



Aakash

Medical | IIT-JEE | Foundations

(Divisions of Aakash Educational Services Ltd.)

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MM : 160

Sample Paper : Campus Recruitment Test Botany (Medical)

Time : 1½ Hr.

Complete Syllabus of Class XI & XII

Instructions:

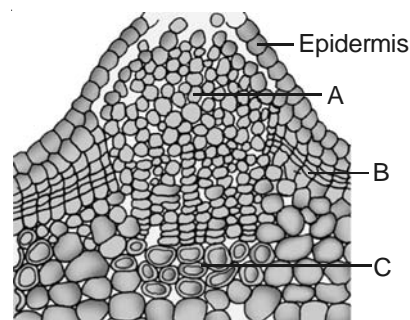
- (i) Use ball point pen only to darken the appropriate circle.
- (ii) Mark should be dark and should completely fill the circle.
- (iii) Dark only one circle for each entry.
- (iv) Dark the circle in the space provided only.
- (v) Rough work must not be done on the Answer sheet and do not use **white-fluid** or any other **rubbing material** on Answer sheet.
- (vi) Each question carries 4 marks. For every wrong response 1 mark shall be deducted from the total score.

Choose the correct answer :

1. Transcription and translation have to be tightly regulated as these processes
 - (1) Occur in cytoplasm of bacteria
 - (2) Are energetically very expensive
 - (3) Occur in nucleus of fruit fly
 - (4) Occur in plastids and mitochondria in humans
2. Structure of reserve food in red algae resembles
 - (1) Protein, starch
 - (2) Laminarin, mannitol
 - (3) Amylopectin, glycogen
 - (4) Pectose, lipids
3. Select the **incorrect** match

Plants	Number of stamens	Gynoecium
(1) <i>Petunia</i>	5	<u>G</u> ₍₂₎
(2) Tomato	5	<u>G</u> ₍₂₎
(3) <i>Asparagus</i>	6	<u>G</u> ₍₃₎
(4) <i>Trifolium</i>	10	<u>G</u> ₍₂₎

4. Consider the following figure w.r.t. secondary structure and select the right option.



- (1) 'A' represents cork cells
- (2) 'B' is developed after redifferentiation
- (3) 'C' is developed from phellogen
- (4) 'C' represents secondary phloem

5. Early blight of potato is caused by

- (1) *Claviceps purpurea*
- (2) *Phytophthora infestans*
- (3) *Colletotrichum falcatum*
- (4) *Alternaria solani*

6. Select the **incorrect** match w.r.t mango

- (1) Division – Angiospermae
- (2) Class – Dicotyledonae
- (3) Order – Magnoliales
- (4) Family – Anacardiaceae

7. Indian Botanical Garden is located at

- (1) Howrah (2) Lucknow
- (3) Dehradun (4) New Delhi

8. Match the following (Column-I with Column-II)

- | Column I | Column II |
|------------------|--------------------------------|
| a. Cholera | (i) <i>Salmonella typhi</i> |
| b. Typhoid | (ii) <i>Vibrio cholerae</i> |
| c. Tetanus | (iii) <i>Xanthomonas citri</i> |
| d. Citrus canker | (iv) <i>Clostridium tetani</i> |
- (1) a(ii), b(i), c(iv), d(iii)
 - (2) a(ii), b(i), c(iii), d(iv)
 - (3) a(i), b(ii), c(iv), d(iii)
 - (4) a(iv), b(ii), c(i), d(iii)

9. Select the **incorrect** match.

- (1) Bread mould – *Rhizopus*
- (2) Toadstool – *Amanita*
- (3) Asexual spores – Basidiospores
- (4) Sac fungus – *Penicillium*

10. How many diseases in the list given below are caused by virus?

Mumps, Small pox, Typhoid, Influenza, Herpes

- (1) Two (2) Three
- (3) Four (4) Five

11. Formation of triploid endosperm precedes development of the embryo in

- a. *Ginkgo* b. Castor
 - c. Beans d. *Sequoia*
- (1) d only (2) a & d
 - (3) b & c (4) All of these

12. Endosperm is food storing tissue in the seeds of all, **except**

- (1) Castor (2) Rice
- (3) Maize (4) Bean

13. Match the following (Column-I with Column-II)

- | Column I | Column II |
|--------------------|-------------------------|
| a. Macrophylls | (i) <i>Selaginella</i> |
| b. Microphylls | (ii) <i>Dryopteris</i> |
| c. Protonema stage | (iii) <i>Marchantia</i> |
| d. Gemma cup | (iv) <i>Funaria</i> |
- (1) a(ii), b(i), c(iv), d(iii) (2) a(ii), b(iv), c(i), d(iii)
 - (3) a(iii), b(iv), c(ii), d(i) (4) a(i), b(ii), c(iii), d(iv)

14. A mature sieve tube element

- (1) Possesses a central cytoplasm and large vacuoles
- (2) Possesses a peripheral cytoplasm and large vacuoles
- (3) Lacks cytoplasm and nucleus
- (4) Lacks vacuoles and nucleus

15. Read the following statements w.r.t. dicot stem and select the right choice.

- a. The epidermis is covered with thick layer of cuticle
 - b. The cells of endodermis are rich in starch grains
 - c. Pericycle is present on the inner side of endodermis and above the phloem in the form of semilunar patches of sclerenchyma
 - d. The vascular bundles are arranged in a ring
- (1) c and d are incorrect
 - (2) b, c and d are incorrect
 - (3) a, b and c are correct
 - (4) b, c and d are correct

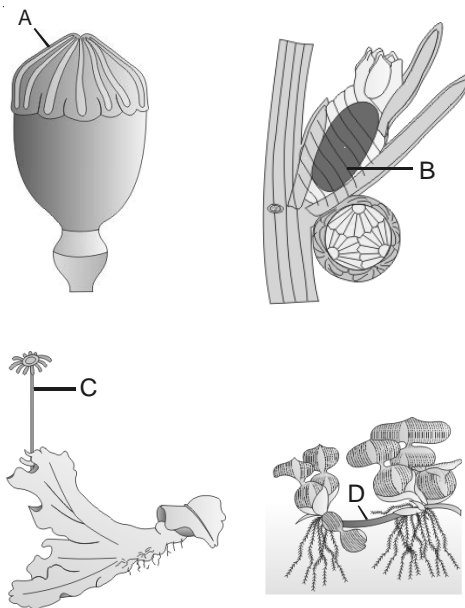
16. Which of the following organelles is frequently observed in the cells actively involved in protein synthesis and secretion?

- (1) Golgi apparatus
- (2) Rough endoplasmic reticulum
- (3) Smooth endoplasmic reticulum
- (4) Centrosomes

17. Select the **incorrect** match

- (1) Quiescent stage (G_0) – Inactive stage
- (2) Anaphase-I – Splitting of centromere
- (3) Diplotene – Dissolution of the synaptonemal complex
- (4) Telophase-II – Nuclear membrane reappear

18. Which of the following reactions of aerobic respiration occurs in mitochondria?
- Oxidation of succinate
 - Substrate level phosphorylation
 - Oxidative decarboxylation
 - More than one option is correct
19. Find **incorrect** w.r.t. phase of elongation in growth
- Decreased vacuolation
 - Cell enlargement
 - Increased vacuolation
 - New cell wall deposition
20. The prominent symptom of manganese toxicity is
- Marginal curling
 - Curling first in young leaves
 - Brown spots surrounded by chlorotic veins
 - Delay in flowering
21. Which of the following pair is **wrongly** matched?
- Atlas 66 – Iron fortified wheat
 - Methylophilus methylotrophus* – SCP
 - Glomus* – Biofertilizers
 - Robert Constanza – Price tags on nature's life-support services
22. Match the following (Column-I with Column-II)
- | Column I | Column II |
|-----------------|------------------------------------|
| a. Acetic acid | (i) <i>Aspergillus niger</i> |
| b. Statins | (ii) <i>Acetobacter aceti</i> |
| c. Citric acid | (iii) <i>Clostridium butylicum</i> |
| d. Butyric acid | (iv) <i>Monascus purpureus</i> |
- a(ii), b(iv), c(i), d(iii)
 - a(ii), b(i), c(iv), d(iii)
 - a(ii), b(iv), c(iii), d(i)
 - a(ii), b(iii), c(iv), d(i)
23. The technology of biogas production was developed in India mainly due to the efforts of
- IARI and CAI
 - ICAR and CRRI
 - IARI and KVIC
 - SBRI and IARI
24. The deficiency symptoms of which of following nutrients are visible first in the senescent leaves?
- Sulphur, boron and potassium
 - Potassium, magnesium and nitrogen
 - Boron, calcium and magnesium
 - Nitrogen, potassium and calcium
25. How many varieties in the list given below are resistant to insect pests?
- Pusa Sawani, Pusa Gaurav, Pusa Shubhra, Pusa Komal and Himgiri
- Four
 - Three
 - One
 - Two
26. Examine the figure (A-D) given below and select the right option out of 1-4 in which all the four structures A, B, C and D are identified correctly.



- A – Stigma, B – Oogonium, C – Archegoniophore, D – Offset
 - A – Stamen, B – Antheridium, C – Archegoniophore, D – Offset
 - A – Stigma, B – Oogonium, C – Antheridiophore, D – Offset
 - A – Stamen, B – Antheridium, C – Archegoniophore, D – Stolon
27. Which of the following does not help in formation of translation initiation complex in eukaryotes?
- eEF₁
 - 18 S rRNA
 - Charged tRNA
 - GTP
28. Which of the following group includes monoecious plants?
- Marchantia*, Coconut and Date palm
 - Chara*, Coconut and Cucurbits
 - Date palm, *Chara*, *Cycas*
 - Cucurbits, *Marchantia* and Coconut

29. Taylor is heterozygous for two autosomal gene pair (CcDd). He is also colour-blind. What is the probability of gametes having c, d and colour-blind genes?
- (1) $\frac{1}{2}$ (2) $\frac{1}{4}$
 (3) $\frac{1}{8}$ (4) $\frac{1}{16}$
30. What would be the number of amino acids coded by given mRNA nucleotide sequence if 10th nucleotide is deleted?
 AUGGUGUUUUUAGUG
- (1) 5 (2) 3
 (3) 4 (4) 6
31. In *lac* operon, promoter gene provides binding site for
- (1) β -galactosidase (2) Lactose
 (3) Repressor protein (4) RNA polymerase
32. Euro-II norms stipulate that sulphur be controlled at
- (1) 350 ppm in diesel and 150 ppm in petrol
 (2) 150 ppm in petrol and 100 ppm in diesel
 (3) 350 ppm in petrol and 150 ppm in diesel
 (4) 50 ppm in diesel and 100 ppm in petrol
33. The historic Convention on Biological Diversity (The Earth Summit) held in Rio de Janeiro in _____.
- (1) 2002 (2) 2001
 (3) 1990 (4) 1992
34. Read the following statements w.r.t. predation and select the two **wrong** statements
- A. Predators help in maintaining species diversity in a community
 B. Predators in nature are prudent
 C. Predators cannot reduce the intensity of competition among competing prey species
 D. Predators do not act as conduits for energy transfer across trophic levels.
- (1) A and B (2) C and D
 (3) A and C (4) B and C
35. Pyramid of energy in lake ecosystem is
- (1) Spindle shaped
 (2) Inverted
 (3) Upright
 (4) Both upright and inverted
36. ABA plays an important role in
- (1) Seed development
 (2) Seed maturation
 (3) Seed dormancy
 (4) More than one option is correct
37. Semi-conservative nature of the DNA replication in prokaryotes was experimentally demonstrated by
- (1) Taylor
 (2) Harshey and Chase
 (3) Messelson and Stahl
 (4) Cairns
38. When a cross is made between tall garden pea plant with yellow seeds (TtYy) and tall garden pea plant with green seeds (Ttyy), what proportion of phenotype in the offspring could be expected to be tall and green?
- (1) $\frac{3}{8}$ (2) $\frac{1}{2}$
 (3) $\frac{1}{4}$ (4) $\frac{3}{4}$
39. Age pyramid in which number of pre-reproductive and reproductive individuals differ marginally show that population is
- (1) Stable (2) Growing
 (3) Declining (4) Expanding
40. Select the **incorrect** match w.r.t recent extinction of animals
- (1) Quagga – Africa
 (2) Thylacine – Australia
 (3) Steller's sea cow – Russia
 (4) Dodo – India





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|---------|---------|---------|---------|
| 1. (2) | 11. (3) | 21. (1) | 31. (4) |
| 2. (3) | 12. (4) | 22. (1) | 32. (1) |
| 3. (4) | 13. (1) | 23. (3) | 33. (4) |
| 4. (3) | 14. (2) | 24. (2) | 34. (2) |
| 5. (4) | 15. (4) | 25. (4) | 35. (3) |
| 6. (3) | 16. (2) | 26. (1) | 36. (4) |
| 7. (1) | 17. (2) | 27. (1) | 37. (3) |
| 8. (1) | 18. (4) | 28. (2) | 38. (1) |
| 9. (3) | 19. (1) | 29. (3) | 39. (1) |
| 10. (3) | 20. (3) | 30. (2) | 40. (4) |