Nayak's Tutorials

Way to Excellence

Year: 2024-25	**Practice Paper-1**	**Marks - 80**
Std:- X ICSE	**Biology**	**Duration :- 2 Hrs**

*Attempt **all** questions from **Section A** and **any four** questions from **Section B.***
The intended marks for question or parts of questions are given in brackets [ ].

SECTION A – 40 marks

Attempt all questions from this Section

Question 1

a) Multiple choice questions 15

1. The centromere divides into two during
   A. Prophase B. Anaphase C. Metaphase D. Telophase

2. The two cells formed at the end of mitosis contain
   A. Same number of chromosomes as the original cell
   B. Half the number of chromosomes as the original cell
   C. Double the number of chromosomes or the original cell
   D. None of the above

3. If tall (T) is dominant over dwarf (t) and round seeds (R) is dominant over wrinkled seeds (r), the genotype of a true breeding tall plant with wrinkled seeds would be
   A. TtRr B. TTrr C. TTRR D. TiRr

4. In the example given above [Q11] if the genotype is tt Rr, the phenotype would be
   A. Tall and wrinkled B. Dwarf and round C. Dwarf and wrinkled D. Tall and round

5. Which one of the following is the phenotypic monohybrid ratio in F1 generation ?
   A. 3:1 B. 2:2 C. 1:2:1 D. 1:3

6. If a pure tall plant is crossed with a pure dwarf plant the offspring will be
   A. all tall B. 3 tall 1 dwarf C. all dwarf D. 50% tall 50% dwarf

7. A plant with green pods and smooth seeds with genotype Ggss will give rise to the following gametes:
   A. Gg and Ss B. Gs and ss C. Gg and gs D. Gs and gs

8. Absorption of water by the plant cells by surface attraction is called.
   A. Diffusion B. Osmosis C. Imbibition D. Endosmosis

9. A plant cell placed in a certain solution got plasmolysed. What was the kind of solution?
   A. Isotonic sugar solution B. Hypotonic salt solution
   C. Hypertonic salt solution D. Isotonic salt solution

10. The state of a cell in which the cell wall is rigid and stretched by the increase in volume due to the absorption of water is called
   A. Flaccidity B. Capillarity C.Tonicity D.Turgidity

11. Which one of the following is a characteristic NOT related with the suitability of the roots for absorbing water?
   A. Tremendous surface area
   B. Contain cell sap at a higher concentration surrounding soil water
   C. Root hairs have thin cell walls

D. Contain cell sap at a lower concentration for enhanced mineral uptake.

12. Movement of molecules of a substance from the region of their higher concentration to the region of their lower concentration without the involvement of a separating membrane, is called
A. Osmosis B. Active transport C. Diffusion D. Capillarity

13. The highest water potential (capacity to move out to higher concentrated solution) is that of
A. Pure water B. Honey C. 10% salt solution D. 50% sugar solution

14. What is responsible for guttation ?
A. Osmotic pressure B. Suction pressure C. Root pressure D. Capillarity

15. The most appropriate characteristic of a semi-permeable membrane is that?
A. It has minute pores. B. It has no pores.
C. It allows the solute to pass through but not the solvent.
D. It allows a solvent to pass through freely but prevents the passage of the solute.

b) Name the following: [5]

i. The repeating components of each DNA strand lengthwise.
ii. The complex structure consisting of the DNA strand and a core of histones.
iii. The junction between two nerve cells.
iv. The fluid that is present inside and outside the brain.
v. The ear ossicle attached to the tympanum.

c) Give technical terms for the following: [5]

i. The ability of the eye to adjust its focal length in order to obtain a clear vision of objects at different distances.
ii. The period between two successive mitotic divisions.
iii. The point at which two sister chromatids are held together.
iv. An eye defect due to which two eyes somewhat converge leading to what is called a cross eye.
v. The stage of mitosis when the nucleolus starts disappearing.

d) State whether the following statements are true or false, rewrite the correct statement [5]

i. The main component of the white matter of the brain is perikaryon.
ii. Dura mater is the outermost layer of the meninges.
iii. The part of the ear associated with dynamic balance is cochlea.
iv. Hypermetropia is a defect of the eye caused due to the elongation of the eyeball.
v. There are twelve pairs of spinal nerves present in the human body.

e) State the location of the following [5]

i. Organ of Corti.
ii. Lacrimal gland.
iii. Node of Ranvier
iv. Ganglia
v. Macula lutea

f) State the functions of the following: [5]

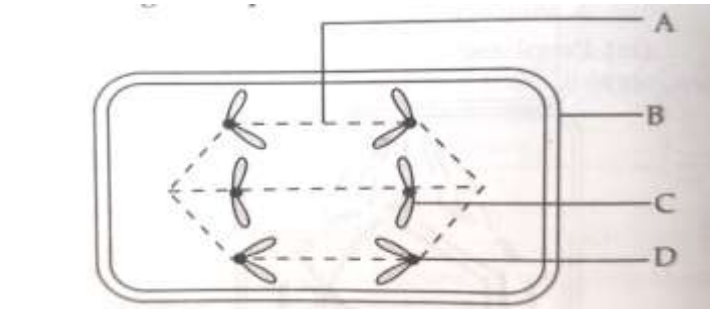
i. Cell plate
ii. Conjunctiva
iii. Acetylcholine
iv. Vitreous humour
v. Myeline sheath

SECTION B [40 MARKS]

Attempt any four out of six questions

Question 2

(a) The diagram below represents a stage in cell division. Study the same and answer the questions that follow. **[3]**



i. What is the unique feature observed in this stage?
ii. How many daughter cells are formed in this type of division?
iii. Is the dividing cell shown a plant or animal cell? Give a reason to support your answer.

(b) Answer the following **[3]**

i. Rewrite the following terms in a logical sequence:
Karyokinesis, S-phase, cytokinesis, G1 phase, G2 phase
ii. Gametes have haploid number of chromosomes. Give reason.
iii. State two ways in which mitosis is different in plant and animal cells.

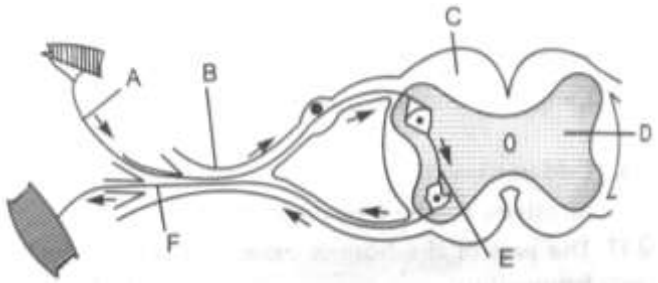
(c) Draw a diagram of the nucleus of a cell having 6 chromosomes, as it would appear in the metaphase stage of mitosis and label the following parts:
Aster, Achromatic spindle, Chromatid, Centromere **[2]**

(d) Choose the odd one out and mention the category of the other terms **[2]**

i. Sneezing, coughing, typing, blinking.
ii. Incus, pinna, malleus, stapes.

Question 3

(a) The diagram given below is a representation of a phenomenon pertaining to the nervous system. Study the diagram and answer the following questions: **[3]**



i. Name the parts labelled A, C, D and F.
ii. State the functions of part labelled E and F.
iii. Name the group of cells that come in contact with part A.

(b) Classify the following actions as simple reflex or conditioned reflex **[2]**

i. Playing a guitar
ii. Removing your hand suddenly when pricked by a thorn.
iii. Applying sudden brakes when a dog crosses the path.
iv. Blinking of eyelids on exposure to light.

(c) Differentiate between **[3]**

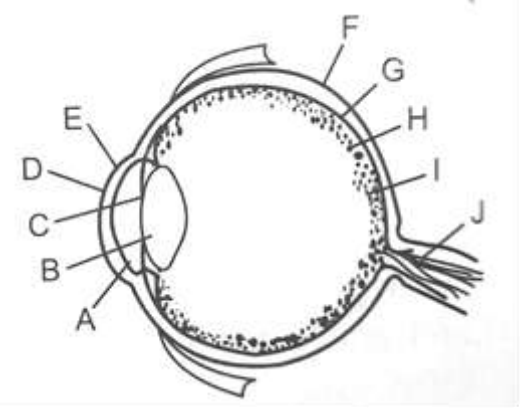
i. Cerebrum and cerebellum [Function]
ii. Middle ear and inner ear [Components]
iii. Sensory neuron and motor neuron [direction of impulse

(d) **Define** **[2]**

i. Genes
ii. Karyokinesis

Question 4

(a) The diagram below refers to the vertical section of the eye of a mammal.
Label the parts A to J to which the guidelines point. **[3]**



(b) Answer the following [3]

i. Throat infections can lead to ear infections. Give reason.
ii. A person feels blinded for a short time while coming out of a dark room. Give reason.
iii. Explain the term cataract.

(c) Differentiate between [2]

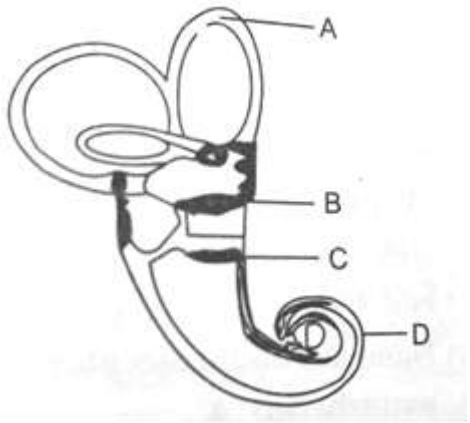
i. Rods and cones [sensitivity]
ii. Near and distant accommodation [shape of the lens]

(d)Find odd one out [2]

i. Semicircular canals, cochlea, tympanum, utriculus.
ii. Pons, cerebellum, medulla oblongata, cerebrum.

Question 5

(a) The diagram given below represents the structure found in the inner ear. Study the same and then answer the questions that follow. [3]



i. me the parts labelled A, B, C and D.
ii. Name the parts responsible for:
    a. For static balance
    b. For dynamic balance
    c. For hearing
iii. How many canals are present in part D? Name the fluids filled in those canals.

(b) Answer the following [3]

i. Differentiate between night blindness and colour blindness. [Cause and condition]
ii. State any two functions of tears.
iii. Describe the structure of the sclera.

(c) Answer the following [2]

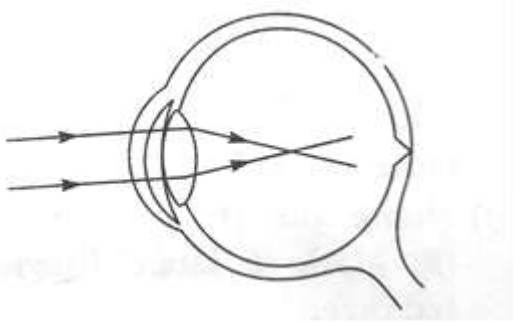
i.State the exact location of corpus callosum.
ii. What is reflex action? Explain with an example

(d)Define [2]

i. Chromosome
ii. Nerve

Question 6

(a) Given below is a diagram depicting a defect of the human eye, study the same and answer the questions that follow [3]



i. Name the defect shown in the diagram.
ii. What are the two possible reasons that cause this defect?
iii. Name the type of lens used to rectify this defect.

(b) With the help of a suitable diagram, show how this defect can be corrected by using a suitable lens. **[2]**

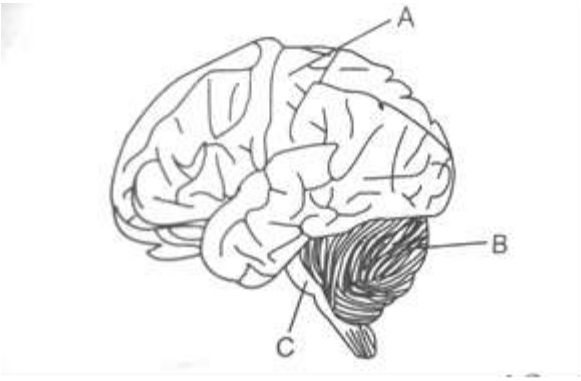
(c) Answer the following questions **[3]**

i. A person who has consumed alcohol walks clumsily. Give reason.
ii. An injury to the medulla oblongata may prove to be fatal. Why?
iii. Name any two cranial nerves.

(d) Describe Pavlov's experiment on development of conditioned reflexes. **[2]**

Question 7

(a) The diagram shows a section of the human brain. Answer the questions that follow. [3]



i. Name the parts labelled A, B and C.
ii. State the structure and function of part A.
iii. What are gyri and sulci? What is their significance?

(b) Explain the working of the sympathetic and the parasympathetic system with the help of examples. **[2]**

(c) **Name the protective membranous covering of the brain. Mention the three layers and state one characteristic of each.** **[3]**

(d) Answer the following questions **[2]**

i. Explain the structure of a nucleotide.
ii. Which part of your brain is in use while solving a mathematical problem? Give an explanation for the same.

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