

## West Bengal Madhyamik Board Class 10 Life Science 2017 Question Paper with Solutions

### Group-A

(It is compulsory to answer all the questions)

1. Use complete sentences for the answer and choose the correct answer for each question with respective serial number [1x15=15]

1.1 Some flowers that open after sunrise and close after sunset. This is \_\_\_\_\_

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

1.2 Name the hormone from the following, which a person affected with Diabetes Mellitus is unable to secrete.

- a. Adrenaline
- b. Insulin
- c. Thyroxine
- d. Testosterone

1.3 Which is the part of the human brain associated with controlling the body temperature?

- a. Thalamus
- b. Cerebellum
- c. Hypothalamus
- d. Medulla oblongata

1.4 The stage of the separation of two sister chromatids at one stage of mitotic cell division is \_\_\_\_\_

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

1.5 Choose the correct pair from the following:

- a. Budding-yeast
- b. Fragmentation-Earthworm
- c. Spore Formation-Amoeba
- d. Regeneration-Dryopteris

**1.6 \_\_\_\_\_ phase of human development is associated with the maturity of the reproductive organ and reproductive gland.**

- a. Childhood
- b. Adolescence
- c. Late Adulthood
- d. Infancy

**1.7 \_\_\_\_\_ from the following are the recessive traits of the pea plant.**

- a. Wrinkled seed
- b. Yellow coloured seed
- c. Purple coloured flower
- d. Axial seed

**1.8 How many types of gametes are formed from pea plants having genotype YyRr?**

- a. 1
- b. 4
- c. 2
- d. 3

**1.9 What is the probability of a haemophilic girl child being born to a haemophilic carrier mother and normal father?**

- a. 75%
- b. 100%
- c. 50%
- d. 0%

**1.10 The gas which was absent in the environment during the origin of life is \_\_\_\_\_**

- a. Hydrogen
- b. Oxygen
- c. Methane
- d. Ammonia

**1.11 What is the feature of an analogous Organ?**

- a. Different in origin and functions are also different
- b. Different in origin but functions are the same
- c. Indicates divergent evolution
- d. Identical in origin and structure

**1.12 Which of the following absorbs the gas of the swim bladder in bony fishes?**

- a. Red gland
- b. Anterior chamber
- c. Gastric gland
- d. Retia Mirabilia

**1.13 Pseudomonas is associated with which of the following phases of the nitrogen cycle?**

- a. Nitrogen fixation
- b. Nitrification
- c. Denitrification
- d. Ammonification

**1.14 Which of the following is the endangered species of the Eastern Himalayas' biodiversity hotspots?**

- a. Lion tailed Macaque
- b. Orangutan
- c. Red panda
- d. Nilgiri Thar

**1.15 Which of the following are the diseases associated with air pollution?**

- a. Diarrhoea, Typhoid, Hepatitis
- b. Hepatitis, Bronchitis, Deafness
- c. Bronchitis, Asthma, Lung cancer
- d. Lung cancer, polio, malaria

Group-B

**2. Write answers as instructed for 21 out of the 26 questions given below [1x21=21]**

**Fill in the blanks with the proper words in the following sentences (any five) [1x4=4]**

**2.1 The process of necessary adjustment of focal length of the lens in the human eye is called\_\_\_\_\_**

**2.2 Adenine is a \_\_\_\_\_ type of nitrogenous base.**

**2.3 A disease created by a sex-linked gene is \_\_\_\_\_.**

**2.4 Name the earliest ancestor in the evolution of horses.**

**2.5 Which is an inflammable greenhouse gas that is produced from the paddy fields?**

**2.6 \_\_\_\_\_ is a biosphere reserve located in West Bengal.**

**Decide whether the given statements are true or false (any five) [1x5=5]**

**2.7 Gibberellin hormone prevents immature shedding of leaf of plants.**

**2.8 Ovum is only produced as a result of mitosis.**

2.9 Self-pollination or cross-pollination can be exercised in flowers of a pea plant according to the need.

2.10 The fundamental tenet of the evolutionary theory of Darwin is the process of natural selection.

2.11 Degradable pollutant is responsible for biomagnification.

2.12 Flagella is the locomotory organ of Paramoecium.

Match the words of column A with the appropriate ones from column B and re-write the correct pair mentioning the serial numbers of both columns  
(any five) [1x5=5]

PART-A	PART-B
2.13 blind spot	(a) Pollution of groundwater
2.14 Cytokinesis	(b) The point of connection of retina and optic nerve
2.15 44 A + XY	(c) Homologous organ
2.16 Wings of a bat and bird	(d) Formation of cell plate
2.17 Arsenic	(e) Pollen grain
2.18 Transfer to stigma	(f) Sound pollution
	(g) Chromosomal arrangement of human male

Answer any of the six from those given below in a word or a sentence [1x6=6]

2.19 Choose the odd one out and write it: TSH, ACTH, GTH, CSF

2.20 Write one function of myelin sheath.

2.21 A pair of related terms are given below and on the basis of the relationship in the first pair write the suitable word in the gap of the second pair.

Prophase: Disappearance of nuclear membrane and nucleolus::  
\_\_\_\_\_ : Reappearance of nuclear membrane and nucleolus

2.22 Give an example of a variation inherited in man along the generation.

**2.23 Which type of chromosome of human carries the gene responsible for the disease thalassemia?**

**2.24 Mention one morphological adaptation of cactus to prevent transpiration.**

**2.25 Among the following four terms one includes the other three. Find out which term it is and write it.**

**Embryo, Meristematic tissue, Seed, Cryopreservation.**

**2.26 Write the name of the cause of the latest concern regarding the environment of sunderbans.**

### **Group-C**

**Answer in 2 or 3 sentences any 12 out of the 17 questions given below. [2x12=24]**

**3.1 Give two differences between tropic movement and nastic movement.**

**3.2 Write two roles of GTH in the secretion of hormone from the reproductive glands in the body.**

**3.3 Categorise the following actions as natural or inherited reflex action.**

- Willingness of infants for breastfeeding
- Cycling
- Sneezing
- Catching ball by Wicket-keeper with swiftness

**3.4 Write the parts of the Central Nervous System and the Peripheral Nervous System.**

**3.5 Mention two importance of cell-cycle.**

**3.6 Distinguish between DNA and RNA based on the given features:**

- (a) Pyrimidine base
- (b) 5 C sugar

**3.7 Which agents perform the function of pollination in the following plants?**

- a. Paddy
- b. Hydrilla
- c. Shimul
- d. Mango

**3.8 State the example of how dominant trait is expressed in the experiment of hybridisation.**

**3.9 What would be the ratio of the phenotype and the genotype of the  $F_2$  generation in a monohybrid experiment in case of incomplete dominance?**

**3.10 Show with the help of a cross, how colour blindness is inherited.**

**3.11 What are the reactants used and named the organic compound formed in the experiment of Miller and Urey and in connection with chemical origin of life.**

**3.12 Write four important features modified in the evolution of horses.**

**3.13 How does the Sundari plant excrete the excess salt from its body?**

**3.14 What are the names of two microorganisms participating in the process of biological nitrogen fixation?**

**3.15 Mention two damages that were caused by Acid Rain.**

**3.16 What are the four damages of biodiversity caused by global warming?**

**3.17 What are the major topics regarding biodiversity documented in the People's Biodiversity Register (PBR)?**

**Group-D**

**4. Answer any 6 of the questions from the alternatives given below. [5x6=30]**

**4.1 Draw a neat diagram of the vertical section of the eyeball of the human eye and label the following parts: [3+2=5]**

- a. Cornea
- b. Lens
- c. Vitreous humour
- d. Retina

**Or**

**Draw a neat diagram of metaphase of mitosis of a plant cell or an animal cell division and label the following parts: [3+2=5]**

- a. Chromosome
- b. Spindle fibre
- c. Polar region
- d. Centromere

**4.2 Explain the inter-relationships among chromosome, DNA and gene. Distinguish between the euchromatin and the heterochromatin on the following two aspects:**

- a. Coiling
- b. Activity

Or

How is micropropagation done? State what happens in the following three phases of sexual reproduction of flowering plants. [2+3=5]

- a. Production of gamete or reproductive cells
- b. Fertilization
- c. Formation of embryo and new plant

4.3 With the help of a checkerboard show the types of off-springs that might be produced in a cross between a hybrid black guinea pig and a pure white guinea pig. State the law of segregation as proposed by Mendel. [3+2=5]

Or

Mention the symptom of Thalassemia disease. In many families mothers are labelled as responsible for the birth of a daughter. Demonstrate with the help of a cross that this belief is not justified. [2+3=5]

4.4 Mention two features of Internal structures on the basis of 'which flipper of whales' and 'wings of birds' are considered as homologous organs. How does a worker bee of a beehive communicate with other worker bees regarding source and location of food? [2+3=5]

Or

Show the major evolutionary events with the help of a flow chart [5]

4.5 What are the causes of asthma? What are the roles of Joint Forest Management in the conservation of Biodiversity? [2+3=5]

Or

Assess the causes of depletion of biodiversity with proper examples [5]

4.6 Propose two conservation measures that could be taken to increase the number of Indian one-horned rhino. Make your opinions based on your experiences how sources of freshwater become polluted [2+3=5]

Or

Which conditions do you consider will declare one area out of two as a biodiversity hotspot? Give two examples of ex-situ conservation.

**Group E**  
**(For External Candidates Only)**

**5. Answer any four questions:**

**[1x4=4]**

- 5.1 Mention one feature of unstriated muscle.
- 5.2 Which cell organelle is referred to a “kitchen of cell”?
- 5.3 In which type of cell, nucleus is not well organised?
- 5.4 Give example of a flower pollinated by air.
- 5.5 Write one important feature of life.

**6. Answer any three questions:**

**[2x3=6]**

- 6.1 Write two features of epithelial tissues.
- 6.2 Write two functions of collenchyma tissues.
- 6.3 Write two differences between plant cell and animal cell.
- 6.4 Give one example for each of prokaryotic and eukaryotic cell.



