

West Bengal Madhyamik Board Class 10 Life Science 2018 Question Paper

Group-A

(Answer all the question of this section)

1. Mention the respective serial number of the correct answer for each question and give the answer in complete sentence. [1x15=15]

1.1 The tentacles on leaves of an insectivorous plant, called sundew bend will trap the insect as soon as they come in contact with the insect's body. This is_____

- a. Seismonasty
- b. Thermonasty
- c. Photonasty
- d. Chemonasty

1.2 In the case of women, the Follicle Stimulating Hormone that stimulates the Graafian Follicle of the Ovary to secrete the hormone is_____

- a. TSH
- b. ADH
- c. Oestrogen
- d. ACTH

1.2 Which one of the following is the correct reflex arc?

- a. Receptor → Effector → Efferent nerve → Nerve centre → Afferent nerve
- b. Nerve centre → Receptor → Afferent nerve - Effector → Efferent nerve
- c. Efferent nerve → Receptor → Afferent nerve - nerve centre - Effector
- d. Receptor → Afferent nerve → Nerve centre → Efferent nerve → Effector

1.4 In which stages of mitosis cell division, the nuclear membrane and nucleolus are seen to disappear?

- a. Anaphase
- b. Prophase
- c. Metaphase
- d. Telophase

1.5 Which of the following is not a structural component of the DNA?

- a. Deoxyribose sugar
- b. Uracil base
- c. Thymine base
- d. Phosphoric acid

1.6 Which one of the following statements is correct regarding sexual reproduction?

- a. Haploid gamete formation is essential for sexual reproduction
- b. Sexual reproduction depends only on mitosis
- c. In sexual reproduction, offspring could be produced from a single parental organism
- d. The offspring produced in sexual reproduction are genetically identical with the parental organism

1.7 Which one of the following is the genotypic ratio at F_2 generation of Mendel's monohybrid cross?

- a. 1:2:1
- b. 3:5:1
- c. 9:3:3:1
- d. 2:1:2

1.8 Which one of the following is not controlled by the autosomal gene of humans?

- a. Roller tongue
- b. Haemophilia
- c. Thalassaemia
- d. Attached ear lobe

1.9 What would be the phenotypic ratio in the F_2 generation of a monohybrid cross in case of incomplete dominance?

- a. 3:1
- b. 2:1:1
- c. 9:3:3:1
- d. 1:2:1

1.10 Which one of the following is the intraspecific struggle for the same food?

- a. Struggle between Vulture and Hyaena
- b. Struggle between Eagle and Kite
- c. Struggle between members of Rohu fish in a pond
- d. Struggle between Egret and Kingfisher

1.11 Which of the following changes did not occur during the evolution of a horse?

- a. Lengthening of limb
- b. Increase in the length and thickness of all digits in limbs
- c. Increase in the length and thickness of only the third digit in limbs
- d. Increase in size of the whole body

1.12 According to the opinion of the scientists the prebiotic Environment of the earth that led to the origin of life was like _____

- a. Hot dilute soup in the seawater
- b. Cold dilute soup in the seawater
- c. Cold dilute soup in the river water
- d. Hot dilute soup in the groundwater

1.13 Which one of the following microbes take part in nitrification?

- a. Nitrosomonas
- b. Azotobacter
- c. Pseudomonas
- d. Thiobacillus

1.14 An example of Ex-situ conservation is ____

- a. Sunderban Tiger Reserve
- b. Corbet National Park
- c. Nilgiri Biosphere Reserve
- d. Cryopreservation

1.15 Which of the following effects is the result of water pollution?

- a. Global warming
- b. Eutrophication
- c. Deafness
- d. Bronchitis

Group-B

2. Give answers to any 21 questions out of the 26 as instructed.

[1 x 21=21]

Fill in the blanks with proper words in the following sentences [any 5]

2.1 Due to deficiency of Iodine, the synthesis of _____ hormone is hampered.

2.2 During embryonic development and growth in vertebrates _____ cell division takes place.

Answer: mitosis

2.3 The different _____ of pea plant may show the same phenotype.

2.4 Homologous organs evolve due to _____ evolution.

2.5 The name of one exotic species, that affects the local biodiversity, is ____

2.6 The fine droplets of smokes, ashes, dust, pollen grains etc., suspended in air are collectively called _____, which cause various lung diseases.

Decide whether the given statements are true or false (any five).

[1x5=5]

2.7 Hypothalamus helps to maintain body balance in humans.

2.8 In DNA, Adenine is linked with Guanine by hydrogen bonds.

2.9 In his monohybrid cross experiment, Mendel obtained 75% pure tall Pea Plants in the first filial generation.

2.10 In Lamarck's opinion, organisms can acquire any particular inheritable physical trait according to their need.

2.11 Acid rain is caused by SO_2 and NO_2 gases formed due to air pollution.

2.12 Auxin helps the seed to germinate by breaking off dormancy

Match the words in Column-A with the words that are most appropriate in Column-B and rewrite the correct pair by mentioning the serial number of both the columns (any five) [1x5=5]

| Column A | Column B |
|--------------------|--|
| 2.13 CSF | (a) Large colloidal aggregates |
| 2.14 Crossing over | (b) Active participation of local people for restoration of forest |
| 2.15 Haemophilia | (c) Meiosis |
| 2.16 Coacervate | (d) Movement of daughter chromosomes towards poles |
| 2.17 JFM | (e) Disorder caused by recessive gene located at human X-chromosomes |
| 2.18 Grafting | (f) Supplies nutrients to brain cells |
| | (g) Stock and Scion |

Answer in a single word or a single sentence (any six) [1x6=6]

2.19 Choose the odd one and write it :
Dwarfism, Goiter, Thalassaemia, Diabetes Mellitus

2.20 Mention one function of lens of eyeball.

2.21 A pair of related terms is given below. On the basis of relationship in the first pair write the suitable word in the gap of the second pair.

Mitosis: Radicle:: _____ :: Spore Mother: Cell

2.22 In the case of guinea pig, see whether the phenotype of the two genotypes $bbRR$ and $bbRr$ is the same.

2.23 Write the phenotypic ratio obtained in the F_2 generation of Mendel's Dihybrid cross experiment.

2.24 What is one adaptation of the Sundari plant for salt tolerance?

2.25 Among the following four terms one includes the other three. What is the term? Write it.

Overall knowledge regarding local biological resource, PBR, Traditional belief regarding local biological resource, Sustainable use of Biological resource.

2.26 Name one endangered animal conserved at Singalila National Park.

Group-C

Answer any 12 questions out of the 17 questions given below in 2-3 sentences: [2x12=24]

3.1 Reflex actions occur when the following incidents happen in the everyday life of a human. Give the importance of these two reflex actions:

- (i) When food particles enter into the trachea
- (ii) When foreign particles enter inside the nasal cavity

3.2. To rectify which defects in the eye's vision, spectacles of convex and concave are used?

3.3. Name the hormones related to the following functions

- (i) Regulation of sugar level in the blood
- (ii) Stimulation for the secretion of hormones from the Thyroid gland
- (iii) Causing the growth of Corpus Luteum and stimulating the secretion of progesterone hormone in the female body
- (iv) Increasing blood pressure due to anxiety

3.4 A resting animal attempts to move. Give four probable reasons behind it.

3.5 What are the differences between the autosome and the sex chromosome of human-based on the following features?

- (i) Nature
- (ii) Number

3.6 Write short notes on the processes of asexual reproduction in Spirogyra and Planaria.

3.7 Which are the two changes related to vision and bones of late adulthood or senescence phase of human development?

3.8 With the help of a cross, determine how the sex of offspring of a human is identified.

3.9 One day students read an article in a newspaper about Thalassemia and were very scared to know the fate of a thalassemia patient. Give a list of the kind of measures they have to use to eradicate this disease from the population.

3.10 Find the probable gametes to be produced from the hybrid plant YyRr produced at F₁ generation in a dihybrid cross experiment.

3.11 Write the two adaptive significance of air sacs for pigeons.

3.12 Which are the vestigial organs present in the vertebral column and alimentary canal in the human body? Name one of each.

3.13 Write in chronological sequence the names of four main fossil ancestors during the course of evolution of the horse.

3.14 “Nitrogen Cycle is affected due to human activities”-State two phenomena to justify it.

3.15 What would be the environmental consequences resulting from recurrent destruction of wetlands and depletion of the number of agricultural lands?

3.16 What are the harmful impacts that sound pollution can exert on the human body's ears and heart?

3.17 Mention the role of biodiversity in the following two aspects of the progress of human civilization:

- (i) Production of foods
- (ii) Manufacturing of medicines

Answer: (i) Biodiversity can be considered the basis or foundation for agriculture

Group- D

[Long Answer Type Questions]

4. Answer 6 questions or their alternatives from those given below [5x6=30]

4.1 Draw a diagram of the reflex arc and label the following parts:

- (a) Receptor
- (b) Sensory Nerve
- (c) Nerve centre
- (d) Motor Nerve

Or

Draw the morphology of an ideal eukaryotic chromosome and label the following parts: [3+2=5]

- a. Chromatid
- b. Centromere
- c. Nucleolar Organiser
- d. Telomere

[For Sightless Candidate]

4.1 Write the name of the three structural parts of a reflex arc. Write functions of sensory and motor nerve.

Or

Write the names of three structural parts found in the morphology of an ideal Eukaryotic chromosome. Write one function for each of Centromere and Telomere.

4.2 What type of chemical components are synthesised in different stages of interphase in a cell cycle? What might happen if normal control at different points of a cell cycle is lost? [3+2=5]

Or

Depict the alternation of generation in a fern with the help of a flowchart. "In case of Prophase or Telophase changes of opposite nature happens". Write two such changes. [3+2=5]

4.3 Colour of seed or shape of seed of a pea plant-taking these two characters Mendel performed Dihybrid cross. Write the genotypes of pea plant having yellow and round seeds produced in the F_2 generation of the experiment. State the law of independent assortment of Mendel. [2+3=5]

Or

State the opposite traits for each of the characters of flowers of the pea plant chosen by Mendel for his experiment. "For developing the scientific ideas on heredity the experiments performed by Mendel on pea plants are epoch making"-Mention three reasons behind his success in performing the experiment. [2+3=5]

4.4 How are the special features of RBC in camels related to their ability to withstand extreme loss of water? Give examples of the ways Chimpanzees

solve their problems intelligently for procuring food and preventing disease. [2+3=5]

Or

Explain the process of Natural Selection as proposed by Darwin with the help of a suitable example. What are the roles of swim bladder in the aquatic adaptation of Rohu fish? [3+2=5]

4.5 "A lot of indiscriminate activities of humans pollute the environment"- Support the statement by giving three examples in favour of it. Give examples of a national park and a biosphere reserve in West Bengal. [3+2=5]

Or

Show the steps of a Nitrogen cycle with the help of a flow chart [3+2=5]

4.6 What environmental factors may cause cancer in humans? If the water level in the sea increases enormously due to global warming, what problems will the humans and bio-diversity of Sunderbans face?

Or

Mention the in-situ measures adopted for conservation of lion in Gir National park of India. What environmental problems may arise in a locality due to the ever-increasing human population? [3+2=5]

GROUP-E
(For External Candidates Only)

5. Answer any of the four questions: [1x4=4]

5.1 Mention one life process that is found in all living organisms.

5.2 Mention one function of lysosome.

5.3 Give one example of a flower pollinated by an insect.

5.4 Write one difference between Prokaryotic cell and Eukaryotic cell.

5.5 Write the name of one organ in human body where non-striated muscle is found.

6. Any three Question: [2 x3=6]

6.1 Mention the name of any two processes of excretion in living organisms.

6.2 Write the function for each of xylem and phloem.

6.3 Write two difference between epithelial tissue and connective tissue.

6.4 Write two difference between plant cell and animal cell.