COMMON ENTRANCE TEST - 2006

DATE	SUBJECT	TIME
09 - 05 - 2006	BIOLOGY	10.30 AM to 11.50 AM

MAXIMUM MARKS	TOTAL DURATION	MAXIMUM TIME FOR ANSWERING
60	80 MINUTES	70 MINUTES

MENTION YOUR CET NUMBER	QUESTION BOOKLET DETAILS	
	VERSION CODE	SERIAL NUMBER
	A - 1	75665

IMPORTANT INSTRUCTIONS TO CANDIDATES

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

1. Ensure that you have entered your Name and CET Number on the top portion of the OMR answer sheet.
2. **ENSURE THAT THE BAR CODES, TIMING AND 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 2nd Bell. i.e., after 10.35 a.m.
4. Enter the Serial Number of this question booklet on the top portion of the OMR answer sheet.
5. Carefully enter the Version Code of this question booklet on the bottom portion of the OMR answer sheet and SHADE the respective circle completely.
6. As answer sheets are designed to suit the Optical Mark Reader (OMR) system, please take special care while filling and shading the Version Code of this question booklet.
7. **DO NOT FORGET TO SIGN ON BOTH TOP AND BOTTOM PORTION OF OMR ANSWER SHEET IN THE SPACE PROVIDED.**
8. Until the 3rd Bell is rung at 10.40 a.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 3rd Bell is rung at 10.40 a.m., remove the staple present on the right hand side of this question booklet and start answering on the bottom portion of 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.
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 11.50 a.m., stop writing on the OMR answer sheet.
15. Hand over the OMR ANSWER SHEET to the room invigilator as it is.
16. After separating and retaining the top sheet (CET Cell 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. Which of the following hormones are produced in the hypothalamus and stored in the posterior pituitary ?
   1) FSH and LH
   2) ADH and Oxytocin
   3) TSH and STH
   4) ACTH and MSH

2. Two pea plants were subjected cross pollination. Of the 183 plants produced in the next generation, 94 plants were found to be tall and 89 plants were found to be dwarf. The genotypes of the two parental plants are likely to be
   1) TT and tt
   2) Tt and Tt
   3) Tt and tt
   4) TT and TT

3. Monoclonal antibodies are produced from hybird cells, called hybridomas. The cells employed to obtain these hybridoma cells, are
   1) B-lymphocytes and myeloma cells 2) Lymphoma cells and bone marrow cells
   3) T-lymphocytes and myeloma cells 4) B-lymphocytes and carcinoma cells

4. Read the two statements A and B.
   - Statement A : Diversity observed in the entire geographical area, is called gamma diversity.
   - Statement B : Biodiversity decreases from high altitude to low altitude.

   Identify the correct choice from those given.
   1) Statement A is correct, B is wrong.
   2) Statement B is correct, A is wrong.
   3) Both the statements A and B are correct.
   4) Both the statements A and B are wrong.

5. The major event that occurs during the anaphase of mitosis, which brings about the equal distribution of chromosomes, is
   1) replication of the genetic material
   2) splitting of the chromatids
   3) splitting of the centromeres
   4) condensation of the chromatin

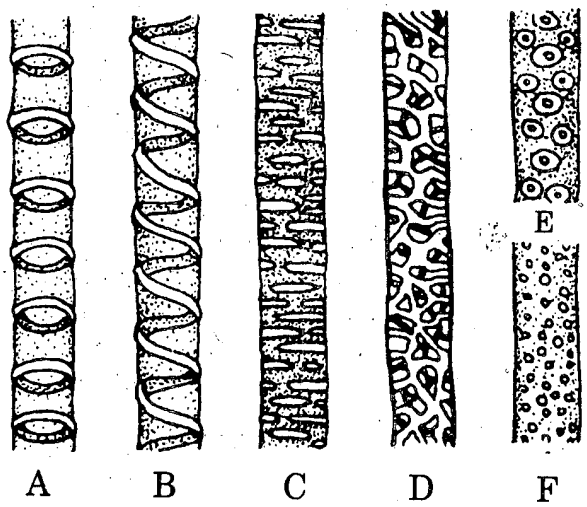
(Space for Rough Work)

6. In the synthesis of which of the following, the DNA molecule is not directly involved ?
   1) mRNA molecule
   2) protein molecule
   3) another DNA molecule
   4) tRNA molecule

7. Chloroplasts without grana are known to occur in
   1) Bundle sheath cells of C_3 plants.
   2) Mesophyll cells of C_4 plants.
   3) Bundle sheath cells of C_4 plants.
   4) Mesophyll cells of all plants.

8. The main function of lacteals in the human small intestine is the absorption of
   1) glucose and vitamins
   2) amino acids and glucose
   3) water and vitamins
   4) fatty acids and glycerol

9. The following diagrams show the types of secondary thickenings in the xylem vessels. Identify the types labelled from A to F. Choose the correct option from those given.



   1) A = Spiral, B = Annular, C = Reticulate, D = Scalariform, E = Pitted with border, F = Pitted, simple
   2) A = Annular, B = Spiral, C = Scalariform, D = Reticulate, E = Pitted with border, F = Pitted, simple
   3) A = Annular, B = Spiral, C = Scalariform, D = Reticulate, E = Pitted, simple, F = Pitted with border.
   4) A = Spiral, B = Annular, C = Scalariform, D = Reticulate, E = Pitted with border, F = Pitted, simple

10. About 1000 ml of air is always known to remain inside the human lungs. It is described as .....
   1) Inspiratory reserve volume
   2) Expiratory reserve volume
   3) Residual volume
   4) Tidal volume

(Space for Rough Work)

11. The chemical nature of gibberellins is that they are
    1) acidic
    2) alkaline
    3) proteinaceous
    4) amines

12. The unit of natural selection is
    1) an individual
    2) a species
    3) a genus
    4) a population

13. Water is lost in a liquid state in some plants through hydathodes. These hydathodes
    1) remain closed at night
    2) remain closed during day
    3) remain always open
    4) do not show any specificity in opening and closing

14. Which of the following are secretions produced by the spermatozoa at the time of fertilization ?
    1) Fertilizin and antifertilizin
    2) Antifertilizin and spermlysin
    3) Fertilizin and spermlysin
    4) only spermlysin

15. Cells obtained from an organism were homogenised and centrifuged. A test indicated that the cells contained glycogen. If you were asked to find out as quickly as possible whether the cells were from a plant or an animal, you would
    1) examine the centrifuge for the presence of extracts of chloroplasts
    2) answer immediately that the cells were from a plant-source
    3) examine the centrifuge for the presence of extracts of centrioles
    4) answer immediately that the cells were from an animal source

(Space for Rough Work)

16. Which of the following plant parts can respire even in the absence of oxygen ?

1) Seeds 2) Roots
3) Stems 4) Leaves

17. Column I lists some disorders associated with brain. Column II lists the causes for these disorders. Match the two columns and identify the correct option from those given

Column I	Column II
A. Epilepsy	p. Degeneration of neurons in the cerebral cortex.
B. Alzheimer's disease	q. Irregular electrical discharge in the neurons
C. Parkinson's disease	r. Decreased production of acetyl choline
D. Huntington's chorea	s. Degeneration of dopamine releasing neurons
	t. Formation of blood clots in the brain

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

18. The world biodiversity day is celebrated annually on

1) 5th June 2) 29th December
3) 22nd April 4) 16th September

19. The sequence of nitrogen bases in a particular region of the noncoding strand of a DNA molecule was found to be CAT GTT TAT CGC. What would be the sequence of nitrogen bases in the mRNA that is synthesized by the corresponding region of the coding strand in that DNA ?

1) GUA CAA AUA GCC 2) GTA CAA ATA GCC
3) CAU GUU UAU CGG 4) CAA GAA TAU GCC

20. Almost all the aquatic animals excrete ammonia as the nitrogenous waste product. Which of the following statement is not in agreement with this situation ?

1) Ammonia is easily soluble in water
2) Ammonia is released from the body in a gaseous state.
3) Ammonia is highly toxic and needs to be eliminated as and when formed.
4) Ammonia gets converted into a less toxic form called urea.

(Space for Rough Work)

21. In nature, cleistogamous flowers are
    1) self pollinated
    2) insect pollinated
    3) wind pollinated
    4) bird pollinated

22. In the homeostatic control of blood sugar level, which organs function respectively as modulator and effector ?
    1) Liver and islets of Langerhans
    2) Hypothalamus and liver
    3) Hypothalamus and islets of Langerhans
    4) Islets of Langerhans and hypothalamus.

23. Variable number of tandem repeats (VNTRs) in the DNA molecule are highly useful in
    1) Recombinant DNA technology
    2) DNA finger printing
    3) Monoclonal antibody production
    4) Stemcell culture

24. Which of the following represents a condition where the motility of the sperms is highly reduced ?
    1) Oligospermia
    2) Athenospermia
    3) Azoospermia
    4) Polyspermy

25. Identify from the following, the only taxonomic category that has a real existence.
    1) Genus
    2) Species
    3) Phylum
    4) Kingdom

(Space for Rough Work)

26. Which of the following is used as an antitranspirant ?

1) Cobalt chloride
2) Naphthol acetic acid
3) Calcium carbonate
4) Phenyl mercuric acetate

27. Maximum amount of oxygen is lost from the blood in the

1) capillaries surrounding the tissue cells
2) arteries of the body
3) capillaries surrounding the alveoli
4) left auricle of the heart

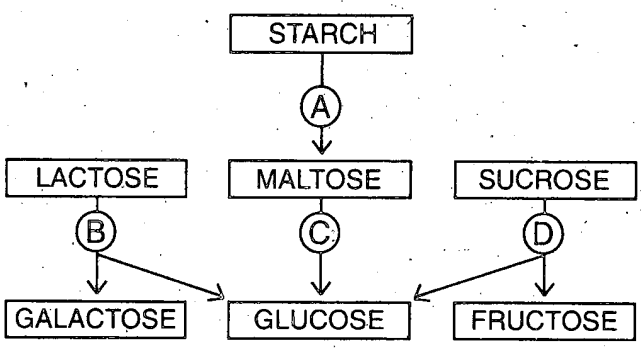
28. In which of the following disorders, blood has a defective hemoglobin ?

1) Hemophilia
2) Hematuria
3) Hematoma
4) Sicklecell anemia

29. The common point of attachment of all the arms of polytene chromosomes, is known as

1) Chromomere
2) Centromere
3) Chromocentre
4) Centrosome

30. The following is a scheme showing the fate of carbohydrates during digestion in the human alimentary canal. Identify the enzymes acting at stages indicated as A, B, C and D. Choose the correct option from those given.



1) A = Amylase, B = Maltase, C = Lactase, D = Invertase
2) A = Amylase, B = Maltase, C = Invertase, D = Lactase
3) A = Amylase, B = Invertase, C = Maltase, D = Lactase
4) A = Amylase, B = Lactase, C = Maltase, D = Invertase

(Space for Rough Work)

31. As secondary growth proceeds, in a dicot stem, the thickness of

1) sapwood increases
2) heartwood increases
3) both sapwood and heartwood increases
4) both sapwood and heartwood remains the same

32. Which of the following animal can successfully reproduce without utilizing the process of mitosis ?

1) Amoeba
2) Hydra
3) Tapeworm
4) Sycon

33. The synthesis of one molecule of glucose during Calvin cycle requires

1) 12 molecules of ATP and 18 molecules of $NADPH_2$
2) 6 molecules of ATP and 12 molecules of $NADPH_2$
3) 18 molecules of ATP and 12 molecules of $NADPH_2$
4) 12 molecules each of ATP and $NADPH_2$

34. Which of the following was likely to have been absent in a free molecular state, in the primitive atmosphere of the earth ?

1) Carbon
2) Oxygen
3) Hydrogen
4) Nitrogen

35. In the members of family Malvaceae, anthers are described as

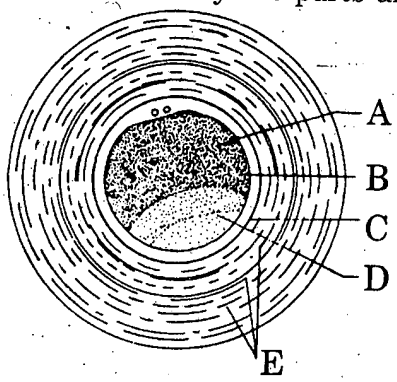
1) Diadelphous and dithecous
2) Diadelphous and monothecous
3) Monadelphous and dithecous
4) Monadelphous and monothecous

(Space for Rough Work)

36. In the operon system, the repressor protein can bind only with the

1) Structural genes
2) Regulator gene
3) Operator gene
4) Promoter gene

37. The following is a diagram of the just spawned frog's egg, with the parts labelled from A to E. Identify the parts and choose the correct option from those given below.



1) A = Cytoplasm, B = Plasma membrane, C = Vitelline membrane, D = Yolk, E = Jelly Coat
2) A = Cytoplasm, B = Vitelline membrane, C = Plasma membrane, D = Yolk, E = Jelly Coat
3) A = Yolk, B = Plasma membrane, C = Vitelline membrane, D = Cytoplasm, E = Jelly Coat
4) A = Yolk, B = Jelly Coat, C = Vitelline membrane, D = Cytoplasm, E = Plasma membrane

38. The rate of transpiration will be very less in a situation where

1) ground water is sufficiently available
2) wind is blowing with a very high velocity
3) environment is very hot and dry
4) relative humidity is very high

39. Column I lists the components of body defense and column II lists the corresponding descriptions. Match the two columns. Choose the correct option from those given.

	Column I		Column II
A.	Active natural immunity	p.	Injection of gamma globulins
B.	First line of defense	q.	Complement proteins and interferons
C.	Passive natural immunity	r.	Direct contact with the pathogens that have entered inside
D.	Second line of defense	s.	Surface barriers
		t.	Antibodies transferred through the Placenta

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

40. Which of the following is not an influence of auxins ?

1) Apical dominance
2) Parthenocarpy
3) Tropic movements
4) Bolting

(Space for Rough Work)

41. How many double circulations are normally completed by the human heart, in one minute ?
    1) Eight
    2) Sixteen
    3) Seventy two
    4) Thirty six

42. Casparian thickenings are found in the cells of
    1) Pericycle of the root
    2) Endodermis of the root
    3) Pericycle of the stem
    4) Endodermis of the stem

43. Both photosynthesis and respiration require
    1) Mitochondria
    2) Sunlight
    3) Chloroplasts
    4) Cytochromes

44. Which of the following regions of our country are known for their rich biodiversity ?
    1) Western Ghats and Eastern Himalayas
    2) Western Ghats and Deccan Plateau
    3) Eastern Himalayas and Gangetic plane
    4) Trans Himalayas and Deccan Peninsula

45. Restriction endonucleases are most widely used in recombinant DNA technology. They are obtained from
    1) Bacteriophages
    2) Bacterial cells
    3) Plasmids
    4) All prokaryotic cells

(Space for Rough Work)

46. The F_2 generation offspring in a plant showing incomplete dominance, exhibit

1) variable genotypic and phenotypic ratios
2) a genotypic ratio of 1 : 1
3) a phenotypic ratio of 3 : 1
4) similar phenotypic and genotypic ratios of 1 : 2 : 1.

47. Identify the correct statement with reference to transport of respiratory gases by blood.

1) Hemoglobin is necessary for transport of carbondioxide and carbonic anhydrase for transport of oxygen
2) Hemoglobin is necessary for transport of oxygen and carbonic anhydrase for transport of carbondioxide.
3) Only oxygen is transported by blood.
4) Only carbondioxide is transported by blood.

48. In the angiosperm ovule, central cell of the embryosac, prior to the entry of pollen tube, contains

1) a single haploid nucleus
2) one diploid and one haploid nuclei
3) two haploid polar nuclei
4) one diploid secondary nucleus

49. Read the two statements A and B.

- Statement A : The number of mitochondria in a cell do not correspond to the function of the cell.
- Statement B : Mitochondria are common to both plant and animal cells.

Choose the correct option from those given.

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

50. Which of the following birth control measure can be considered as the safest ?

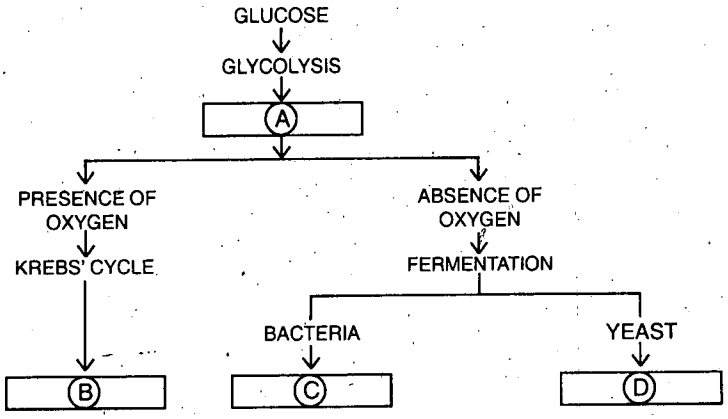
1) The rhythm method
2) The use of physical barriers
3) Termination of unwanted pregnancy.
4) Sterilization techniques

(Space for Rough Work)

51. What is the common point of similarity between DNA and RNA ?

1) Both are double stranded
2) Both have identical sugar molecules
3) Both have identical pyrimidine bases
4) Both are polymers of nucleotides

52. The following is a simplified scheme showing the fate of glucose during aerobic and anaerobic respiration. Identify the end products that are formed at stages indicated as A, B, C and D. Identify the correct option from those given.



1) A = Carbondioxide and water, B = Pyruvic acid, C = Ethyl alcohol and Carbondioxide, D = Lactic acid,
2) A = Pyruvic acid, B = Carbondioxide and water, C = Lactic acid, D = Ethyl alcohol and Carbondioxide,
3) A = Pyruvic acid, B = Carbondioxide and water, C = Ethyl alcohol and Carbondioxide, D = Lactic acid,
4) A = Pyruvic acid, B = Ethyl alcohol and Carbondioxide, C = Lactic acid, D = Carbondioxide and water,

53. Identify the correct relationship with reference to water potential of a plant cell.

1) $\psi_w = \psi_m + \psi_s + \psi_p$
2) $\psi_w = \psi_m + (\psi_s - \psi_p)$
3) $\psi_w = \psi_m - (\psi_s + \psi_p)$
4) $\psi_w = \psi_m - \psi_s - \psi_p$

54. Bioinformatics is an interdisciplinary branch which is concerned with the application of

1) engineering techniques in biological studies
2) chemistry in understanding the biological phenomenon
3) physics in understanding various life processes
4) information science in analysing the biological data.

55. The highly degraded organic matter rich in nitrogen and potassium in particular, resulting from the activity of earthworms, is called

1) Worm castings
2) Vermicompost
3) compost bedding
4) humus

(Space for Rough Work)

56. Identify from the following examples, a fungus which is of medicinal importance.

1) *Agaricus* 2) *Saccharomyces*
3) *Penicillium* 4) *Cercospora*

57. Passive absorption of water by the root system is the result of

1) forces created in the cells of the root
2) increased respiratory activity in root cells
3) Tension on the cell sap due to transpiration
4) Osmotic force in the shoot system.

58. Which of the following character is exclusive to mammals ?

1) Presence of a four chambered heart 2) Homeothermic condition
3) Respiration by lungs 4) Presence of a diaphragm

59. All the terminator codons begin with the nucleotide of

1) Adinine 2) Uracil
3) Guanine 4) Cytosine

60. Column I lists the endocrine structure and Column II lists the corresponding hormones. Match the two columns. Identify the correct option from those given

	Column I	Column II
A.	Hypothalamus	p. Relaxin
B.	Anterior Pituitary	q. Estrogen
C.	Testis	r. FSH and LH
D.	Ovary	s. Androgens
		t. Gonadotropin releasing hormone

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

(Space for Rough Work)

(Space for Rough Work)

A-1