Federal Board HSSC-II (2012)

BIOLOGY

Time: 25 Minutes Marks: 17

Note Section-A is compulsory and comprises pages 1-2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

**SECTION — A**

Q.1 Circle the correct option i.e. A/ B/C/D. Each part carries one mark

**(i) The maximum speed of Nerve Impulse as recorded in humans is**

A) 100 metres/second

B) 110 metres/second

C) 120 metres/second

D) 130 metres/second

**(ii) What are called the animals who lay shelled eggs to protect the developing embryo from harsh terrestrial conditions?**

A) Viviparous B) Ovoviviparous

C) Oviparous D) Metatherians

**(iii) Every protein starts with an amino acid methionine encoded by an initiation codon**

A) UAA B) UGA

C) AUG D) UAG

**(iv) In a population with two alleles for a particular locus A and a, the allele frequency of A is 0.6. What would be the frequency of heterozygote if the population is in Hardy — Weinberg equilibrium?**

A) 0 36 B) 0.16

C) 0.24 D) 0 48

**(v) The term niche was first proposed in1917 by Joseph Grinnell an American**

A) Embryologist B) Ornithologist

C) Ecologist D) Physiologist

**(vi) During which phase of meiosis the Non-sister chromatids of homologous chromosome exchange their segments due to the formation of chiasmata?**

A) Pachytene B) Leptotene

C. Diplotene D) Diakinesis

**(vii) Which of the following is NOT a sex- linked disease in humans?**

A) Hypophosphatemia B) Colour-blindness

C.) Sickle cell anemia D) Haemophilia

(viii) When a haemophiliac carrier woman marries a normal man, who among her offspring may be affected?

A) All her children B) All her daughters

C) Half of her daughters D) Half of her sons

**(ix) In an ecosystem, the second trophic level is constituted by the**

A) Producers B)Decomposers

C) Primary consumers D)Secondary consumers

**(x) The enzyme luciferase is produced by an insect commonly called**

A) Housefly B) Butterfly

C) Firefly D) Dragonfly

**(xi) Both the parents have blood group AB. What is the probability of the children having blood group 0?**

A) 25% B) 50%

C) 75% D) Zero%

**(xii) In the human liver, ammonia and citrulline chemically combine together to form**

A) Ornithine B) Creatinine

C).Creatine D) Arginosuccinate

**(xiii) Which of the following is a degenerative disease?**

A) Alzheimer B) Arterioscelerosis

C) Cretinism D) Kwashiorkor

**(xiv) Which phenomenon reduces the chances of genetic recombination and variations among offspring?**

A) Linkage B) Crossing over

C)Independent assortment D) Dominance

**(xv) Photonasty and thermonasty are the types of**

A) Haptonasty B) Hyponasty

C) Nyctinasty D) Epinasty

**(xvi) p5C 101 plasmid has antibiotic resistance gene for**

A) Tetracycline B) Ampicillin

C) Streptomycine D) Penicillin

**(xvii) In limnetic zone, phytoplankton includes**

A) Algae B) Bacteria

C) Mosses D)Cyanobacteria

**BIOLOGY HSSC-II**

**Time allowed: 2:35 Hours Total Marks: 68**

**SECTION — B**

**Q. 2 Attempt any FOURTEEN parts. The answer to each part should not exceed**

(i) Specify the part of nephron associated with each of the following functions:

a) Filtration b) Reabsorption

c) Secretion

(ii) Write down three methods for the excretion of waste materials in plants

(iii) Define Epistasis.

(iv) a. What are the causes of rapid movement of leaflets of Mimosa plant?

b. Define Nutation

(v) Define Synovial joints List the types of synovial joints

(vi) a. With the help of graph, show the sequence of membrane potential changes sequence of membrane potential changes

b.What is the cause of Addison's disease?

(vii) a. What is the importance of evolution of pollen-tube in Spermatophytes?

b. What is Parthenocarpy? Also write its cause.

(viii) How is birth controlled by maternal and foetal hormones in human female?

(ix) Differentiate between Apical meristem and Lateral meristem.

(x) What is DNA polymerase III? Write down its main features

(xi) a. How is Phragmoplast formed? What is its importance for future daughter cells?

b. Write briefly about Anaphase?

(xii) What is Test cross?

(xiii) Differentiate between Incomplete dominance and Codominance with examples

(xiv) a. What are the causes of insulin dependent diabetes mellitus?

b. Write down the side effects of diabetes.

(xv) What are the two primary goals of human genome project?

(xvi) Show diagrammatically the two hypothesis on the evolution of Eukaryotic cell.

(xvii) Differentiate between:

a. Population and Community

b. Autecology and Synecology

c. Biotic components and Abiotic components

(xviii) Define Succession. Differentiate between Primary Succession and Secondary Succession.

(xix) a. What is Acid rain?

b. Write any four damages caused by acid rain.

**SECTION - C (Marks 26)**

**Note: Attempt any TWO questions. All questions carry equal marks**

Q. 3

a. Describe the structure and function of the different parts of human Brain. Also draw the diagram

b. Define Synapse. How does a nerve impulse communicate across a synapse?

Q. 4

a. Describe the developmental process. of

chick

b. What is meant by Abnormal development? Write down its causes

Q. 5

a. How can you get multiple copies of a gene by recombinant DNA technology?

b. How is the SCID Syndrome cured by gene therapy?