

BOARD OF INTERMEDIATE EDUCATION, KARACHI
H.S.C. Annual Examinations 2021

(MODEL QUESTION PAPER)

BOTANY PAPER-II
(Science Pre-Medical Group)

Total Duration: 01 Hour 30 minutes

Time Allowed: 30 Minutes

SECTION "A" (M.C.Qs)

Max Marks: 20

Note: This Section consists of 20 part questions and all are to be answered. Each question carries 01 mark.

Q1. Choose the correct answer for each from the given option:

(i) Cells use to make protein:

- | | |
|-------|---------------|
| ◆ DNA | ◆ Nucleus |
| ◆ RNA | ◆ Chromosomes |

(ii) If a solution having low concentration as compare to the cell solution, it is said to be:

- | | |
|-----------------------|----------------------|
| ◆ Hypertonic Solution | ◆ Saturated solution |
| ◆ Hypotonic Solution | ◆ Dilute Solution |

(iii) Succulent plants are commonly grouped in:

- | | |
|---------------|--------------|
| ◆ Mesophytes | ◆ Halophytes |
| ◆ Hydrophytes | ◆ Xerophytes |

(iv) Central portion of stem consist of xylem, phloem and stele are collectively called as:

- | | |
|-------------|---------------|
| ◆ Cambium | ◆ Stele |
| ◆ Tracheids | ◆ Cork Cambim |

(v) Mimosa pudica shows following movement:

- | | |
|---------------|----------------|
| ◆ Nyctinastic | ◆ Seismonastic |
| ◆ Photonastic | ◆ Thigmotropic |

(vi) Biological activities of organism followed by 24 hours frequency are called as?

- | | |
|------------------|--------------------|
| ◆ Long day Plant | ◆ Circadian rhythm |
| ◆ Biorhythm | ◆ Phytoalexins |

(vii) The ideal soil for plant growth is:

- | | |
|--------------|-------------|
| ◆ Sandy soil | ◆ Clay soil |
| ◆ Loam | ◆ Silt |

(viii) Individual species level approach of ecology called:

- | | |
|--------------------|--------------|
| ◆ Synecology | ◆ Autecology |
| ◆ Ecological Niche | ◆ Succession |

- (ix) The diameter of stem and root increases due to:
 * Intercalary meristem * Lateral meristem * Apical meristem * Superficial meristem
- (x) Similar group of individuals who can interbreed and produce organisms of their own kind form a:
 * Population * Community * Species * Succession
- (xi) The Sea below 2000 m having no light?
 * Abyssal zone * Benthic zone * Euphotic zone * Neretic zone
- (xii) In grassland biomes the rainfall is usually between:
 * 30 to 75cm * Below 24 cm * 100-125cm * 125-150cm
- (xiii) Dandelion plant shows following asexual reproduction:
 * Apomixes * Cutting * Budding * Tissue culture
- (xiv) Plants having staminate flower can't perform the following:
 * Cross pollination * Self Pollination * Parthenocarpy * Double fertilization
- (xv) The embryo of grass seed is enclosed by a sheath consisting of coleorhiza which covers the:
 * Hypocotyle * Epicotyle * Root * Shoot
- (xvi) Group of plant tissues capable of division are termed as:
 * Meristem * Collenchyma * Sclerenchyma *
 Secondary tissues
- (xvii) Two polynucleotide chains of DNA are apart from each other by:
 * 20 Å * 3.4 Å * 34 Å * 4 Å
- (xviii) At what stage of mitosis are chromosomes arranged along a plane at the midline of the cell?
 * Anaphase * Telophase * Metaphase * Interphase
- (xix) A division without the formation of spindle is:
 * Amitosis * Mitosis * Animal cell division * Meiosis
- (xx) Total aggregate of genes in a population is called as:
 * Chromosome * Gene pool * Multiple Gene *
 Chromonema

Time: 01 hour

Marks: 20

SECTION 'B'(SHORT-ANSWER QUESTIONS)

Marks: 12

- Q2.** Attempt any Four-part questions. Each question carries one mark. Give answer not more than two lines.
- (i) Name the pyrimidine bases in DNA structure
- (ii) Define Apomixis and Parthenocarpy?
- (iii) Define any one of the followings: (a) Autosome (b) Sex chromosomes
- (iv) Name the types of RNA involved in protein biosynthesis.

- (v) What happens when a cell is placed in a hypotonic solution?
- (vi) Write number of chromosomes in Pea (*Pisum sativum*) and Sugarcane (*Saccharum officinarum*)?
- (vii) Define meristematic tissues and name its types. OR How young stem gives mechanical support to plant body

Q3. Attempt any Four-part questions. Each question carries Two marks. Give answer not more than five lines.

- (i) What is the phenotypic ratio if cross between color blind male and carrier female, with the help of checker board.
- (ii) Describe the changes occurs in Prophase of Mitosis.
- (iii) Describe any one of the followings:
 - (a) Pollination
 - (b) Double fertilization
- (iv) Name only the Biotic components of an ecosystem.
- (v) How is Photonasty different from Phototropism?
- (vi) State the law of Segregation.
- (vii) Define Nastic movement.
- (viii) Discuss Abiotic components of desert ecosystem

SECTION 'C' (DETAILED-ANSWER QUESTIONS)

Max Marks: 08

Note: Attempt any **Two** questions from this section. All questions carry equal marks. (Diagram is not required)

Q4. Explain the climatic factors of an ecosystem. **OR** Describe osmoregulation in flowering plants

Q5. Define Meiosis. Explain the various stages of Prophase -I of meiosis.

Q6. Define "Law of Independent assortment" and explain with checkerboard.

Q7. Explain ultrastructure of Chromosomes. **OR**

What do you mean by sex determination? Discuss linked inheritance with reference to colour blindness.

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