

# CET (UG)-2016

Sr. No. : 140848

**Booklet Series Code : A**

**Important :** Please consult your Admit Card / Roll No. Slip before filling your Roll Number on the Test Booklet and Answer Sheet.

**Roll No.**

*In Figures*

*In Words*

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**O.M.R. Answer Sheet Serial No.**

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Signature of the Candidate : \_\_\_\_\_

**Subject : BIOLOGY**

**Time : 70 minutes**

**Number of Questions : 60**

**Maximum Marks : 120**

**DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO**

## INSTRUCTIONS

1. Write your Roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Subject and Series Code of Question Booklet on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Ball Point / Black Gel pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. To open the Question Booklet remove the paper seal gently when asked to do so.
5. Please check that this Question Booklet contains 60 questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
6. Each question has four alternative answers (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point / Black Gel pen**.
7. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
8. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
9. Negative marking will be adopted for evaluation i.e., 1/4th of the marks of the question will be deducted for each wrong answer. A wrong answer means incorrect answer or wrong filling of bubble.
10. For calculations, use of simple log tables is permitted. Borrowing of log tables and any other material is not allowed.
11. For rough work only the sheets marked "Rough Work" at the end of the Question Booklet be used.
12. The Answer Sheet is designed for **computer evaluation**. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e., not following the instructions completely, shall be of the candidate only.**
13. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
14. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so, would be expelled from the examination.
15. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
16. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

**SEAL**

1. **Which one of the following regarding embryonic development in humans is correct ?**
  - (A) Cleavage brings about considerable increase in the mass of protoplasm
  - (B) In the second cleavage division, one of the two blastomeres usually divides a little sooner than the second
  - (C) With more cleavage divisions, the resultant blastomeres become larger and larger
  - (D) Cleavage division results in a solid ball of cells called morula
  
2. **The correct sequence of events during fertilization in mammals is :**
  - (A) Capacitation, activation of eggs, acrosomal reaction, and entry of sperm in egg
  - (B) Capacitation, acrosomal reaction, activation of egg and entry of sperm in egg
  - (C) Acrosomal reaction, activation of egg, capacitation and entry of sperm in egg
  - (D) Activation of egg, acrosomal reaction, and entry of sperm in egg and capacitation
  
3. **Hypersensitivity to an allergen is associated with :**
  - (A) Aberrant functioning of the immune mechanism
  - (B) Increase in ambient temperature
  - (C) Age of the individual
  - (D) Food habits
  
4. **In gastrula, the formation of three germinal layers is the beginning of :**
  - (A) Differentiation
  - (B) Involution
  - (C) Neurulation
  - (D) Gastrulation
  
5. **In a hybridization experiment a plant shows phenotypic ratio of 15:1. How many genes control the trait for observed phenotypic ratio?**
  - (A) One
  - (B) Two
  - (C) Three
  - (D) Polygene
  
6. **When a diploid cell undergoes normal meiotic division, then all :**
  - (A) Dominant genes segregate together
  - (B) Homologous chromosomes segregate
  - (C) Daughter cells will have different homologous chromosome pairs
  - (D) Linkage groups will be disrupted

7. **Extrusion of second polar body from egg nucleus occurs :**  
 (A) After entry of sperm before completion of fertilization  
 (B) After completion of fertilization  
 (C) Before entry of sperm  
 (D) Without any relation of sperm entry
8. **Genetic drift is most likely to occur :**  
 (A) Among migrating populations  
 (B) In populations which show no mutations  
 (C) In very large sized populations  
 (D) In populations which are geographically isolated
9. **The chromosome analysis of a newly born male revealed that non-disjunction of sex chromosomes at mitosis has occurred once. The most likely sex chromosome composition of the individual is :**  
 (A) XY (B) XO  
 (C) XXY (D) XYY
10. **The enzyme peptidyl transferase which helps in the formation of peptide bond is present in the :**  
 (A) t-RNA (B) Larger subunit of ribosome  
 (C) Smaller subunit of the ribosome (D) m-RNA
11. **The insect responsible for the spread of kala-azar is :**  
 (A) *Musca domestica* (B) *Phlebotomus argentipus*  
 (C) *Glossina palpalis* (D) *Cimex lectularis*
12. **Which vector can clone only a small fragment of DNA ?**  
 (A) Bacterial artificial chromosome (B) Yeast artificial chromosome  
 (C) Plasmid (D) Cosmid
13. **The reason why Antarctic penguins are much larger than the penguins living in more temperate regions is :**  
 (A) Cold air contains a larger percentage of oxygen than the warm air  
 (B) The fishes on which penguins feed are larger in cold water than in warm water  
 (C) In Antarctica penguins lay fewer and larger eggs than penguins in warm latitudes  
 (D) Large penguins have a smaller surface to volume ratio than small penguins
14. **Clitoris is an outgrowth which is :**  
 (A) Non functional penis (B) Analogous to penis  
 (C) Functional penis in females (D) Homologous to penis
15. **Bacteria cannot be classified as species by the biological species concept because they :**  
 (A) Reproduce asexually (B) Have high growth rate  
 (C) Exhibit little morphological variation (D) Are enucleated

16. Which of the following statements is incorrect about histone proteins ?
- (A) They are highly basic because they contain many positively charged amino acid side chains
  - (B) They are extensively modified after their translation
  - (C) In combination with DNA, they are primary constituents of chromatin
  - (D) They account for approximately one-fifth of the mass of a chromosome
17. Ecotone is best described as :
- (A) State of equilibrium among various trophic levels in an ecosystem
  - (B) Potentiality of an animal to adjust to new circumstances
  - (C) Transition zone between two or more diverse communities
  - (D) Maximum biomass an ecosystem can support
18. Members of which trophic level would suffer the most from biological magnification of harmful substances ?
- (A) First trophic level
  - (B) Second trophic level
  - (C) Third trophic level
  - (D) Fourth trophic level
19. Which of the following characteristics is undesirable in cloning vectors ?
- (A) Readily isolated from cells
  - (B) High copy number
  - (C) Vulnerable at several sites to a restriction enzyme
  - (D) Small in size
20. Transgenic plants are easier to produce than transgenic animals because :
- (A) Plants can more easily be grown from single cultured cell into which foreign DNA has been introduced
  - (B) Plant DNA is easier to clone
  - (C) Plant cells can be transformed by bacterial infection
  - (D) DNA passes more readily through the plant cell wall than through the animal cell membrane
21. Which of the following types of vectors would be most suitable for introducing DNA into a human cell ?
- (A) Plasmid
  - (B) Bacteriophage
  - (C) Cosmid
  - (D) Adenovirus
22. Human insulin is commercially produced by :
- (A) Transgenic species of *Saccharomyces*
  - (B) Transgenic species of *Escherichia*
  - (C) Transgenic species of *Mycobacterium*
  - (D) Transgenic species of *Rhizobium*

23. Which cells are involved in antigen clearance non-specifically by engulfing them ?
- (A) B cells (B) T cells  
(C) Phagocytic cells (D) Cytotoxic T cells
24. Agar is used as a medium for bacteria cultures. It is obtained from :
- (A) bones of dead animals (B) starch  
(C) banana (D) seaweed
25. Marine pollution with oil discharged from damaged tankers is now dealt with by spraying a suspension of bacterium known as :
- (A) *Lactobacillus* (B) *Streptococcus*  
(C) *Xanthomonas* (D) *Pseudomonas*
26. In biogas plant, which bacteria is utilized ?
- (A) Methanogens (B) Nitrifying bacteria  
(C) Ammonifying bacteria (D) Denitrifying bacteria
27. In which ecosystem would you find the highest biodiversity ?
- (A) Freshwater marsh (B) Tundra  
(C) Prairie grassland (D) Boreal forest
28. There is more competition for survival between :
- (A) Different animals of same niche (B) Same animals of same niche  
(C) Different animals of different niche (D) Same animals of different niche
29. Vaccines which are result of recombinant DNA technology are called :
- (A) First generation vaccines (B) Second generation vaccines  
(C) Third generation vaccines (D) Fourth generation vaccines
30. Tissue macrophages are mature :
- (A) B cells (B) T cells  
(C) NK cells (D) Monocytes

31. Fungi reproduce by only asexual methods in :
- (A) Myxomycetes (B) Ascomycetes  
(C) Basidiomycetes (D) Deuteromycetes
32. Nutrition in *Chlamydomonas* is :
- (A) Heterotrophic (B) Parasitic  
(C) Autotrophic (D) Saprophytic
33. Gemmae are vegetative reproductive structures found in :
- (A) Angiosperms (B) Bryophytes  
(C) Algae (D) Gymnosperms
34. The function of ligule is :
- (A) Hygroscopic (B) Perennation  
(C) Reproduction (D) All of the above
35. Largest ovules in plant kingdom are found in :
- (A) *Cycas revoluta* (B) *Cycas thousarsii*  
(C) *Cycas circinalis* (D) *Pinus longifolia*
36. Ray-florets and disc-florets are the characteristic features of family :
- (A) Brassicaceae (B) Solanaceae  
(C) Asteraceae (D) Malvaceae
37. Which type of leaf is that of *Mimosa pudica* ?
- (A) Simple pinnate (B) Simple palmate  
(C) Compound bipinnate (D) Decomound
38. Abnormal secondary growth due to accessory cambium is found in :
- (A) *Helianthus* (B) *Cucurbita*  
(C) *Dracaena* (D) Maize
39. The closing and opening of stomata is due to influx of :
- (A) K ions (B) Na ions  
(C) Fe ions (D) Mg ions

40. Discovery of Emerson effect has shown the existence of :  
(A) Light and dark reaction (B) Photorespiration  
(C) Photophosphorylation (D) Two distinct pigment systems
41. Which one of the following hormones is not found in plants ?  
(A) 2, 4-D (B) GA<sub>3</sub>  
(C) Gibberellin (D) IAA
42. Pappus is a modification of :  
(A) Calyx (B) Corolla  
(C) Stamens (D) Gynoecium
43. Phenomenon of opening of flower buds is called :  
(A) Gametogenesis (B) Sporogenesis  
(C) Anthesis (D) None of the above
44. Development of embryo sac from any cell of nucellus is called :  
(A) Apogamy (B) Apospory  
(C) Parthenogenesis (D) Sporogenesis
45. To which category of fruits, maize grain can be assigned ?  
(A) Pyxidium (B) Caryopsis  
(C) Capsule (D) Sorosis
46. How many ascospores are found in *Saccharomyces cerevisiae* ?  
(A) 2 (B) 4  
(C) 8 (D) 16
47. Palmella stage in *Chlamydomonas* is produced :  
(A) In rainy season (B) During unfavourable conditions  
(C) During favourable conditions (D) None of the above
48. Which one of the following is absent in sporophyte of *Funaria* ?  
(A) Foot (B) Seta  
(C) Elaters (D) Columella

49. The gametophytic generation in pteridophytes is commonly called :
- (A) Thallus (B) Plant body  
(C) Prothallus (D) Protonema
50. Mucilage canals of *Cycas* stem are :
- (A) Lysigenous (B) Schizogenous  
(C) Schizolysogenous (D) Filled with tannin
51. Monocotyledonous leaf showing reticulate venation is found in :
- (A) *Smilax* (B) *Zea mays*  
(C) *Cocos* (D) *Calophyllum*
52. Epiphytic roots are found in :
- (A) Indian Rubber (B) Orchids  
(C) *Tinospora* (D) *Cuscuta*
53. The apical meristem, in root is sub-terminal because it :
- (A) Is covered by root hairs (B) Is covered by root cap  
(C) Has many corpus cells (D) Is covered by tunica cells
54. The bulliform cells of monocot leaves show :
- (A) Tropic movement (B) Autonomic movement  
(C) Nastic movement (D) Turgor movement
55. Energy molecule is produced during light reaction and transferred to the dark reaction by :
- (A) Chlorophyll (B) ADP  
(C) ATP (D) RuBP
56. Presence of which of the following is associated with seed dormancy ?
- (A) Starch (B) Ethylene  
(C) IAA (D) Abscisic acid
57. Which technical term is used for a sterile stamen ?
- (A) Spur (B) Staminode  
(C) Stallion (D) Staminate



58. Myrmecophily is a beneficial association between some flowering plants and :

- (A) Bacteria
- (B) Ants
- (C) Virus
- (D) Mycoplasma

59. First androgenic haploid was raised by :

- (A) J.P. Nitsch
- (B) Guha and Maheshwari
- (C) Haberlandt
- (D) F.C. Steward

60. Which one of the following fruits is derived from a monocarpellary pistil ?

- (A) Pome
- (B) Samara
- (C) Capsule
- (D) Legume

