

# COMMON ENTRANCE TEST - 2008

| DATE           | SUBJECT        | TIME                       |
|----------------|----------------|----------------------------|
| 19 - 04 - 2008 | BIOLOGY        | 04.00 PM to 05.20 PM       |
| MAXIMUM MARKS  | TOTAL DURATION | MAXIMUM TIME FOR ANSWERING |
| 60             | 80 MINUTES     | 70 MINUTES                 |

| MENTION YOUR<br>CET NUMBER |  |  |  |  | QUESTION BOOKLET DETAILS |               |
|----------------------------|--|--|--|--|--------------------------|---------------|
|                            |  |  |  |  | VERSION CODE             | SERIAL NUMBER |
|                            |  |  |  |  | <b>A - 1</b>             | 530577        |

## IMPORTANT INSTRUCTIONS TO CANDIDATES

(Candidates are advised to read the following instructions carefully, before answering on OMR answer sheet.)

1. Ensure that CET No. has been entered and shaded the respective circles on the OMR answer sheet.
2. **ENSURE THAT THE TIMING, MARKS PRINTED ON THE OMR ANSWER SHEET ARE NOT DAMAGED / MUTILATED / SPOILED.**
3. This Question Booklet is issued to you by the invigilator after the 2<sup>nd</sup> Bell. i.e., after 04.00 p.m.
4. Enter the Serial Number of this question booklet on the OMR answer sheet.
5. Carefully enter the Version Code of this question booklet on the OMR answer sheet and SHADE the respective circles completely.
6. As answer sheets are designed to suit the Optical Mark Reader (OMR) system, please take special care while filling and shading the CET NO. & Version Code of this question booklet.
7. **DO NOT FORGET TO SIGN AT THE BOTTOM PORTION OF OMR ANSWER SHEET IN THE SPACE PROVIDED.**
8. Until the 3<sup>rd</sup> Bell is rung at 04.10 p.m. :
  - Do not remove the staple present on the right hand side of this question booklet.
  - Do not look inside this question booklet.
  - Do not start answering on the OMR answer sheet.
9. After the 3<sup>rd</sup> Bell is rung at 04.10 p.m., remove the staple present on the right hand side of this question booklet and start answering on the OMR answer sheet.
10. This question booklet contains 60 questions and each question will have four different options / choices.
11. During the subsequent 70 minutes :
  - Read each question carefully.
  - Determine the correct answer from out of the four available options / choices given under each question.
  - **Completely darken / shade the relevant circle with a BLUE OR BLACK INK BALLPOINT PEN against the question number on the OMR answer sheet.**

**CORRECT METHOD OF SHADING THE CIRCLE ON THE OMR SHEET IS AS SHOWN BELOW :**



12. Please note that even a minute unintended ink dot on the OMR sheet will also be recognised and recorded by the scanner. Therefore, avoid multiple markings of any kind on the OMR answer sheet.
13. Use the space provided on each page of the question booklet for Rough work AND do not use the OMR answer sheet for the same.
14. After the last bell is rung at 05.20 p.m., stop writing on the OMR answer sheet and affix your LEFT HAND THUMB IMPRESSION on the OMR answer sheet as per the instructions.
15. Hand over the OMR ANSWER SHEET to the room invigilator as it is.
16. After separating and retaining the top sheet (KEA Copy), the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
17. Preserve the replica of the OMR answer sheet for a minimum period of One year.

**BIOLOGY**

1. Human egg is
    - 1) Telolecithal
    - 2) Megalecithal
    - 3) Alecithal
    - 4) Centrolecithal
  2. There are 64 codons in the genetic dictionary as
    - 1) There are 64 amino acids to be coded
    - 2) Genetic code has a triplet nature
    - 3) There are 3 nonsense codons and 61 sense codons
    - 4) There are 64 different types of t-RNA
  3. Vassopressin released from the neurohypophysis is mainly responsible for
    - 1) Facultative reabsorption of water through DCT
    - 2) Obligatory reabsorption of water through PCT
    - 3) Facultation reabsorption of water through Henlis loop
    - 4) Obligatory reabsorption of water through Bowman's capsule
  4. Identify the substage of prophase I of meiosis during which synapsis takes place
    - 1) Leptotene
    - 2) Pachytene
    - 3) Diplotene
    - 4) Zygotene
  5. Protein part of a Holoenzyme is called
    - 1) Coenzyme
    - 2) Apoenzyme
    - 3) Exoenzyme
    - 4) Endoenzyme
- 

(Space for Rough Work)

6. Intercalary meristem is a derivative of
- 1) Primary meristem
  - 2) Secondary meristem
  - 3) Lateral meristem
  - 4) Promeristem
7. Which one of the following is not a device to promote cross-pollination ?
- 1) Herkogamy
  - 2) Dichogamy
  - 3) Cleistogamy
  - 4) Heterostyly
8. Anterior choroid plexus is present on the
- 1) Roof of Diencephalon
  - 2) Roof of medulla oblongata
  - 3) Floor of Diencephalon
  - 4) Cerebral hemispheres
9. Which of the following statements is true about viruses?
- 1) Viruses are filterable facultative parasites
  - 2) Viruses are capable of performing metabolic activities on their own.
  - 3) All viruses known to man are obligate parasites
  - 4) Some viruses have cellular structure and are saprophytes
10. A condition where a certain gene is present in only a single copy in a diploid cell is called
- 1) Homozygous
  - 2) Hemizygous
  - 3) Heterozygous
  - 4) Monogamous

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(Space for Rough Work)

11. Genetically dwarf plants can be induced to grow tall by using

- 1) Auxins
- 2) Cytokinins
- 3) Gibberellins
- 4) Phycobillins

12. Match the phenomenon listed under column I with those listed under column II. Select the correct answer from the options given.

|   | Column I       |   | Column II                                                                                                 |
|---|----------------|---|-----------------------------------------------------------------------------------------------------------|
| A | Warburg effect | p | Change in gene frequency by chance                                                                        |
| B | Pasteur effect | q | Postponing severance in the leaves by applying cytokinin                                                  |
| C | Emerson effect | r | Decline in the consumption of respiratory substrate due to a change from anaerobic to aerobic respiration |
| D | Wright effect  | s | Inhibitory effect of $O_2$ on photosynthesis                                                              |
|   |                | t | Enhancement of photosynthesis by subjecting chlorophyll to the effect two different wavelengths of light  |

- 1) A = t, B = s, C = p, D = q
- 2) A = s, B = r, C = t, D = p
- 3) A = s, B = t, C = q, D = r
- 4) A = t, B = r, C = p, D = s

13. Which of the following is an agrostologic method of soil conservation ?

- 1) Dry farming
- 2) Mulching
- 3) Basin listing
- 4) Terracing

14. The sequence of events mentioned below are symbolised by alphabets. Choose the correct answer where the alphabets are matched with the processes.

RNA  $\xrightarrow{\textcircled{A}}$  DNA  $\xrightarrow{\textcircled{B}}$  DNA  $\xrightarrow{\textcircled{C}}$  mRNA  $\xrightarrow{\textcircled{D}}$  Polypeptide

- 1) A = Replication, B = Transcription, C = Translation, D = Transduction
- 2) A = Reverse transcription, B = Translation, C = Transcription, D = Replication
- 3) A = Replication, B = Transformation, C = Transcription, D = Translation
- 4) A = Reverse transcription, B = Replication, C = Transcription, D = Translation

15. Identify the alga known for a biological activity called bioluminescence.

- 1) Cyclotella
- 2) Noctiluca
- 3) Spirogyra
- 4) Chlorella

(Space for Rough Work)

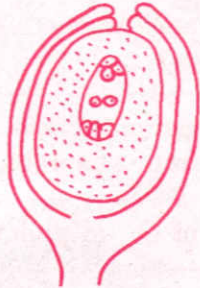
16. The problem of necrosis and gradual senescence while performing tissue culture can overcome by

- |                       |                        |
|-----------------------|------------------------|
| 1) Suspension culture | 2) Subculture          |
| 3) Spraying auxins    | 4) Spraying cytokinins |

17. The immunoglobulin present in mother's milk is

- |        |        |
|--------|--------|
| 1) IgM | 2) IgA |
| 3) IgD | 4) IgE |

18. The diagram given by the side represents the sectional view of



- |                         |
|-------------------------|
| 1) Anatropous ovule     |
| 2) Orthotropous ovule   |
| 3) Amphitropous ovule   |
| 4) Campylotropous ovule |

19. In CAM plants,  $CO_2$  required for photosynthesis enters the plant body during

- |                                                  |
|--------------------------------------------------|
| 1) Daytime when the stomata are open             |
| 2) Night when the hydathodes are open            |
| 3) Daytime through the lenticels                 |
| 4) Night through the stomata which are kept open |

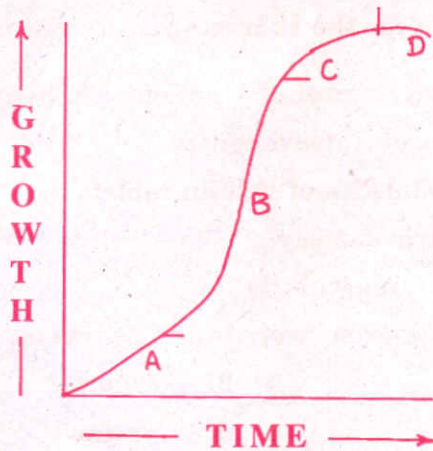
20. A detritivorous animal of economic importance is

- |                      |                  |
|----------------------|------------------|
| 1) Caterpillar larva | 2) Leech         |
| 3) Earthworm         | 4) Giriraja fowl |

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(Space for Rough Work)

21. Benedicts reagent test is conducted to confirm the presence of
- 1) Reducing sugars
  - 2) Proteins
  - 3) Polysaccharides like starch
  - 4) Lipids
22. An alkaloid called 'Reserpine' is extracted from
- 1) Leaves of Sarpaganda
  - 2) Roots of Ashwaganda
  - 3) Leaves of Ashwaganda
  - 4) Roots of Sarpaganda
23. Nobel prize for medicine was given for confirming the role of Helicobacter pylori in causing
- 1) Bronchitis
  - 2) Peptic ulcer
  - 3) Nephritis
  - 4) Rhinitis
24. In the sigmoid growth curve given by the side, the alphabets indicate the sequence of events. Choose the correct option where the alphabet specifies the event.



- 1) A = Diminishing growth
  - 2) A = Stationary phase
  - 3) A = Phase of slow growth
  - 4) A = Phase of rapid growth
- 1) B = Exponential growth
  - 2) B = Phase of slow growth
  - 3) B = Phase of exponential growth
  - 4) B = Phase of diminishing growth
- 1) C = Slow growth
  - 2) C = Phase of rapid growth
  - 3) C = Phase of diminishing growth
  - 4) C = Stationary phase
- 1) D = Stationary growth
  - 2) D = Phase of diminishing growth
  - 3) D = Stationary phase
  - 4) D = Phase of slow growth
25. Transformation of the early reducing atmosphere of the earth into an oxidizing atmosphere was mainly due to the activities of
- 1) Aerobic photosynthesizers
  - 2) Anaerobic heterotrophs
  - 3) Anaerobic photosynthesizers
  - 4) Anaerobic chemoheterotrophs

(Space for Rough Work)

Turn Over

26. A leaf peeling of *Tradescantia* is kept in a medium having 10% *NaCl*. After a few minutes if we observe the leaf peel under the microscope, we are likely to see
- 1) Diffusion of *NaCl* into the cell
  - 2) Exit of water from the cell
  - 3) Entry of water into the cell
  - 4) The cells bursting out
27. Early leaf spot disease in *Arachis hypogea* is caused due to infection of
- 1) *Agrobacterium tumefaciens*
  - 2) *Phytophthora infestans*
  - 3) *Circospora personata*
  - 4) *Gibberella fujikuroi*
28. Excessive growth of hair on the pinna is a feature found only in males because
- 1) The gene responsible for the character is recessive in females and dominant only in males
  - 2) The character is induced in males as males produce testosterone
  - 3) The female sex hormone estrogen suppresses the character in females
  - 4) The gene responsible for the character is present on the Y chromosome only
29. Rapid increase in the blood sugar level of a patient can be immediately reduced by
- 1) Administering glucagon intravenously
  - 2) Consuming large quantities of insulin tablets
  - 3) Injecting insulin intravenously
  - 4) Injecting insulin intramuscularly
30. Which of the following is found exclusively in the sea water?
- 1) Prawns
  - 2) Trygon
  - 3) Crabs
  - 4) Oysters

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(Space for Rough Work)

31. A gradual decrease in the size of the tail during metamorphosis in the life cycle of frog is a good example for
- 1) cell senescence
  - 2) pinocytic activity
  - 3) programmed cell death
  - 4) cell necrosis
32. Spot out the zone of our country considered as the Hot Spot of biodiversity and regarded as the 'Cradle of Speciation'.
- 1) Himalayan base
  - 2) Deccan plateau
  - 3) Western ghats
  - 4) North East
33. In Bt cotton, a transgenic plant, Bt refers to
- 1) Biotechnology
  - 2) Bacillus thuringiensis
  - 3) Botanical
  - 4) Beta
34. Sequence of cellular layers from the periphery towards the cortex in an old dicot stem is
- 1) Epidermis, Hypodermis, Cortex, Endodermis
  - 2) Epidermis, Phellum, Phellogen, Phelloderm
  - 3) Epidermis, Hypodermis, Phellogen, Phelloderm
  - 4) Epidermis, Phellogen, Phellum, Epidermis
35. Higher frequency of melanie British moths and DDT resistance in mosquitoes are cited as examples for
- 1) Arrival of the fittest
  - 2) Genetic drift
  - 3) Natural selection
  - 4) Point mutation

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(Space for Rough Work)

36. Who among the following is recognised as the father of Immunology ?

- |                  |                   |
|------------------|-------------------|
| 1) Edward Jenner | 2) Louis Pasteur  |
| 3) Robert Koch   | 4) Ferdinand Kohn |

37. Whether a child died after normal birth or died before birth can be confirmed measuring

- |                            |                           |
|----------------------------|---------------------------|
| 1) the weight of the child | 2) the dead space air     |
| 3) tidal volume of air     | 4) residual volume of air |

38. Syndactyly, prehensile tail and long protrusible tongue are the unique features of

- |                  |                  |
|------------------|------------------|
| 1) Horse fish    | 2) Chameleon     |
| 3) Rhesus monkey | 4) Archaeopteryx |

39. Match the hormones listed under column I with their functions listed under column II. Choose the answer which gives the correct combination of the alphabets of the two columns.

|   | Column I            |   | Column II                                 |
|---|---------------------|---|-------------------------------------------|
| A | Oxytocin            | p | Stimulates ovulation                      |
| B | Prolactin           | q | Implantation and maintenance of pregnancy |
| C | Luteinising hormone | r | Lactation after child birth               |
| D | Progesterone        | s | Uterine contraction during labour         |
|   |                     | t | Reabsorption of water by Nephrons         |

- |                               |                               |
|-------------------------------|-------------------------------|
| 1) A = s, B = r, C = p, D = q | 2) A = t, B = p, C = s, D = r |
| 3) A = s, B = q, C = r, D = t | 4) A = t, B = r, C = p, D = s |

40. A dihybrid test cross yielding a result of 1 : 1 : 1 : 1 ratio is indicative of

- 1) 4 different types of  $F_1$  generation dihybrids
- 2) 4 different types of gametes produced by the  $P_1$  parent
- 3) 4 different types of gametes produced by the  $F_1$  dihybrid
- 4) Homozygous condition of the  $F_1$  dihybrid

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(Space for Rough Work)

41. Given below are two statements *A* and *B*. Choose the correct answer related to the statements.

Statement *A* - Amino acids are amphoteric in their function.

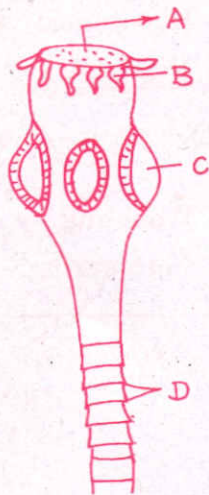
Statement *B* - All amino acids are necessary for our body.

- 1) Statement *A* is wrong, statement *B* is correct
- 2) Both the statements *A* and *B* are wrong
- 3) Statement *A* is correct, statement *B* is wrong
- 4) Both the statements *A* and *B* are correct

42. Plants like *Aegle marmelos*, *Ocimum sanctum* and *Ficus religiosa* are a group of plants designated as

- 1) Traditional food crops
- 2) Sacred species of plants
- 3) Medicinal plant species
- 4) Lesser known food plants

43. In the diagram given by the side, different parts are indicated by alphabets. Choose the answer in which these alphabets correctly match with the parts they indicate.



- 1) *A* = mouth, *B* = Tentacles, *C* = Sucker, *D* = Segments
- 2) *A* = Sucker, *B* = Hairs, *C* = Ring, *D* = Proglottids
- 3) *A* = Rostellum, *B* = Hooks, *C* = Sucker, *D* = Proglottids
- 4) *A* = Suctorial mouth, *B* = Hooks, *C* = Sucker, *D* = Segments

44. In a vascular bundle, if xylem vessels develop in a centripetal fashion, the xylem is likely to be

- 1) Endarch
- 2) Exarch
- 3) Mesarch
- 4) Centrarch

45. Which of the following plant material is an efficient water imbibant ?

- 1) Agar
- 2) Cellulose
- 3) Lignin
- 4) Pectin

(Space for Rough Work)

46. When body tissues are injured resulting in the loss of blood, the process of blood clotting begins and the blood platelets release
- 1) Prothrombin
  - 2) Thrombin
  - 3) Fibrinogen
  - 4) Thromboplastin
47. According to the lac-operon concept, which functional unit of the bacterial gene material is responsible for suppressing the activity of the operator gene in the absence of lactose ?
- 1) Promoter gene
  - 2) Repressor protein
  - 3) Regulator gene
  - 4) Structural gene
48. A hybrid where the cytoplasm of two parent cells are fused by retaining only one parent nucleus is called
- 1) An interbreed
  - 2) Symmetric somatic hybrid
  - 3) Asymmetric somatic hybrid
  - 4) Cybrid
49. A sexually transmitted disease symptomised by the development of chancre on genitals is caused by the infection of
- 1) Human immunodeficiency virus
  - 2) Hepatitis B virus
  - 3) Treponema pallidum
  - 4) Neisseria gonorrhoeae
50. A phenomenon where the third base of t-RNA at its 5' end can pair with a non complementary base of m-RNA is called
- 1) Degeneracy
  - 2) Wobbling
  - 3) Universality
  - 4) Colinearity

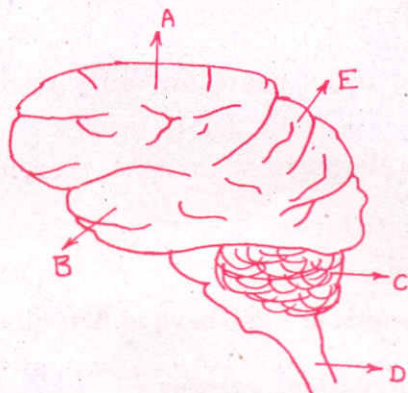
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(Space for Rough Work)

51. Identify the plant parts whose transverse sections show a clear and prominent pith.

- 1) Dicot root and monocot root
- 2) Dicot stem and dicot root
- 3) Dicot stem and monocot stem
- 4) Dicot stem and monocot root

52. In the diagram of the lateral view of the human brain, parts are indicated by alphabets. Choose the answer in which these alphabets have been correctly matched with the parts which they indicate.



- 1) A = Temporal lobe, B = Parietal lobe, C = Cerebrum, D = Medulla oblongata, E = Frontal lobe
- 2) A = Frontal lobe, B = Temporal lobe, C = Cerebellum, D = Medulla oblongata, E = Parietal lobe
- 3) A = Temporal lobe, B = Parietal lobe, C = Cerebellum, D = Medulla oblongata, E = Frontal lobe
- 4) A = Frontal lobe, B = Temporal lobe, C = Cerebrum, D = Medulla oblongata, E = Occipetal lobe

53. Of all the environmental factors which is the most influential in determining the rate of transpiration?

- 1) Relative humidity of atmosphere
- 2) Temperature
- 3) Light
- 4) Water

54. Curved portion of the Henle's loop of the Nephrons are lined by

- 1) Ciliated epithelium
- 2) Cuboidal epithelium
- 3) Squamous epithelium
- 4) Columnar epithelium

55. In succulent plants like opuntia, the RQ value will be

- 1) Infinity
- 2) zero
- 3) less than 1
- 4) more than 1

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(Space for Rough Work)

56. An autosomal genetic disorder called 'cri-du-chat' is caused due to
- 1) Deletion
  - 2) Duplication
  - 3) Non-disjunction
  - 4) Mutation
57. Notochord, skeletal system and dermis of the skin are the derivatives of
- 1) Ectoderm
  - 2) Endoderm
  - 3) Mesoderm
  - 4) All the three layers
58. Photosynthesis cannot continue for long if during light reaction, only cyclic photophosphorylation takes place. This is because
- 1) There is unidirectional cyclic movement of the electrons
  - 2) There is no evolution of  $O_2$
  - 3) Only ATP is formed  $NADPH^+ + H^+$  is not formed
  - 4) Photosystem I stops getting excited at a wavelength of light beyond 680 nm
59. Which of the following sequences is truly a systemic circulation pathway ?
- 1) Left auricle  $\rightarrow$  left ventricle  $\rightarrow$  pulmonary aorta  $\rightarrow$  tissues  $\rightarrow$  right auricle
  - 2) Left auricle  $\rightarrow$  left ventricle  $\rightarrow$  aorta  $\rightarrow$  arteries  $\rightarrow$  tissues  $\rightarrow$  veins  $\rightarrow$  right atrium
  - 3) Right ventricle  $\rightarrow$  pulmonary aorta  $\rightarrow$  tissues  $\rightarrow$  pulmonary veins  $\rightarrow$  left auricle
  - 4) Right auricle  $\rightarrow$  left ventricle  $\rightarrow$  aorta  $\rightarrow$  tissues  $\rightarrow$  veins  $\rightarrow$  right auricle
60. Oxalosuccinic acid, an intermediary compound of Krib's cycle is a
- 1) 4 carbon compound
  - 2) 3 carbon compound
  - 3) 5 carbon compound
  - 4) 6 carbon compound

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(Space for Rough Work)