FEDERAL PUBLIC SERVICE COMMISSION

COMPETITIVE EXAMINATION FOR RECRUITMENT TO POSTS IN BS-17 UNDER THE FEDERAL GOVERNMENT, 2013

Roll Number

BOTANY, PAPER-I

TIME ALLOWED:	**(PART-I MCQs)**	**30 MINUTES**	**MAXIMUM MARKS: 20**
THREE HOURS	**(PART-II)**	**2 HOURS & 30 MINUTES**	**MAXIMUM MARKS: 80**

NOTE: **(i)** **First** attempt **PART-I (MCQs)** on separate **OMR Answer Sheet** which shall be taken back after **30** minutes.
(ii) **Overwriting/cutting of the options/answers will not be given credit.**

PART-I ((MCQs) (COMPULSORY)

Q.1. (i) Select the best option/answer and fill in the appropriate Circle ◯ on the **OMR Answer Sheet. (20x1=20)**
(ii) Answers given anywhere, other than OMR Answer Sheet, shall not be considered.

1. Epidermal tissue act generally as:
(a) Protective tissue **(b)** Absorbing tissue **(c)** Photosynthetic tissue
(d) Conducting tissue **(e)** None of these

2. Alternate name of Family Apiaceae is:
(a) Lamiaceae **(b)** Labiatae **(c)** Umbelliferae **(d)** Graminae **(e)** None of these

3. When Stamens are numerous and attached to Corolla, this condition is known as:
(a) Polyandrous and Epipetalous **(b)** Syngenious **(c)** Monadelphous **(d)** None of these

4. Which of these is not green Algae?
(a) Volvox **(b)** Chlorella **(c)** Ulothrix **(d)** Nostoc **(e)** None of these

5. In Rhizopus Sexual reproduction is:
(a) Anisogamous **(b)** Oogamous **(c)** Conjugation **(d)** None of these

6. During germination nucleus of zygospore of Rhizopus first undergoes:
(a) Mitosis **(b)** Meiosis **(c)** Amitosis **(d)** Binary fission **(e)** None of these

7. Which of the followings possesses both animal and plant characters?
(a) Stigeocloneum **(b)** Euglena **(c)** Chlamydomonas **(d)** Ulva **(e)** None of these

8. Rhynia belongs to group of:
(a) Desert plants **(b)** Aquatic plants **(c)** Alpine plants **(d)** Fossil plants **(e)** None of these

9. The main plant in Selaginella is a:
(a) Sporophyte **(b)** Gametophyte **(c)** Epiphyte **(d)** Thallophyte **(e)** None of these

10. Pinus lacks which one of the following:
(a) True flower **(b)** Male cones only **(c)** Female cones only
(d) Both male and female cones **(e)** None of these

11. Interaction between Algae and Fungi is called:
(a) Parasitism **(b)** Mutualism **(c)** Commensalism **(d)** Amensalism **(e)** None of these

12. The plant cell without nuclei are found in:
(a) Cambium **(b)** Root hairs **(c)** Companion cells **(d)** Vessel elements **(e)** None of these

13. Which of the following is rapid type of absorption?
(a) Passive absorption **(b)** Active absorption **(c)** Salt absorption
(d) Root tip absorption **(e)** None of these

14. Water is absorbed through the root hairs by means of:
(a) Respiration **(b)** Turgor pressure **(c)** Transpiration **(d)** Osmosis **(e)** None of these

15. The tissue responsible for translocation of food material is:
(a) Vessels **(b)** Sieve tubes **(c)** Parenchyma **(d)** Fibers **(e)** None of these

16. Red colour of Red Algae is due to the presence of:
(a) Neoxanthin **(b)** Phycoerythrin **(c)** Carotene-B **(d)** Fucoxanthin **(e)** None of these

17. The presence of lignin in cell wall is characteristic feature of:
(a) Woody tissue **(b)** Phloem **(c)** Soft tissue **(d)** Cortex **(e)** None of these

18. In which of the following plants does the stem perform the function of Storage and Perenation?
(a) Ground nut **(b)** Ginger **(c)** Wheat **(d)** Radish **(e)** None of these

19. Common method of producing new varieties of Roses is:
(a) Cutting **(b)** Budding **(c)** Grafting **(d)** Layering **(e)** None of these

20. A branched Raceme is called:
(a) Corymb **(b)** Panicle **(c)** Spike **(d)** Catkin **(e)** None of these

PART-II

NOTE: **(i)** **Part-II** is to be attempted on the separate **Answer Book.**
(ii) Candidate must write **Q. No.** in the **Answer Book** in accordance with **Q. No.** in the **Q. Paper.**
(iii) Attempt ONLY FOUR questions from PART-II. ALL questions carry **EQUAL marks.**
(iv) Extra attempt of any question or any part of the attempted question will not be considered.

Q. No.2. Discuss evolutionary trends in Bryophytes with special reference to development of spores and associated structure. **(20)**

Q. No.3. What are "FUNGI"? How they are different from plants? Explain industrial applications of "FUNGI". **(20)**

Q. No.4. Write a detailed account on the development of ENDOSPERM in plants. **(20)**

Q. No.5. What is SPECIATION? Explain modern trends in Plant Systematics. **(20)**

Q. No.6. Why ALGAE are known as THALLOPHYTES? Give economic importance of ALGAE. **(20)**

Q. No.7. Write critical notes on MICROSPOROGENESIS and MEGASPOROGENESIS. **(20)**

Q. No.8. Write notes on any TWO of the followings: **(10 each)** **(20)**
(a) Chemotaxonomy
(b) Evolutionary tendencies in Gymnosperms.
(c) Normal and Abnormal Secondary Growth.

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BOTANY, PAPER-II

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THREE HOURS	**(PART-II)**	**2 HOURS & 30 MINUTES**	**MAXIMUM MARKS: 80**

NOTE: **(i)** **First** attempt **PART-I (MCQs)** on separate **OMR Answer Sheet** which shall be taken back after **30** minutes.

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PART-I ((MCQs) (COMPULSORY)

Q.1. (i) Select the best option/answer and fill in the appropriate Circle ◯ on the **OMR Answer Sheet. (20x1=20)**
(ii) Answers given anywhere, other than OMR Answer Sheet, shall not be considered.

1. Plants expressing foreign genes introduced by genetic engineering are:
(a) Transgens **(b)** Hybrids **(c)** Mutants **(d)** Polyploids **(e)** None of these

2. An association of species in which both partners benefits is called:
(a) Antagonism **(b)** Competition **(c)** Mutualism **(d)** None of these

3. Autotrophs are primary producers in:
(a) Food web **(b)** Food chain **(c)** Food series **(d)** Food security **(e)** None of these

4. A multiprotein complex that comprises ATPase in thylakoid membrane is:
(a) CF_0-CF_1 **(b)** CF_0-CF_2 **(c)** CF_1-CF_2 **(d)** CF_2-CF_1 **(e)** None of these

5. Set of conditions in which an organism completes its life cycle is:
(a) Niche **(b)** Habitat **(c)** Biome **(d)** Habit **(e)** None of these

6. Suberized band in the cell wall of endodermis is:
(a) Exodermal strip **(b)** Casparian strip **(c)** Abscision strip
(d) Hypodermal strip **(e)** None of these

7. Genetically dwarfness can be overcome by treatment with:
(a) Jasmonates **(b)** Auxins **(c)** Abscisic acid **(d)** Gibberellins **(e)** None of these

8. Exchange of genetic material between two paired chromosome during meiosis is:
(a) Test cross **(b)** Back cross **(c)** Inbreeding **(d)** None of these

9. Free space in tissues comprising cell wall and intercellular spaces:
(a) Symplast **(b)** Apoplast **(c)** Protoplast **(d)** Amyloplast **(e)** None of these

10. Chromosome compliment with 2n-1 is called:
(a) Disomy **(b)** Nullisomy **(c)** Monosomy **(d)** Tetrasomy **(e)** None of these

11. Plants shedding their leaves seasonally are called:
(a) Annuals **(b)** Biannuals **(c)** Perennials **(d)** Deciduous **(e)** None of these

12. Organisms that obtain energy by metabolizing the inorganic sources are:
(a) Lithotrophs **(b)** Osmotrophs **(c)** Heteroautotrops **(d)** Phototrophs **(e)** None of these

13. The culminating stage of plant succession in a given ecosystem is:
(a) Cline **(b)** Climate **(c)** Climax **(d)** Cleave **(e)** None of these

14. Climatically and geographically similar conditions on the earth are called:
(a) Biotope **(b)** Biomes **(c)** Biosphere **(d)** Biography **(e)** None of these

15. Vernalization is process in which flowering is promoted by:
(a) Salt treatment **(b)** Hot treatment **(c)** Cold treatment **(d)** None of these

16. Which of the following contains its own DNA?
(a) Golgi bodies **(b)** Mitochondria **(c)** Ribosomes **(d)** None of these

17. In chlorophyll, four rings of pyrrole forming a complex with:
(a) Cu-atom **(b)** Fe-atom **(c)** Mg-atom **(d)** K-atom **(e)** None of these

18. Plants growing inside another plant are called:
(a) Endophytes **(b)** Exophytes **(c)** Amphiphytes **(d)** Phleophytes **(e)** None of these

19. A functional unit of modern ecology is:
(a) Habitat **(b)** Biosphere **(c)** Succession **(d)** None of these

20. Mutation arising as an immediate and direct response to selective pressure:
(a) Point mutation **(b)** Adaptive mutation **(c)** Shift mutation
(d) Natural selection **(e)** None of these

PART-II

NOTE: **(i)** **Part-II** is to be attempted on the separate **Answer Book.**
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(iii) Attempt **ONLY FOUR** questions from **PART-II**. **ALL** questions carry **EQUAL marks.**
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Q. No.2. What are various criteria of essentiality of mineral elements of plants? Support you answer with examples. **(20)**

Q. No.3. What is seed dormancy and give its types? How the dormancy is important to plant life; give merits and demerits of seed dormancy. **(20)**

Q. No.4. What is an Ecosystem? What are the components of an aquatic ecosystem and how it is important to life on earth? **(20)**

Q. No.5. "Pollution is hampering our daily life activities." Justify this statement citing appropriate examples. **(20)**

Q. No.6. Differentiate between mitosis and meiosis. Also show how meiosis is significant in continuity to next generation? **(20)**

Q. No.7. Define mutations and mutagens. Give details of various means for the production of mutants in genetic studies. **(20)**

Q. No.8. Give a detailed descriptive and illustrative account of fine structure of gene. **(20)**

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