G.C.E (O/L) Support Seminar 2013

Revision Paper

Paper - I

Biology

For the A/L support seminar to be conducted under the supervision of the ministry od Education

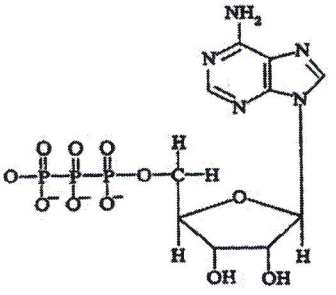
Time 2 hours

- This paper contains 50 multiple choice questions. Easch question has five options.Two marks are allocated for each question. Total marks allotid for this paper is 100
- . Answes all question.-
- Select the correct or the most appropriate answer (You will be provided an answer sheet at the exam to mark the answers)

(1) A pyramidin Base common to both DNA and RNA

(1) Adinin (2) Guanin (3) Sytocin (4) Thyamin (5) Urasil

(2) The following diagram shows the structure formula of a molecule important in the matabolic process of a cell.



What is the accurate statement about that molecule.

(1) It has unstable high enegy bonds.
(2) This is a biological polymeric molecule.
(3) This is a mobile cell and it releases enegy freely.
(4) It acts as an enegy carrier in reactions.
(5) This molecule is used in respiratron and photosynthesis

(3) Following are certain charateristrcs and actions of particular organelles.

(a) A small orgenelle
(b) acccumulates Ca^{+2} ions.
(c) Impartant in photorespiration
(d) Formation of spindle during the process of cell division

Which one of the following options shows the organelles related to the above characteristics in the correct order.

(1) Ribosomes, Lysosmes, Smooth ER, Chloroplast
(2) Rough ER, Lysosomes, nucleus, Peroxisomes.
(3) Ribosomes, Smooth ER, Peroxisomes, Centriole
(4) Nucleus, Vacuole, Golgi apparatus, Centriole.
(5) Ribosomes, Smooth ER, Mitochondria, Lysosmes.

(4) Select the correct statement related to the process of cell division.
(1) Prophase is the shortest phase in cell division.
(2) Both plant and animal cells form a spindle in centriole during meiosis.
(3) Mitosis occur in both vascular cambium and apical meristem
(4) Mitosis causes binary fission in cells.
(5) Meiosis in all organisms occur in gamilo genisis.

(5) Which one of the following tissues contains the highest percentage of non- living cells?
(1) The cork cambium (2) The Bark (3) Secondary phloem
(4) Stratified squamous epithilium (5) The cork

(6) What is the incorrect statement about the activator inhibitors ?
(1) Cl^- ions activate amylase in saliva.
(2) Ca^{++} ions act as activators for certain enzymes within cells.
(3) Cyanide ions inhibit cytochrome oxydase enzymes.
(4) Non-competitive inhibitors join the enzyme at the active point.
(5) Competitive inhibitors are quite similar in shape to the shape of the surface.

(7) What is the incorrect statement related to classificatron and nomenclature?
(1) Theo Prastus classified the plants as trees, shrubs and plants.
(2) Carrolus Llinneus used the stamens and styles of a flower as the base for his classification of flowering plants.
(3) The Kingdom Protista was introduced by Earnest Hackle.
(4) The classification introduced by Robert Witeker is based on the cell organization, unicellular and metacelluler and feeding habits.
(5) The classification of five kingdoms was introduced by Carl woose.

(8) Select the incorrect statement.
(1) *Amoeba* is a protrsta that belongs to kingdom Eukaryota
(2) *Thermococcus* is a Bacteria that belongs to the Super Kingdom of Bacteria
(3) *Wucheraria* is a Nematoda that belongs to Kingdom Animalia
(4) *Saccharomyces* is a fungi that belongs to Kingdom Eukarya
(5) Diatom is an algae that belongs to Kingdom Eukarya

(9) Following are some statements related to fungi?
(a) Spores are produced only during the asexual reporoduction.
(b) Filamental fungi do not have tissues.
(c) Some fungi have a diployed and haployed phase.
(d) Some fungi produce motile gametes for sexual reproduction.

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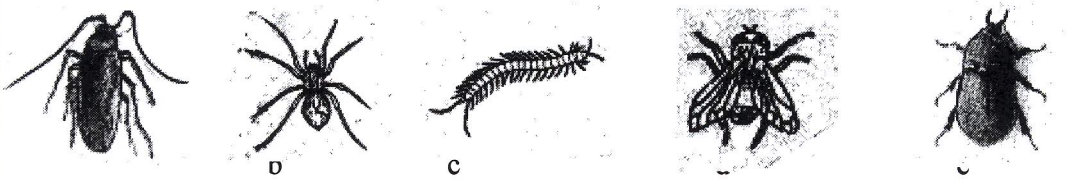
What is /are the correct statents/s out of the above?

(1) a and b (2) b and c (3) b and d
(4) c and d (5) only d

(10) This question is based on the animals given below.



Following is a key that can be used to differentiate them.

1. With wings ---------- (2)
   Without wings ---------- (3)
2. with non- transparent wings - P
   without non- transparent wings - Q
3. With antennae ---------- R
   Without antennae ---------- S

The animals that match the letters P and S in the above key are

(1) c and e (2) c and b
(3) e and c (4) e and b
(5) b and d

(11) Amphibians are not adapted to the life on land like the reptiles. What could be the reason that justifies the above statement?

(1) Amphibians do external fertilization.
(2) They use lungs for respiration.
(3) They have coupled pentadactyle limbs.
(4) They produce eggs in shells.
(5) They excrete uric acid.

(12) A person shows the following vitamin deficiency symptoms.

(a) Ulcers on either side of the mouth.
(b) Decay of muscles and breaking of RBC
(c) delay in clotting of blood
(d) Thickening of the skin and cracking.

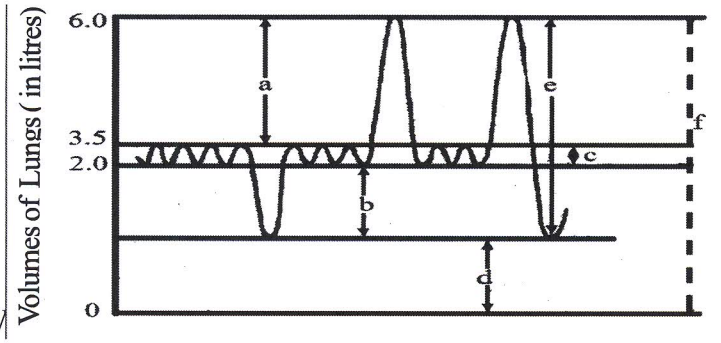
The vitamins related to the above deficiency symptoms are

(1) Vitamin B_2, VitaminE, Vitamin B_1, Vitamin B_3
(2) Vitamin D, Vitamin E, Vitamin B_1, Vitamin B_{12}
(3) Vitamin C, Vitamin B_{12}, Vitamin K, Vitamin B_6
(4) Vitamin B_2, Vitamin E, Vitamin K, Vitamin B_3
(5) Vitamin B_{12}, Vitamin B_1 Vitamin B_6, Vitamin B_3

(13) Which one is not a substance found in the pancreatic juice?

(1) Amylase (2) Tripinogen
(3) Carboxipeptidase (4) Dipeptidase
(5) Chymotripsinogen

(14) The following chart shows different volumes of lungs in humans.



W and extra inspiration volume respectively?

(1) c, d, e, a (2) c, a, b, d (3) b, c, e, f,
(4) c, d, a, e, (5) d, c, b, f

(15) Which of the following is an incorrect statement regarding transportation of water in plants?

(1) The holes of the dead cells in the xylem are included in the apoplast pathway.
(2) The water that enters the simplast through the plasma membrane can enter the other cells through the water potential gradient.
(3) The path which has the highest resistance is the vacuole pathway.
(4) The Caspar strips in the endoderm obstruct the apoplast pathway.
(5) Wates travels in the simplast through diffusion osmosis and mass flow.

(16) Which of the following statement is wrong regarding phloem transportation ?

(1) The water potential of the sieve tube decreases as a result of unloading of phloem.
(2) The hydrostatic pressure of the sieve tube cells increase near the source as a result of water entering from x ylem.
(3) The water potential near the sink increases as a result of loading of phloem.
(4) Phloem transportation occurs according to the water potential gradient and the transpiration pull.
(5) The difference in pressure in the sieve tube between the source and the sink causes mass flow of matter.

(17) The vascular bundles of a monocotyladine root is

(1) Tetrach, Exarch, Radial
(2) Polyarch, Exarch, Radial
(3) Tetrach, Endarch, Radial
(4) Collaterral, Endarch, Radial
(5) Collareral, Endarch, Exarch

(18) Select the wrong statement regarding the human lymphatic sysytem.

(1) It helps to show specifie and non - specific immunity responses.
(2) The flow of lymph within the lymphatic system is comparatively slower than the flow of blood in arteries.
(3) The main lymphatic ducts of the body are the right lymphatic duct and the left lymphatic duct.
(4) Haemoglobin is not found in lymph.
(5) Valves are not located in the lymphatic system.

(19) The three main ions that are important for the impulse transmission of the vertrbrates are,

(1) Ca^{+2} , Fe^{+2} , Na^{+} .
(2) Ca^{+2} , Na^{+} , K^{+}
(3) Na^{+} , Mg^{+2} , Ca^{+2} .
(4) Na^{+} , K^{+} , Fe^{+2}
(5) Fe^{+2} , Ca^{+2} , Mg^{+2}

(20) Which of the following statement is correct about the human autonomous nervous system ?

(1) The pre ganglion fibres of the sympathetic system is longer than the post ganglian fibres.
(2) The ganglia in the para sympathetic system are located near the effector organs,
(3) The pre ganglion fibers of the parasympathic system are originated only in the cerebral area of the central nervous system.
(4) The pre ganglion fibres of the sympathetic system are originated in the throrasic and the sacral regions of the cental nervous system.
(5) The post gunglion neurong originale from the central nervous system.

(21) The area of the nephrone where a highest percentage of water reabsorption occurs when the human posterior pitiutary secretes ADH to the blood stream is,

(1) Bowman's capsule
(2) Proximal convoluted tube.
(3) Ascending limb of the loop of henle.
(4) descending limb of the loop of henle
(5) Distal convoluted tube.

(22) The group of hormones that affects the increase of the blood glucose level is,

(1) Adrinalin, Cortisol, Insulin
(2) Glucogen, Thyroxin, Thymosin
(3) parathormones, Erythropoitin, Thyroxin
(4) Adronalin, Cortisol, Thyroxin
(5) Glucogen, Thyroxid, Calcitonin

(23) Which of the following options has correctly matched the excretory bodies found in the kingdom Animalia and the animals that have them ?

(1) flame cells - *Planaria*
(2) Malpigian tubules - Red beatle
(3) Salt glands - prawn
(4) Kidneys - Salaya (Sardinella sp.)
(5) Nephrones - *Nereis*

(24) Which of the following is incorrect when we consider the differences between the male and female pelvis ?

(1) Female pelvis is broader and more shallow than the male pelvis
(2) The pelvic inlet of the female pelvis is heart shaped and in the male pelvis, it is oval.
(3) The superior opening of the pelvic inlet of the female pelvic cavity is comparatively broader than the pelvic inlet of the male pelvis.
(4) The interior opening (The pelvic inlet) of the female pelvic cavity is larger than the interior opening of the male pelvic cavity.
(5) The pubic angle of the female pelvis is greater than 90° and the pubic angle of the male pelvis is lesser than 90°.

(25) Which of the following has matched the movements of plants and the examples correctly?

(1) Nictynastic - Kathurumurunga leaves getting retracted at the sunset.
(2) Thigmotropic - Rotation of a tendril around a support
(3) Thigmonastic - Retraction of mimosa leaves when touched.
(4) Geotropic - growth of pollen tube through the style
(5) phototactic - Movement of *Chlamydomonas* towards light

(26) Which of the following statement is wrong regarding the life cycle of *selaginella?*

(1) It shows gynosis
(2) It has monotious ganitophytes
(3) Meiosis occurs in the sporophyte and produces spores.
(4) The zygote retains in the gamitophyte and becomes the embryo that obtains nutrition from the gamitophyte.
(5) The gamitophyte generation shows a condition of being dependant on the sporphyte generation in the life cyle.

(27) Following are some characteristics observed in a plant.

- External water is not essential for fertilization.
- Heterosporic
- has a unicellulas male gamictophyte
- Gamitophytes are not independant

This plant could be

(1) *pinus* (2) *Selaginella* (3) *Nephrolepis*
(4) *Cycas* (5) *Cocos*

(28) Which of the following statement is wrong about the human placenta ?

(1) It has a disc shape
(2) Corionic villi are protruded towards the blood spaces of the endometrium.
(3) Water, urea , hormones and carbondioxide travel towards the blood spaces of the uterus wall from the embryo .
(4) The embryo receives oxygen, antribodies, hormones and enzymes from the maternal blood through the placenta
(5) The placenta acts as an obstacle for certain substances.

(29) The plant growth matter transported through the xylem and the phloem respectively,

(1) Oxene, Ethylene (2) Giberalin, Ethylene
(3) Cytokinin, Abscisic acid (4) Ethylene, Abscisic acid
(5) Cytokinin, Ethylene

(30) The organisms that show the following asexual reproductive methods respectively are,
Fragmentation , Multifission , Budding

(1) *Spirogyra, Plasmodium, Amoeba* (2) *Planaria, Marchantia, Vibrio*
(3) *Planaria, Plasmodium, Saccharomyces* (4) *Hydra, Nostoc, Saccharomyces*
(5) *paramecium, sprogyra, Hydra*

(31) The percentage/possibility of having a healthy baby boy as a result of a marriage between a haemophilic man and a haemophilia agent woman is,

(1) 0% (2) 25% (3) 50% (4) 75% (5) 100%

(32) Select the wrong statement about mutations,

(1) γ rays can cause mutations.
(2) They are extremely important in evolution.
(3) Sometimes mutations can be fatal.
(4) They are transmitted to the next generation through reproduction.
(5) Mutations can be resulted during meiosis.

(33) When two tall plants with yellow seeds are crossed. The first filial generation had 75% of tall plants with yellow seeds. The rest was short trees with yellow seeds. What can be the parental genotypes ? (Y/y allels for the colour of seeds and T/t allels for the height are used.)

(1) TTYY, ttYy (2) TtYY, TTYY (3) TTYY, ttyy
(4) TtYy, TtYY (5) Ttyy, TtYy

(34) Which of the following is not a temperate biome ?

(1) Grasslands and Chaparal (2) Deserts and Tiga
(3) Rainforests and Tundra (4) Tiga and broadleaved forests
(5) Chaparal and Tiga

(35) The convention on the limitation of the greenhouse gases released to the atmosphere is,

(1) The Marpol convention (2) The Basel convention
(3) The Montreal convention (4) The Kyoto convention
(5) The Ramsar convention

(36) The wrong statement about viruses is,

(1) They are small in size and only be seen through an elactrone microscope.
(2) The bacteria eating viruses contain DNA.
(3) The Reverse transcriptase enzyme in retro viruses can copy DNA in to RNA
(4) Viruses are always parasites and can be cultured only in live cells.
(5) Hooks made of glyco proteins can be seen in the outer cover of some viruses.

(37) Following are certain apparatus/ sabstances required to be sterilized
(a) Heat resistant culture media (b) pettry dishes (c) Innoculation loop (d) Water

Which of the following option shows the sterilzation methods that can be used for the above in the correct order ?

(1) membrane filters, dry heat, open flame, wet heat
(2) dry heat, wet heat, membrane filters, open flame.
(3) wet heat, dry heat, membrane filters, wet heat
(4) wet heat, dry heat, open flame, membrane filters
(5) pasterisation, memebrane filters, wet heat

(38) Which of the following option shows the correct order of the functions of the antibiotics, Penicillin, Polymixin and Erythromycin ?

(1) Inhibition of the sythesis of fungi cell membranes, inhibition of protein synthesis in bacteria and demaging the permeability of the bacteria cell membranes.
(2) Inhibition of protein systhesis in bacteria, Znhibitron of DNA systhesis in bactria demaging the permeabiliy of the bacteria cell memeberanes.
(3) Inhibition of protein systhesis of bacteria cell walls, demaging the permeability of bacteria cell membranes, inhibition of the protein synthesis in bacteria.
(4) Damaging the permeability of the bacteria cell membranes, inhibition of protein synthesis in bacteria, inhibition of the systhesis of bacteria cell walls.
(5) Inhibition of DNA synthesis in bacteria, inhibition of the synthesis of fungi cell membranes, inhibition of protein syntesis in bacteria.

(39) Following are some micro organisms used in diffcerent industries.
(a) *Saccharomyces cerevisiae* (b) *Gluconobacter* (c) *Lactobacillus bulgaricus* (d) *Bacillus subtilis*

Which of the following option shows the correct order of the industries that use the above micro organisms respectively.

(1) Fermentation of alcohol, yoghurt, production of amylace and vineger.
(2) Vine, bread, lypace, extraction of copper
(3) Fermentation of alcohol, vinegar, yoghurt, production of amylace.
(4) Vineger cheese, protiace, bio gas
(5) curd, bread, vinegar, extraction of copper.

(40) Which of the following is not a favourable factor in maintaining a reservoir for acqua culture ?

(1) Less turbidity in water
(2) absence of large acquatic plants
(3) presence of a large amount of planktoms
(4) Optimum level of water temperature
(5) High percentage of dissolved oxygen on water

- In questions 41-50, one or more than one options are correct. Select the correct option / options first and then decide the correct number.

If only options A, B & D are correct ---------- 1
If only options A, C & D are correct ---------- 2
If only options A & B are correct ---------- 3
If only options C & D are correct ---------- 4
If only other option or a combination of options is correct ---------- 5

Instructions in detail

1	2	3	4	5
A,B,D Correct	A,C,D Correct	A,,B Correct.	C,D Correct	Any other option or a combinatron of optrons is correct

(41) A feature / features not unique to mammalia only,
(A) Heterodentic
(B) External ear lobe
(C) Having two posterior oxipital condyles
(D) A heart with for compartments
(E) Hair on the skin

(42) The correct statement / statements regarding human resirpation,
(A) The CO_2 and O_2 percentages in the inspiration air at the sea level are 21% and 0.04% respectively.
(B) CO_2trasportation in blood is mainly done as bicarbonate ions.
(C) The central brain regulats the basic rhythm of respiration.
(D) Carotid artery and the aorta have receptors sensitive to CO_2 and O_2
(E) During inspiration, the diaphragm contracts and lifts upward.

(43) The correct statements regarding the human skelton,
(A) There are 206 bones in the human skeleton
(B) 22 bones are used to create the frame of the face
(C) Fontelles are soft memebranes located in the middle of the skull that allowas the compressions during birth
(D) each cervical vertrbrate has a couple of vertrbral arterial canals.
(E) The biggest and the strongest bone in the body is humerus.

(44) Which statement /statements are incorrect regarding the birth control method, Depo-provera?
(A) It stops releasing of eggs.
(B) It causes thinning of the endometrium
(C) It thins the mucous layer in the cervice of the uterus and stops sperms from entering.
(D)It reduces secretion of oestrogen and causes the knotting of fallopian tubes
(E) It stops implantation.

45) The correct statement / statements regarding the growth of a dicotyladon stem.
(A) The procambium produces the protoderm
(B) proxylem is produced by the ground merispicum
(C) Protoderm produces the epidermis
(D) The secondary xylem origins at the vascular cambium towards the middle of the stem.
(E) All the tissues in the bark are produced by the cork cambium.

(46) Which of the following are used as a DNA agent in the recombinant DNA technology?

(A) Bacteria plasmids (B) Virus genomes (C) Histone proteins
(D) *Paramecium* cells (E) Bacteria chromosome.

(47) Which of the following statements are correct?

(A) The clown knife fish is an invasive species
(B) Loris is an endemic species.
(C) The yellow cat fish belongs to the non evaluated group (NE) according to the IUCN red data book
(D) Ichthyophis is a relict species.
(E) Elephas maximus (The asian Elephant) belongs to the endangered (EN) group according to the IUCN classification.

(48) The correct statement/ statements regarding food spoiling

(A) Fungi, bacteria and viruses spoil food
(B) spoiling of carbohydrates is known as putrefaction.
(C) Fruits such as orange and banana can be spoiled by fungi and yeast
(D Psythrochillic bacteria cause food spoiling even in very low temperatures (eg : 4 °C)
(E) Food with a very low percentage of water can easily be spoiled by bacteria and fungi

(49) Select the correct statement/ statements regarding the extensive acqua culture.

(A) The fish density is high in the extcsive method
(B)Fish depend on natural food and additional food supplement is also provided.
(C) The quality of water is not maintained.
(D)The tanks are not emptied and nets are used for harvesting.
(E) Fish are easily prone to diseases.

(50) Which of the following statement / staterments are correct regarding tissue culture ?

(A) Most plant cells have a totipotpncy to result a full plant when provided favourable conditions.
(B) The oxyne and giberalene ratio in the medium determines the characteristic features of the growth of tissues.
(C) Stems, leaves and parts of embryos can be used as explants in tissue culture
(D) By regulatrng the culture media and conditions in the optimum level, orgination of stems and roots from the callous can be stimulated.
(E) The callous is a differenciated cell mass produced from the explant in tissue culture