University of Ruhuna- Faculty of Technology
Bachelor of Biosystems Technology Honours Degree
Level 1 (Semester I) Examination, June 2023
Academic year 2021/2022

Course Unit: BST 1132 General Biology (Theory)   **Duration: 1 1/2 hours**
....

Instructions:

Part- A:

Answer **all** the questions on the question paper itself.

Write your answer in the space provided for each question.

Part-B:

Answer **only Two (02)** questions.

Use the paper supplied for answering questions.

Part -A

- Answer **all** questions.

01. Underline the correct answer.

    i.   Underline the characteristic feature which is not relevant to algae.

        a) Aquatic

        b) Heterotroph

        c) No true leaves, stems & roots.

        d) Have pigments.

    ii.   Find the correct statement regarding cell signaling,

        a) Paracrine signaling - long distance communication.

        b) Endocrine signaling - Cancer metastasis.

        c) Autocrine signaling - Cell release ligands that binds to receptors on its own surface.

        d) Autocrine signaling – Spinal cord development.

    iii. Below all are outputs of Krebs cycle except,

        a) ATP

        b) NADH

        c) $FADH_2$

        d) NADPH

    iv.   Total ATP production of glycolysis.

        a) 4

        b) 2

        c) Only 1

        d) None of the above

v. Underline the false statement.

    a) Coelom is lined by mesodermal epithelial cells

    b) Organisms belonging to phylum porifera are sessile

    c) Polyp form of coelenterate are mobile

    d) Insects have an open circulatory system

vi. Kingdom Protista,

    a) Unicellular

    b) Prokaryotes

    c) Can be categorized as animal

    d) Tissue level organization

vii. What is incorrect regarding fermentation?

    a) Anaerobic process

    b) Anaerobic conditions in mammal muscle tissues convert pyruvate to ethanol

    c) During fermentation pyruvate molecule breaks down to ethanol through Acetaldehyde molecule

    d) Products of fermentation – 2NADH & 2ATP

viii. Phylum Echinodermata,

    a) Marine and freshwater ecosystems

    b) Deuterostomes

    c) True body cavity

    d) Bilateral symmetry

ix. All chordates possess following primary characteristics features, except

    a) Nerve cord

    b) Endostyle

    c) Pharyngeal slits

    d) Pseudo coelom

x. Which one is the **incorrect** statement regarding mammalians?

    a) They possess hair or fur on the skin.

    b) Warm blooded animals

    c) They have a four chambered heart

    d) There are three bones in the middle ear

    e) All mammalians are oviparous

(1 Mark x 10 = 10 Marks)

02. Fill in the blanks using the **appropriate answer** from the answers given below.

(Heterozygous/ Alleles/ Dominant allele/ Chromosome/ Genotype/ Recessive allele/ Traits/ Genes/ Locus/ Heredity/ Homozygous)

Passing of a)......................... from parent to offspring is the b).......................... The

c)........................... has 2 forms known as dominant & recessive d)..........................

and they are found at specific locations on e) .... The presence of a

f)............................... will always mask the presence of a g)...........................

Diploid conditions in which the alleles at a given h)........................... are different, known

as i)............................... Gene combination for a trait is known as
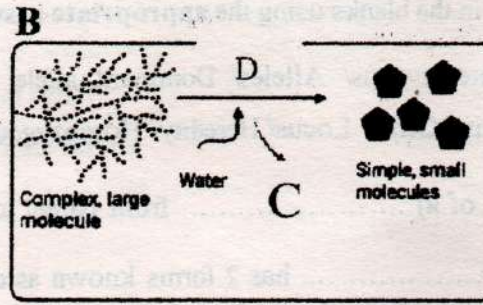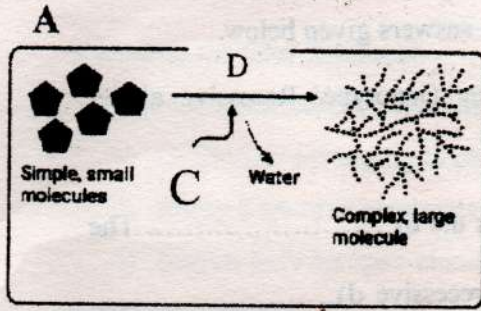
j).......................................

(1 Mark X 10 = 10 Marks)

03. State whether the statement is True (**T**) or False (**F**). If false, rewrite the correct statement.

i. Signaling molecules are called as receptors.   (.......)
....
....

ii. Catabolism is a constructive metabolic process.   (......)
....
....

iii. Three (3) steps of cell signaling are reception, translation and response.   (.......)
....
....

iv. H_2O is the final electron acceptor in respiration.   (.......)
....
....

v. Fermentation is a process which occurs anaerobically.   (.......)
....
....

(2 X 5 = 10 Marks)

04. Answer the questions using figures A and B.

i. Identify process A & B

A - ....
B - ....

(2 marks X 2= 4 Marks)

ii. Differentiate process A & B

....
....
....
....
....

(10 Marks)

iii. Identify C & D.

C - ....
D - ....

(3 marks X 2 = 6 Marks)

Part- B

• Answer **only two** questions.

05. Compare and contrast (similarities) Pisces Chondrichthyes and Osteichthyes.

(25 Marks)

06. Briefly discuss the major adaptations of birds to their mode of life.   (25 Marks)

07. Write a concise account on key morphological features of Bryophytes, Pteridophytes,

Gymnosperms and Angiosperm.   (25 Marks)

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@