KENDRIYA VIDYALAYA SANGATHAN LUCKNOW REGION
SESSION ENDING EXAM (2023-24)
BIOLOGY (044)
CLASS- XI

TIME ALLOWED: 3 HRS **MAX. MARKS: 70**

GENERAL INSTRUCTIONS:

- All questions are compulsory.
- The question paper has five sections and 33 questions. All questions are compulsory.
- Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; and Section–E has 3 questions of 5 marks each.
- There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labelled diagrams should be drawn.

Section- A

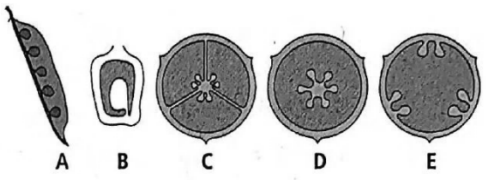
Q 1 Respiratory process is regulated by certain specialized centers in the brain. One of the following centres can reduce the inspiratory duration upon stimulation: 1

a-Medullary inspiratory centre b-Pneumotaxic centre
c-Apneustic centre d-Chemosensitive centre

Q 2 Which of the following suffixes used for units of classification in plants indicates a taxonomic category of family? 1

a-Ales b-Onae
c-Aceae d-Ae

Q 3 Identify the different types of placentations shown in figure and select the correct option: 1



A.	B.	C.	D	E
a- Axile.	Marginal.	Free central.	Parietal.	Basal
b- Marginal	Basal.	Axile.	Free central	Parietal
c- Marginal	Axile	Parietal	Free Central	Basal
d-Marginal	Parietal	Axile	Basal	Free -central

Q 4 Arrangement of microtubule in a flagellum and a centriole is respectively 1

a- 9+2 and 9+1 b- 9+0 and 9+2
c- 9+1 and 9+0 d- 9+2 and 9+0

Q 5 Zygotene of prophase-I is characterized by: 1

a- Chromosomes b-Synaptonemal complex
b- Crossing over d-Terminalization of chiasmata

Q 6 Enzyme catalyze the biochemical reactions by……the activation energy: 1

a- Lowering b-Increasing c-Unaltering d-Either a or b

Q 7 Adenosine, guanosine, thymidine, uridine, cytidine, are all ……. but adenylic acid, uridylic acid, Cytidylic acid are……. 1

a- Nucleotides, nucleosides b-Nucleosides, nucleotides
c-Nucleotides, nucleic acids d-Nucleosides, nucleic acids

Q 8 The phase in which active synthesis of DNA takes place, is 1

(a) G_0 phase (b) G_1 phase
(c) G_2 phase (d) S-phase

Q 9 Alternate name of Kreb's cycle is: 1

a- TCA cycle b-Citric acid cycle
b- Both a and b d-None of these

Q 10 Which of the following structure is found in diencephalon? 1

a- Pons b-Basal ganglia
c- Corpora quadrigemina d-Hypothalamus

Q 11 Select the mismatched pair: 1

a- Insulin- gluconeogenesis
b- Glucagon- glycogenolysis
c- Oxytocin- contraction of uterine muscles
d- Prolactin- milk production in mammary glands

Q 12 Basic functional unit of human kidney is: 1

a- Nephridia b-Henle's loop
d- Nephron d-Pyramid

Question no. 13 to 16 consist of two statements – Assertion(A) and Reason (R) . Answer these questions by selecting the appropriate option given below:
(A)• Both A and B are true, and R is the correct explanation of A
(B)• Both A and R are true, and R is not the correct explanation of A
(C)• A is true but R is false
(D)• A is false but R is true

Q 13 Assertion: Cell wall of chrysophytes are indestructible. 1
Reason : Cell wall of chrysophytes have layer of magnesium pectate embedded in it.

Q 14 Assertion: Small disc shaped structures at the surface of the centromeres are called kinetochores. 1
Reason: Kinetochores serve as the sites of attachment of spindle fibers to the centromere.

Q 15 Assertion: Decapitation is widely used in tea plantation and hedge making. 1
Reason: Removal of shoot tips usually results in the growth of lateral buds.

Q 16 Assertion: Sino- atrial node (SAN) is called the pacemaker. 1
Reason: SAN generates the maximum number of action potentials and is responsible for initiating and maintaining the rhythmic contractions of the heart.

Section-B

Q 17 In classification of animals cats and dogs are kept in separate families. Name family and genus of following animals: 2

a- Cats b-Dogs

Q 18 Differentiate between dicot stem and monocot stem. 2

OR

What is mesosome in a prokaryotic cell? Mention the functions that it performs.

Q 19 Mention two function of centrioles. 2

Q 20 Differentiate between cyclic and non-cyclic photophosphorylation. 2

Q 21 Explain the standard ECG. 2

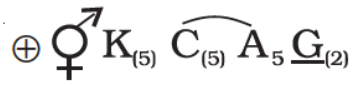
Section-C

Q 22 Name the phylum having largest number of animals. Name the major category of animals it has. Write any two special morphological features of this phylum. 3

Q 23 Write the name of plant growth regulator for the following: 3

a- Bolt a rosette plant
b- Quickly ripen a fruit
c- Induce rooting in a twig

Q 24 Write the name of family with the help of following floral formula: 3
Write any two-characteristic feature of this family.



Q 25 Write any three economic importance of algae. 3

OR

What is heterospory? Briefly comment on its significance. Give two examples.

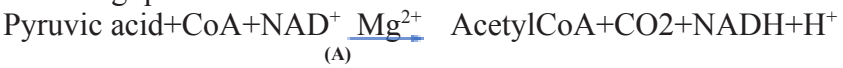
Q 26 Draw the structure of amino acid: 3
Alanine, glycine, serine

Q 27 Explain oxygen dissociation curve. Write any reason for its sigmoidal pattern. 3

Q 28 Give a brief account of the counter current mechanism in nephron. 3

Section-D

Q 29 Case study-based question: 1 Study the equation given below and answer the following questions: 4



A- Name the type of reaction and where does it take place?
B- Why this process does not take place in the cytoplasm of eukaryotes?
C- Name the enzyme (A) involved in the reaction.
D- What is the fate of AcetylCoA formed?

OR

Total gain of ATP molecules in aerobic respiration is:-

Q 30 Case study-based question: 2 4

Frogs can live both on land and in freshwater and belong to class Amphibia of phylum Chordata. The most common species of frog found in India is Rana tigrina. Frogs do not have constant body temperature as their body temperature varies with the temperature of the environment. Such animals are called cold blooded or poikilotherms. Frogs have the ability to change the color to hide them from their enemies (camouflage). This protective coloration is called mimicry. Frogs are not seen during peak summer and winter. During this period, they take shelter in deep burrows to protect them from extreme heat and cold. This is known as summer sleep (aestivation) and winter sleep (hibernation) respectively.

The skin of frog is smooth and slippery due to the presence of mucus. The skin is always maintained in a moist condition. The color of dorsal side of body is generally olive green with dark irregular spots. On the ventral side the skin is uniformly pale yellow. The frog never drinks water but absorb it through the skin. Body of a frog is divisible into head and trunk. A neck and tail are absent. Above the mouth, a pair of nostrils is present. Eyes are bulged and covered by a

nictitating membrane that protects them while in water. On either side of eyes, a membranous tympanum (ear) receives sound signals. The forelimbs and hind limbs help in swimming, walking, leaping and burrowing. The hind limbs end in five digits and they are larger and muscular than fore limbs that end in four digits. Feet have webbed digits that help in swimming. Frogs exhibit sexual dimorphism. Male frogs can be distinguished by the presence of sound producing vocal sacs and also a copulatory pad on the first digit of the fore limbs which are absent in female frogs.

Answer any four of the following questions:-

1.) Frogs' eyes are generally covered by _____ which is protective in function.

a) Camouflage membrane b) Copulatory membrane

c) Nictitating membrane d) Tympanum membrane

2.) _____ is the unique and distinguishing as well as sexual character of male frog.

a) Presence of webbed digits b) Presence of copulatory pad

c) Presence of Nictitating membrane

d) Presence of membranous tympanum

3.) What is mean by poikilotherms?

4.) Why Frogs are not seen during peak summer and winter?

5.) What is mean by camouflage ?

Section-E

Q 31 a) Write any two differences between phycomycetes and Ascomycetes. 5

b) What do the terms phycobiont and mycobiont signify?

c) What is the nature of cell wall in diatoms.

Or

a) Give a comparative account of the nature of cell wall and the characteristic of flagella among three classes of algae.

b) Differentiate between thallophytes and bryophytes.

Q 32 Explain various stages of Meiosis-I with the help of well labelled diagram. 5

Or

A) Both lysosomes and vacuoles are membraneous structures, yet they differ in terms of their functions.

B) Draw the diagram of cilia and flagella.

C) Who discovered ribosome and give its function.

Q 33 a) In old age people suffer from stiffness and inflammation in joints. What is this condition called? What is the cause of osteoporosis? 5

b) Explain the sliding theory of the mechanism of muscle contraction.

Or

Differentiate between:

a) Myelinated and non-mylinated neuron

b) Dendrites and axon

c) Rods and cones

d) Thalamus and hypothalamus

e) Cerebrum and cerebellum

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