PART - III

BOTANY / علم نباتات
(Urdu & English Versions / اردو اور انگریزی زبان)

Time Allowed : 3 Hours  [ Maximum Marks : 150 ]

Instructions : (1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.

(2) Use Blue or Black ink to write and underline and pencil to draw diagrams.

SECTION - A / A-کے

30x1=30

Note : (i) Answer all the questions.
(ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.

Plants having flowers with free petals are placed under : (a) Gamopetalae (b) Monocotyledons (c) Polypetalae
2. Vernonia arborea is a:
(a) herb (b) shrub (c) tree (d) twiner

3. In Hevea brasiliensis, the leaves are:
(a) Simple (b) Trifoliately compound (c) Sessile (d) Palmately lobed

4. The phyllotaxy in Musa is:
(a) Alternate (b) Opposite (c) Distichous (d) Spiral

5. Borassus flabellifer is the binomial of:
(a) coconut tree (b) wine palm (c) royal palm (d) palmyra palm

6. A drug obtained from Artemesia maritima is:
(a) pyrethrum (b) santonin (c) atropine (d) quinine
An advanced family in Monocotyledons is:
(a) Asteraceae  (b) Malvaceae
(c) Rubiaceae  (d) Orchidaceae

The osteosclereids are seen in:
(a) seed coat of crotalaria  (b) seed coat of pisum
(c) pulp of pyrus  (d) petioles of banana

Passage cells are found in endodermis of:
(a) dicot stem  (b) dicot root  (c) monocot stem  (d) dicot leaf

Vascular Cambium is a:
(a) apical meristem  (b) intercalary meristem
(c) lateral meristem  (d) promeristem
The determination of the age of a tree by counting the annual rings is called:
(a) dendrochronology  (b) palynology  
(c) entomology  (d) ecology

In Gymnosperms, the chief water conducting elements are:
(a) tracheids  (b) vessels  
(c) xylem fibres  (d) sieve tubes

Hugo de Vries first used the term mutation based on his observation on:
(a) Sorghum  (b) Neurospora  
(c) Oenothera lamarckiana  (d) Cicer gigas

Nullisomy is represented by:
(a) $2n - 1$  (b) $2n + 1$  
(c) $2n + 2$  (d) $2n - 2$

Chromosomes occur in cancer cells are called as:
(a) Polytene chromosome  (b) Lamp brush chromosome  
(c) B - chromosomes  (d) Double minutes
Haploid set of chromosome in sugarcane is:
(a) 30  (b) 40  (c) 10  (d) 20

The development of root from the callus is called:
(a) organogenesis  (b) rhizogenesis
(c) caulogenesis  (d) embryogenesis

Enriched vitamin tablets are produced from the following organism for human consumption.
(a) Nostoc  (b) Yeast  (c) Mushroom  (d) Spirulina

Which one of the following genetically engineered products helps the cells to resist viruses?
(a) Interleukin  (b) Interferon
(c) Insulin  (d) Renin inhibitors
An example for transferase:
(a) transaminase  (b) pyruvic carboxylase  
(c) histidine decarboxylase  (d) dehydrogenase

Z - scheme refers to:
(a) Cyclic electron transport  (b) photolysis of water  
(c) Non-cyclic electron transport  (d) reduction of CO₂

Which of the following is the common respiratory substrate:
(a) proteins  (b) lipids  
(c) carbohydrates  (d) vitamins

The hormone that involves in ripening of fruits is:
(a) auxin  (b) gibberellin  
(c) ethylene  (d) abscisic acid

Which of the following is a day neutral plant?
(a) Tobacco  (b) Sunflower  (c) Oats  (d) Wheat
In mitochondria, the electron transport components are arranged in:
(a) matrix  (b) outer membrane  (c) cristae  (d) inner membrane

It is described as energy currency of the cell:
(a) ATP  (b) NADP  (c) FAD  (d) NADH

An example for partial parasite is:
(a) Vanda  (b) Cuscuta  (c) Drosera  (d) Viscum

What is the collateral host plant of pyricularia oryzae?
(a) Oryza sativa  (b) Digitaria marginata  (c) Arachis hypogea  (d) Citrus plant

Polyploidy can be induced by:
(a) polyethylene glycol  (b) pectinase  (c) cellulase  (d) colchicine
30. Duration of patent in India is:
(a) 3 years  (b) 4 years  (c) 5 years  (d) 6 years

Note: Answer any fifteen questions.

15x3=45

31. What is papilionaceous corolla?

32. Write the systematic position of malvaceae.

33. What is syngenesious stamen?

34. What is Atropine?

35. What is an Eustele?

36. What is a genetic map?

37. What is Transcription?
Write any three significances of ploidy.

Mention three media of plant tissue culture.

What is meant by Bio-remediation?

Define light reaction.

What are called haustoria?

What is Zeatin?

State the conditions under which cyclic photophosphorylation occurs.

What is Apoenzyme?

What is anaerobic respiration?

Mention three significances of pentose phosphate pathway.
Write any three differences between \( C_3 \) and \( C_4 \) pathway.

Solanum nigrum ke koi mein kisi shilale ke safar ke liye use karte hain.

Write any three medicinal uses of Solanum nigrum.

What is Biofertilizer and give an example.

**SECTION - C / C_3**

\[ 7 \times 5 = 35 \]

(i) \( \text{List: } \) Arizini Swal, Swal Pathir, \( C_5 \) ke Swal, Swal pathir ke jeeb wapne\

(ii) \( \text{Chaln弱势Swal dafa ka nayi kehna.} \)

**Note:**
(i) Answer **any seven** questions including question no. 56 which is **compulsory**.
(ii) Draw diagrams wherever necessary.

Bring out the significance of Herbarium.

Write the differences between Musa and Ravenala.

Explain different types of parenchyma.

Write short notes on lenticels.
Draw and label the parts of transverse section of a monocot root (a sector enlarged or Ground plan)

Write short notes on the structure of tRNA.

Write the differences between DNA and RNA.

Write short notes on the practical application of genetic transformation.

Write the five most important events of recombinant DNA technology.

Explain Kuhne’s fermentation tube experiment.

Write any five physiological effects of Auxin.

Write short notes on plant introduction.
SECTION - D/D-

4x10=40

Note : (i) Answer any four questions.
(ii) Draw diagrams wherever necessary.

(a) Bring out the merits of Bentham and Hooker’s classification of plants.
(b) Give an account on economic importance of Rubiaceae.

Describe Musa paradisiaca in botanical terms. (Diagrams not necessary)

Write anatomical differences between dicot stem and monocot stem.

Explain the structure of chromosome.

What are the outcomes of application of plant tissue culture?

Write an account on the factors affecting photosynthesis.

Describe C₂ cycle (photorespiration) (flow chart or Explanation)

Write the economic importance of Rice and ground nut.