BOARD OF INTERMEDIATE EDUCATION, KARACHI
Bakhtiari Youth Center, North Nazimabad, Karachi - 74700
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## BOTANY PAPER-II (MODEL PAPER) <br> Annual Examination 2021 <br> (Science Pre-Medical Group)

Time Allowed: 20 minutes
Max Marks: 20

## SECTION 'A' (MULTIPLE CHOICE QUESTIONS) - (M.C.Qs)

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 (0 * 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:

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\text { * Sandy soil } \quad * \text { Clay soil } \quad \text { Loam } \quad \text { 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 $75 \mathrm{~cm} \quad *$ Below 24 cm F F* $100-125 \mathrm{~cm} \quad * 125-150 \mathrm{~cm}$
(xiii) Dandelion plant shows following asexual reproduction:
* Apomixes * Cutting A A * 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 as sheath consisting of coleorhiza which covers the:
* Hypocotyle * Epicotyle * Root
* Meristem * Collenchyma *Sclerenchyma *Secondary tissues
(xvii) Two poly nucleotide chain of DNA are apart from each other by:
* $20^{\circ} \mathrm{A}$
* $3.4^{\circ} \mathrm{A}$
* $34^{\circ} \mathrm{A}$
* $4^{\circ} \mathrm{A}$
(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:

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\begin{array}{lccc} 
& * \text { Amitosis } & * \text { Mitosis } & * \text { Animal cell division }
\end{array} \quad * \text { Meiosis }
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Time: 1 hour 40 minutes
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 OUESTIONS)

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.

