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GRADE 13

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**Second Term Examination - 2019**

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**BIOLOGY – I**

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14.11.2019

**Instructions :**

 Answer all questions.

 In each of the questions 1 to 50, pick one of the alternatives from 1,2,3,4,5

which is correct or most appropriate and mark your response on the answer

sheet with a cross (**×**) on the number of the correct option.

01. Select the correct statement regarding organic compounds.

i. All monosaccharides are in ring from in aqueous media.

ii. Only 20 different types of amin o acids are in nature.

iii. All lipids are large biological molecules.

iv. Complementary base pairing between two RNA molecules are occur in always.

v. FAD, function as a redusing agent in cellular respiration.

02. Select the incorrect statement regarding an enzyme.

i. Enzymes are highly specific to the substrate.

ii. Most enzymes are heat liable.

iii. Presence of the enzyme does not alter the nature of the end products.

iv. Some enzymes need cofactors to catalyse the reaction.

v. Some enzyme catalyzed reactions are reversible.

03. Selects the correct statement regarding photosynthesis.

i. It is a catabolic process by which light energy is converted to chemical energy.

ii. During photosynthesis, CO2 is reduced by H of H2O

iii. Chloroplasts are the sites of photosynthesis in all organisms.

iv. Increasing of globle temperature is an importance of photosynthesis.

v. The first stable product of the photosynthesis is G3P.

04. Which of the following statement is correct regarding the aerobic and the anaerobic respiration

in cells?

i. Glucose oxidixes only in aerobic respiration.

ii. Substrate phosphorylation is seen only in alcoholic fermentation.

iii. Oxidization of NADH occurs only in aerobic respiration.

iv. Total number of ATP produced by one molecule of glucose, during aerobic respiration

is 30 in most living cells.

v. Only alcoholic fermentation is considered as anaeorobic respiration

05. Which of the following statement is incorrect regarding Tumor, Cancer and Galls?

i. Cancer cells do not respond to normally to the body’s control mechanism

ii. Cancer cells give signals to continue for the cell cycle without growth factors.

iii. Malignant tumor becomes invasive and attack only one organ.

iv. Galls have range of causes, including viruses and bacteria.

v. Galls occurs due to uncontrolled mitotic division of plant cells.

06. Which of the following event took place in Palaeozoic era?

i. Organic and radiation of reptiles.

ii. Appearance of multicellular eukaryotic organisms.

iii. Origin of photosynthetic organisms.

iv. Origin of angiosperms.

v. Origin of mammals.

07. Select the incorrect statement regarding organisms belong to kingdom Protista.

i. It is a polyphyletic group. ii. Most of them are unicellular

iii. Some show symbiotic relationship. iv. Always contain organized nucleus.

v. Most of them are mixotrophs.

08. Select the correct statement regarding kingdom fungi,

i. ***Chytridium*** is a flagellated fungi.

ii. Most fungi show heterothalism

iii. ***Mucro*** produced zygosporangium as a fruiting body.

iv. ***Agaricus*** produced endogenous basidia.

v. Most fungi are unicellular.

09. Select the correct statement regarding vascular plants.

i. Always produced multicellular gametangia.

ii. Always produced thick walled spores.

iii. Always produced non-photosynthetic gametophyte.

iv. Always posses apical meristems.

v. Always required water for fertilization.

10. What is the animal phylum in which the organisms do not have any form of skeleton?

i. Cnidaria ii. Platyhelminthes iii. Nematoda

iv. Annelida v. Mollusca

11. Which of the following statement is correct regarding plant tissues?

i. Paranchyma tissue carryout many metobolia processes in a cell.

ii. Collenchyma tissue is found as a cylinder, just below the epidermis in young roots.

iii. Lignin is the main component of the secondary cell wall of sclerenchyma tissue.

iv. Always organic materials are transported through the phloem tissue.

v. Meristematic tissue cells contain dense cytoplasm with central vacuole.

12. Select the incorrect statement regarding plant growth.

i. Primary growth is occur due to activity of apical meristems.

ii. Shoot apex is covered by leaf primodia.

iii. Primary xylem of shoot apex start to developed at zone of cell division.

iv. Root apex is protected by root cap which made up of paranchyma cells.

v. Intercallary meristems involve for rapid re-growth of damage levels.

13. Two potato strips in same diameter and 5 cm long were immersed in two sucrose solutions

named as A and B in which solute potential were -2MPa and -1.5 MPa respectively. After the

equilibrium the length had become 5.2 cm only the strip immersed in A solution. Which of the

following is not acceptable regarding A and B solutions?

i. Solution A is relatively hypotonic to the tissue.

ii. Water potential of tissue immersed in solution B is equal to – 1.5 MPa

iii. Water has been entered to the tissue in solution A.

iv. The water potential of tissue in solution A has been increased.

v. There is no entering or removing of water to tissue in solution B.

14. Select the correct statement regarding radial transpotation of water and minerals in plants?

i. Endodermis in root prevents accumulated solutes in xylem from leaking back in to the

soil solution.

ii. Water enter to the vessele elements and trachieds by apoplast and symplast pathways.

iii. Apoplastic route consists of cells walls of all cells and excracellular spaces.

iv. Endodermis in plant root consist of closely packed 2 – 3 cell layers.

v. Symplastic route requires repeated crossing of plasma membranes as water and solutes

exit one cell and enter the next.

15. Select the correct statement regarding phloem translocation.

i. Sieve tube elements and companion cells in angiosperms are specialized for

translocation.

ii. In some plant species, sucrose moves from mesophyll cells to sieve tube elements via

appoplast

iii. Phloem sap moves from source to sink at a ratio about 2m/hr.

iv. Storage organs can act as a source or a sink, depending on its function.

v. Positive pressure is generates at the sugar sink due to the uptake of water.

16. Select the incorrect statement regarding transpiration.

i. About 95% of water in plants is lost through stomatal transpiration.

ii. Thickness of the diffusion shell depends on the surface feature of the leaf.

iii. With the increase of light intensity the rate of transpiration increases.

iv. When humidity rises in the atmosphere the rate of transpiration decreases due to

increasing diffusion gradient.

v. Transpiration is an important process for uptake of water and minerals by roots from

the soil solution.

17. Select the characteristic feature of ***Nephrolepis*** which is not important for survival in

terrestrial environment?

i. Presence of rhizome as an underground stem.

ii. Covering of aerial parts of the plant body by cuticle.

iii. Production of motile sperms within antheridium.

iv. Presence of photosynthetic gametophyte with rhizoids.

v. Covering of sori by indusium.

18. Select the incorrect statement regarding plant responces.

i. Plant photoreceptors have ability to detect the direction, intensity and wave length of

light.

ii. Phytochrom photoreceptors inducing phototropism in plants.

iii. Blue-light photoreceptors can regulates the opening of stomata.

iv. Photoperiod controls flowering in many types of plants.

v. Exposure to direct sunlight increases the proportion of red : far red light which

stimulates inhibition of vertical growth of plant.

19. Incorrect influence regarding Auxins,

i. Stimulates stem elongation in high concentration.

ii. Regulates development of fruit.

iii. Functions in gravitotropism.

iv. Promotes vascular differentiation.

v. Enchances apical dominance.

20. Select the correct combination regarding tissue and its location of human body.

**Animal tissue Location**

i. Stratified squamous epithelium - Nasal cavity

ii. Smooth muscle tissue - blood capillaries

iii. Simple columnar epithelium - salivary grands

iv. Skeletal muscle tissue - Diaphragm

v. Cartilage - Ligaments

21. Select the incorrect statement regarding human alimentary canal.

i. It is a long muscular tube which can fulfill steps of holozoic mode of nutrition.

ii. Pharynx is a common passage of the respiratory and digestive tract.

iii. The wall of the esophagus consist of smooth muscles.

iv. Stomach is the dilated organ in alimentary canal.

v. Large intestine is the distal part of the alimentary canal.

22. Which of the incorrect combination regarding component of saliva and its function?

**Component of saliva Function**

i. Salivary amylase - Chemical digestion of polysaccharides

ii. Water - Clean the oral cavity

iii. Mucus - Lubrication of food

iv. Immunoglobulin - Protection

v. Buffer - Prevent tooth decay

23. Select the correct combination regarding mineral ions and its function occur in human.

**Mineral ion Function**

i. Phosphorus - blood clotting

ii. Iodine - synthesis thyroid hormones

iii. Chlorine - Muscle contraction

iv. Sulfur - Component in all amino acids

v. Magnessium - Act as a co factor.

24. Which of the following statement is incorrect regarding human lymphatic system?

i. It is closely connected with the blood circulatory system.

ii. The composition of the lymph is same as blood plasma.

iii. Tiny lymph vessels are in close contact with the capillaries of the blood circulatory

system.

iv. The lymph is drained in to veins at the base of the neck via two large ducts.

v. The rhythmic contraction of the lymph vessel walls help to move the lymph.

25. Select the correct statement regarding human heart and cardiac cycle.

i. Coronary arteries provide oxygenated blood to the heart wall and veins remove

deoxygenated blood.

ii. Human heart is located in the thoracic cavity, close to the middle line, behind the

strunum and immediately below to the diaphragm.

iii. SA node located in left autrium wall is stimulated, then contraction impulses are created.

iv. There is no blood in heart chambers during complete cardiac diastole.

v. Papillary muscles and chordae tendineae in heart contribte to regulate the function of

semilunar valves.

26. What are the blood groups of donar from whom blood can be transfused to a person having

only antigen B in the red blood cells?

i. or ii. or iii. or

iv. or v. or

27. Select the incorrect statement regarding the blockage of coronary arteries.

i. It can cause angina condition at the beginning.

ii. Blockage may occur due to the atherosclerosis.

iii. Consumption of food containing high density lipoproteins may lead to the condition.

iv. Bypass surgeries are done to correct the condition.

v. Heart attack may occur as a result of this.

28. Which response contains the blood cells that produce antibodies and antiblood clotting factors

in sequential order?

i. Eosinophils and Basophils. ii. Lymphocytes and Manocytes.

iii. Lymphocytes and Eosinophils. iv. Basophils and Eosinophils.

v. Manocytes and Basophils.

29. Select the incorrect statement regarding the structures of the human respiratory system and

their functions.

**Structure Function**

i. Ciliated epithelium lining in nasal cavity - filters inhaled air

ii. “C” shaped cartilaginous rings of tracheal wall - helps trachea to keep open

iii. Simple squamous epithelium lining in alveoli - diffusion of respiratory gases.

iv. Vocal cords of larynx - produce sound

v. Macrophages in lining of alveoli - engulf specific pathogens.

30. Select the correct statement regarding respiratory pigments.

i. Those are organic compounds which can irreversibly binds with the molecular oxygen.

ii. Haemoglobin dissolved in the blood plasma of some annelids.

iii. Chlorocruorin is a green colour pigment which contain **Cu2+**

iv. Myoglobin is a special type of respiratory pigment found in both vertebrates and

invertebrates.

v. Haemoglobin is the only type of respiratory pigment in human.

31. Which of the following is correctly match regarding disorders of the respiratory system?

i. Nicotine in cigarette smoke cause temporary decrease in blood pressure.

ii. Tuberculosis is an infectious disease caused by the bacterium ***Mycrobacterium***

***tuberculosis***

iii. Nearly 95% of lung cancer is due to smoking.

iv. Asthma caused by the sudden contractions of smooth muscles in the walls of the

bronchioles.

v. The final affect of Asbestosis is the progressive distruction of lung tissue and pulmonary

hypotension.

32. Select the incorrect statement regarding innate immunity.

i. Innate immunity is found in both invertebrates and vertebrates.

ii. Innate immunity lacks specific responses to specific invaders.

iii. In innate immunity, recognition and defense responses will depend on characters

common to groups of pathogens.

iv. Innate immunity responses include difence mechanisms that provide general protection

against foreign invasion.

v. Innate immunity offer slow responses against a broad range of pathogens and foreign

substances.

33. Select the correct statement regarding inflammatory responses.

i. Histamine produced by mast cells in the connective tissues at the site of damage causes

dilation of near by blood capillaries.

ii. It is an adaptive immune defense response in the body to tissue damage.

iii. Activated phagocytes in damaged tissue area can produced Histamine to promote blood

flow.

iv. Inflammatory responses always causes a localized responses.

v. During inflammation, activated complement proteins can cause releasing of cytokines

which carry out additional phagocytosis.

34. Select the incorrect combination regarding secretions by various organs present in the human

body and its affect.

i. Saliva - reduces the colonization of microbes in the mouth

ii. HCl - destroy many bacteria and bacterial toxins ingested with food.

iii. Sweat - increase salinity of the skin which helps to prevent growth of bacteria.

iv. Tears - provide protection to eye against irritants and microbes.

v. Mucus - dilute and inhibit colonization of microbs in various exposed epithelia.

35. Select the incorrect combination regarding excretory structures of animals.

i. Greed gland - Crab

ii. Sald gland - Tortoise

iii. Malpighian tubules - Butterfly

iv. Nephridia - Snail

v. Flame cells - *Planaria*

36. Which of following is not actively secreted in to the nephron during urine frormation?

i. ii. Drugs iii.

iv. v. Toxins

37. Which of the following is incorrect regarding the structures belong to the brain stem?

i. Parts originated from the embryonic hind brain and mid brain are present.

ii. Contains nerve fibers that from a bridge between the two hemispheres of cerebellum.

iii. Cordinate auditory and visual reflexes.

iv. Cordinate body movement such as climbing and running.

v. Regulates body temperature.

38. Select the incorrect statement regarding action potential.

i. Action potential has 3 main phases.

ii. It is occurs due to a change in membrane potential due to a stimulus.

iii. Depolarization results due to inflow in response to a stimulus.

iv. During repolarization most potassium channels open permitting outflow.

v. During hyperpolarization sodium channels are closed.

39. A few processes which occur when a nerve impulse is transmitting across a synapse are given

below.

A - Specific receptors in the postsynaptic membrane activate.

B - diffuses into the synaptic terminals.

C - and diffuses into the post synaptic membrane.

D - Enzymatic hydrolysis of neurotransmitters.

E - Binding of synaptic vesicles to the presynaptic membrane.

F - Release of neurotransmitters into the synaptic cleft.

Select the correct sequential order of the above processes.

i. F,B,E,C,A,D ii. B,F,E,C,A,D iii. B,E,F,A,C,D

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

40. Common disorders of the nervous system having following characteristic.

A - Experience voices that only they can hear.

B - Abnormalities in sleep

C - Memory loss

Select the correct order of disorders which relative to above charachteristics.

i. Schizophrenia, Depression, Alzheimer’s disease.

ii. Depression, Parkinson disease, Schizophrenia.

iii. Schizophrenia, Alzheimer’s disease, Parkinson disease

iv. Alzheimer’s disease, Schizophrenia, Depression.

v. Depression, Schizophrenia, Alzheimer’s disease.

**For each of the questions 41 to 50, one or more of the response/s is/are correct. Decide which response/responses is/are correct and then select the correct number.**

**Directions Summarized**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 |
| A,B and D correct | A,C and D correct | A and B correct | C and D correct | Any other response or combination of responses correct |

41. The cellular structures given below are arranged according to a certain structureal feature.

Select the combination/s which is/are matched.

A). Nucleus, chloroplast, mitochondria

B). Peroxisome, smooth endoplasmic reticulum, nucleolus.

C). Lysosome, glyoxisome, peroxisome.

D). Centrioles, flagella, spindle.

E). Ribosome, lysosome, cilia

42. Which of the following combination/s is/are correct regarding the development of

classification system?

A). Ernest Haeckel - Introduced the taxon phylum

B). Carl woese - Forwarded natural systems of classification

C). Carolus Linnaeus - Defined the term species.

D). Robert whittaker - Introduced a classification based on mode of nutrition

E). Theophrastus - Introduced the basis of scientific classification.

43. Select the correct combination/s.

Element Form of Intake Deficiency symptoms

A). K Yellow and brown leaf tips.

B). S Chlorosis in young leaves.

C). B Death of meristems.

D). Mo MoO2- Chlorosis in older leaves.

E). Mg Crinkling of older leaves.

44. Select the incorrect statement/s regarding transport

A). About 23% of combined with haem group of haemoglobin and transport as

carbaminohaemoglobin.

B). Carbonic anhydrase in blood plasma catalyze the combination of with water to

form ions.

C). About 7% of dissolved in plasma and transported as free gas.

D). About 70% of transported as a ions in the plasma.

E). Affinity of for haemoglobin is less than the affinity of CO.

45. Select the correct statement/s regarding homeostatic control of breathing.

A). Medulla oblongata is the main breathing regulatory center found at the base of the brain.

B). During inhalation, sensors in the lungs send inhibitory nerve impulses to medulla.

C). High concentration results, lower pH in blood plasma and cerebrospinal fluid.

D). pH changes in cerebrospinal fluid can be directly detected by the sensors in medulla.

E). level has great influences on the breathing control center.

46. Select the incorrect combination/s regarding active & passive immunity.

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A). Naturally acquired long lasting immunity developed as a response to natural

active immunity infection of chicken pox virus.

B). Artifically acquired immunity developed against the polio vaccaine

active immunity

C). Naturally acquired Long term immunity developed in an infant due to brest

passive immunity milk

D). Artifically acquired Short term immunity developed against readymade tetanus.

passive immunity vaccine

E). Artifically acquired Long lasting immunity developed against BCG vaccine.

active immunity

47. Select the correct statement/s regarding Allergies.

A). Most allergens stimulate production of plasma cells which secrete specific antibodies

for the antigen.

B). Occur due to overly reactive to substances that are tolerated by some other people.

C). Whenever an allergic reaction takes place the tissue injury occur.

D). Mast cells can release histamine due to the attachment of the antibodies specific to the

allergen.

E). An acute allergic condition sometimes leads to death due to high blood pressure with a

few second of exposure to an allergens.

48. Which of the following is/are hypothesized reasonls for CKDu?

A). Exposure to pesticides. B). High fluoride levels in water C). Malnutrition

D). Genetic factors. E). Smoking.

49. Which of the following is/are function/s of human hypothalamus?

A). Regulate sleep and wake cycle. B). Initiates fight or flight responses.

C). Control of somatic nervous system. D). Plays a role in sexual behaviours.

E). Regulate respiration.

50. Select the process/processes does/do not control by sympathetic nervous system of human.

A). Constrict of pupil of eye. B). Promotes emptying of bladder.

C). Stimulates glucose release from liver. D). Promotes vaginal contractions.

E). Relaxes bronchi in lungs.