddy covered with hair.

v. Posses only internal respiratory surface.

14. Select in correct statement regarding meristamatic tissue.

i. Meristamatic cell cytoplasm in denced which contain all typical cell organelles.

ii. These cells are isodiametric and repeatedly divided.

iii. Primary growth of a plant is due to the activity of apical meristems.

iv. Periderm is produced due to the activity of lateral meristem.

v. Intercalry meristems show their activity at nodes of leaves.

15. Two epidermd peels of Rcheo plant are placed in 2 solution of sucrose name & as A, B and their value are 0.5 kPa and 0.7 kPa respectively. Number of cells plasmolysed in tissue B is 70 out 140 and most of the tissue A cells are turgid after 30 minutes.

Select correct statement regarding above experiment.

i. Solution is hypotonic to tissue B

ii. value of tissue A is 0.5kPa

iii. Water movement between tissues and solutions is ceased at the equilibrium.

iv. value of tissue B is 0.7kPa

v. of tissue B is at its maximum value at the equilibrium.

16. Which one of the following is correct regarding methods of water and solute movement in plant.

i. Diffusion is a directional movement of molecules.

ii. Imbibition is always takes place across a selectively permeable membrane.

iii. Water and hydrophobic solutes transport across membrane by facilitated diffusion.

iv. Bulkflow is a long distance transportation method across membrane.

v. Endo-osmosis of a cell will-increase

17. Select incorrect statement regarding radial transport,

i. Inner most layer of cells in the cortex is the last check point of selective parsage of

minerals.

ii. Apoplastic roots consist of everything external to the plasma membrane of all living

cells.

iii. Casparian strips found in radial, transverse wall of endodermal cells made of lignin.

iv. Cytoplasmic channels are part of symplastic route.

v. Water and solutes transport across 2 types of membranes in transmemmbrane route.

18. Select correct statement regarding modes of nutrition in plants.

i. My corrhizae is an example for symbiolisis.

ii. Epiphytic orchids are example for Mutualism.

iii. *Loranthus* grows in nitrogen poor soil.

iv. *Drosera* used inorganic carbon for synthesizing food.

v. *Cascuta* is a semiparasitic anthophyte.

19. Select the correct combination regarding macro elements.

**Element** **From intake** **Function**

¸' P PO43- Component of phospholipids

ii. N NH4+ Cofactor of many enzymes

iii. Mg Mg2+  Signal transduction

iv. Ca Ca2+ Poor flowring.

v. K K+ Weak stems.

20. Select correct statement regarding plant life cycle,

i. Indusium cover sporangia at diffcrent stages of *Selaginella*

ii. *Nephrolepis* gametophyte produce stolons which gives rice to new plantlets.

iii. Mature male gamthophytes enclosed by the wall of microspore found within microsporangia of *Selaginella*

iv. Functional megaspore of is *Cycas* a daughter cell of meotic divisions of cell from megaspore tissue.

v. Tube nucleus from pollen tube where as generative nucleus from 2 immotile male

gametes of flowering plants.

21. Select incorrect statements regarding Anthophyta,

i. Double fertilization will result the seed and nucellus.

ii. Seed consist of the embryo, endosperm with stored food and a seed coat.

iii. In parthenogenesis seeds developed without fertilizing by a sperm.

iv. Polor nucleas of embryosac after fertilization become 3n

v. Orary convert into a fruit after fertilization.

22. Few plant responses are given below.

A - Slowing of hypocotyl elongation B - Shade avoidance

C - Photoropism D - Opening of stomata

Select the correct combination of plant responses which init ate by blue light photoreceptors.

i. A, C ii. A, B, C iii. A, B

iv. C, D v. A, B, D

23. Select the incorrect statement regarding gravitropism.

i. Gravitropism occurs as soon as seed germination terminate.

ii. Plants may detect gravity by settling of statoliths.

iii. Re distribution of Ca2+ is affect positive geotropism.

iv. Latenal transport auxin positively affect on gcotropism.

v. Statoliths are located in root cap cells.

24. Functions of plants controlled by hormones.

A - Promotes movement of nutrients into sink tissue

B - Promotes vascular differentiation.

C - Inhibit early germination of seeds.

Correct sequence of plant grooth substance which perform above function is,

i. Auxin, Ethylene, Gibberellins

ii. Cytokinensis, Auxin, Abscisci Acid

iii. Abscisic acid, Ethylenc, Auxin

iv. Cytokinensis, Gibberellins, Auxin

v. Ethylenc, Abscisic acid, Auxin

25. Select incorrect statement regarding abiotic stress,

i. ABA helps to reduce transpiration.

ii. Lipids and proteins losses their fluidity as they are blocked at low temperature.

iii. Propotion of unsaturated fatty acids in cellmcnbrance is increase.

iv. Low extracellular water potential at low temperature causing exo-osmosis from cells.

v. solutes like sugar help to minimize dehydration of cell during winter.

26. Which one of the following is an example for induced chemical defese mechanism?

i. Alkaloids ii. Azadirachtin iii. Lectin

iv. Phenolic compound v. Lignin

27. Which one of the following is not a function of epithelial tissue?

i. Barrier against fluid loss.

ii. Prevent the entry of pathogen into the human body.

iii. Fill the gaps between organs and organ system

iv. Sweat secretion.

v. Absorption of respioatory gases.

28. Select incorrect combination

**Epithelial tissue** **Location**

i. Simple squamous Outer wall of bowman’s capsclle

ii. Simple cuboidal Nasal cawity lining

iii. Simple columnar Instestinas lining

iv. Stratified squamous Anus

v. Pseudostratitied columner. Trachea.

29. Select incorrect statement regarding connectine tissue.

i. Leukoaytes are involve in immunity of human body.

ii. Insulate body and stores fuel for body functions.

iii. Cartilage is found at place, where tensile strength is required.

iv. Cartilage matrix is a rubbery protein – carbohydrate complex.

v. Osmoregulation is a function of connective tissue.

30. Which one of the following is correct regarding muscle tissue?

i. Smooth muscle lack actin, myosin.

ii. Skeletle muscle fiber is long cyllindrecal uninucleate.

iii. Cardiac muscles lack of nervous supply from central nervous system.

iv. Intercalated disks involve to synchronizing heat contraction.

v. Interstinal wall contain of 02 layers of smooth muscle.

31. Which one of the following is not a component of saliva?

i. Water ii. Amylose iii. Mucin

iv. Immunoglobulin v. Lysozymes

32. Select the correct statement.

i. Oesophagus wall consist of both skeletal and smooth muscle.

ii. Parietal cells secrete HCl into lumen of stomach.

iii. Mucus cells, chief cells are at the base of oesophagus.

iv. Cardiac and pyloric sphincters made up of oblique muscles.

v. Inner surface of stomach is contain vill and microvilli.

33. Select correct statement regarding stomach

i. Protcin and carbohydrate digestion is initiate within the stomach.

ii. Pepsin secrete by chief cells.

iii. HCl facilitate the hydrolization procese of proteins to small polypeptides.

iv. Absorption of glucose takes place.

v. Secretion of CCk hormone which regulate digestion in stomach.

34. Which one of the following is not a part of intestine?

i. Caecum ii. Duodenum iii. Jejunum

iv. Stomach v. Illeum

35. Select incorrect combination.

**Organ** **Function**

i. Large intestine Synthesize folic acid

ii. Mouth Chemical digestion

iii. Oesophagus Liquefy the food bolus

iv. Jejunum conversion of smaller polypeptides to small

peptide

v. Small intestine Absorption of fructose by facilitated diffusion

36. Select incorrect statemregarding pancrase.

i. Exocrine part secrete number of enzymes.

ii. Endocrine part conoist of Islets of Langerhan

iii. Pancreatic duct open to the mid point of dueodenam.

iv. Hormones secrete by pancreas are involved in glucose homeostasis.

v. Bicarbonate of pancreatic juice maintain optimum pH value.

37. Which one of the following incorrect regarding human liver?

i. Tiny hexagonal lobules are the functional unit.

ii. Oxygen rich and nutrient rich blood mixed between 2 columns of hepatocytes.

iii. Bile canliculi transport bile, as synthesized by cuboidal cells.

iv. At the corner of hexagonal structure a branch a bramch hepatic ortery, branch hepatic

portal vein, intra lobular bileduct can be found.

v. Liver carries defoxification function.

38. Select the correct combination.

**Scientist** **Contribution**

i. Ernest Hackel Classified plants according to the habitat

ii. Aristotle Classifide flowering plants

iii. Robert H. Whittaker Indentify plant animals kingdom

iv. Carolus Linnaeus Introdues binomial nomenclature.

v. Theophrastus Classifier organisms scientifiedls

39. Final electron acceptor of Non cyclic pathway of photosynthesize is/are,

i. P 700 ii. NAPPH iii. ADP

iv. H2OC5 v. P680

40. Which one of the following is incorrect?

i. All fungi are not saprotrophic.

ii. All Archea are prokaryotic.

iii. All Anthophytes posses tap root system.

iv. All bacteria reproduce by binary fission.

v. All viruses are obligate parasite.

**Directions summarized**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** |
| A, B, D  Correct | A, C, D  Correct | A, B  Correct | C, D  Correct | Any other response of combinations of cesponses Correct |

41. Select correct statement/s regarding photorespiration in plants.

A - The oxygenase reaction of Rubisco is catalized on the same active site as the

corboxylation reaction.

B - It is an energy conserving process.

C - Produce 2 molecules at 2-phosphoglycolate.

D - CO2 and O2 are competitive substrates.

E - Rate is high under highlight intensities.

42. Which of the following microelements deficiencies causes chlorosis in plants?

i. Mn ii. Zn iii. Fe iv. Ni v. B

43. Which of the following is/are takes place in meosis?

A - From synaptonemal complex.

B - Each daughter nuclei received equal amount DNA to each other as well as to mother

nucleus.

C - Seperation of sister chromatids.

D - Kinetochore of each chromosome attach one of the pole.

E - Chromosoms arrange on the meta phase plate.

44. Which of the following is/are act as respiratory substracte at glycolysis in aerobic cellular

respiration.

A - Glucose B - Fatty acid C - Amino acid

D - Glycerol E - Ethanol

45. Which of the following is/are not take place in the formation of first cell on earth?

A - Abiotic synthesis of polysaccharides.

B - Organic macromolecules were packed into membrane to primitive eukaryotic cells.

C - Polymerization of small organic molecules.

D - Nucleic acids gain self replicating ability.

E - Abiotic synthesis of proteins.

46. Which of the following is/are used as criteria in Carl Woose’s classification?

A - Sequence of amino acids in common proteins.

B - Base sequence of ribosomal RNA:

C - Morphology.

D - Molecular structure of cellular components.

E - Cell wall material.

47. Which of the following elements is/are act as activators of enzymes?

i. Mg ii. Cu iii. Mo iv. Ni v. Ca

48. Which of the following reaction give poditive reaction with Benedict’s Solution.

A - Butter B - Egg white C - Fructose

D - Maltose E - Glycogen

49. Select incorrect statement Tumor, cancer, galls.

A - Cancer cells make required growth factors.

B - Strong immune system of a person is able to destroy malighant tumor.

C - Transformactin is a process of converting behign tumor to malighant tumor.

D - Galls occur due to uncontrolled mitotic division of plant cell.

E - Galls are due to invasion of very unique organisms.

50. Select correct statement regarding enzymes.

A - Non competitive inhibitors make active sites became less effective for the formation of

enzyme substrate complexes.

B - NAD, FAD are organic cofactors.

C - Regulatory molecules bind to specific regulatory sites else where of the molecules via

covalent bonsd.

D - Cooperativity is a process of increasing catalytic activity.

E - ATP is a allosteric activator.