COMMON ENTRANCE TEST - 2005

DATE	SUBJECT	TIME
03 - 05 - 2005	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	084673

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 TIMING MARKS 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. Carefully enter the Version Code and Serial Number of this question booklet on the top portion of the OMR answer sheet.
5. As answer sheets are designed to suit the Optical Mark Reader (OMR) system, please take special care while filling the entries pertaining to CET Number and Version Code.
6. Until the 3rd Bell is rung at 10.40 am. :
   - 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.
7. 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.
8. This question booklet contains 60 questions and each question will have four different options / choices.
9. 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 :

10. Please note that :
    - For each correct answer : ONE mark will be awarded.
    - For each wrong answer : QUARTER (1/4) mark will be deducted.
    - If more than one circle is shaded : ONE mark will be deducted.
    - **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.**
11. 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.
12. After the last bell is rung at 11.50 a.m., stop writing on the OMR answer sheet.
13. Hand over the OMR ANSWER SHEET to the room invigilator as it is.
14. 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.
15. **Preserve the replica of the OMR answer sheet for a minimum period of One year.**

BIOLOGY

1. Which of the following tissue originates exclusively from the ectoderm of the embryo ?
   1) Epithelial tissue
   2) Muscular tissue
   3) Connective tissue
   4) Nervous tissue

2. The pyramid of energy is always upright for any ecosystem. This situation indicates the fact that .....
   1) Carnivores have a better energy conversion efficiency than herbivores.
   2) Producers have the lowest energy conversion efficiency.
   3) Herbivores have a better energy conversion efficiency than carnivores.
   4) Energy conversion efficiency is the same in all trophic levels.

3. Gynoecium in the members of family Leguminosae is composed of .....
   1) One carpel
   2) Two carpels
   3) Three carpels
   4) Five carpels

4. Identify from the following, the compound that links glycolysis and Krebs cycle.
   1) Pyruvic acid
   2) Oxalo acetic acid
   3) Acetyl Co-A
   4) Lactic acid

5. Which part of the human brain controls the breathing movements ?
   1) Cerebellum
   2) Medulla oblongata
   3) Cerebrum
   4) Diencephalon

(Space for Rough Work)

6. When the chromosome number of a given organism has one additional chromosome in one of the homologous pairs, the condition is known as .....

1) Monosomy 2) Trisomy
3) Nullisomy 4) Polyploidy

7. If a germ cell in a female gonad and a germ cell in a male gonad begin undergoing meiosis simultaneously, what will be the ratio of ova and sperms produced ?

1) 1 : 2 2) 1 : 1
3) 2 : 1 4) 1 : 4

8. Soil conservation is a practice in which .....

1) soil is well aerated
2) soil is protected from being carried away by wind and water
3) soil erosion is allowed
4) soil fertility is enhanced

9. The main function of lacteals in the villi of human small intestine is the absorption of .....

1) Glucose and vitamins 2) Amino acids and glucose
3) Fatty acids and glycerol 4) Water and mineral salts

10. A micro-organism, when viewed under a compound microscope with an objective lens of 40 X and an eye piece of 10 X magnification measured 4000 μ in length. The same micro-organism when observed under a dissection microscope with a lens of 10 X magnification, would measure .....

1) 100 μ 2) 40 μ
3) 400 μ 4) 10 μ

(Space for Rough Work)

11. Leaf fall occurs in a tree when there is an increase in the concentration of .....
    1) Auxins
    2) Abscissic acid
    3) Cytokinins
    4) Gibberellins

12. Which of the following is a disease resistant, high yielding breed of poultry developed in Karnataka ?
    1) White leg horn
    2) Aseel
    3) Plymouth rock
    4) Giriraja

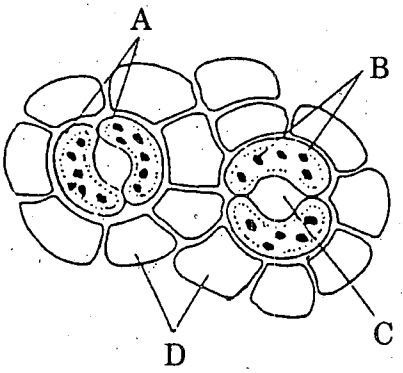
13. Sertoli cells are nourishing cells in the testis. They also secrete a hormone. Identify the same.
    1) Testosterone
    2) Gonadotropin
    3) Inhibin
    4) Relaxin

14. Molecular biology is concerned with the study of .....
    1) all aspects of micro organisms
    2) structure and functions of polymers of life
    3) the chemistry of living organisms
    4) the process by which molecules of chemical substances organized into primitive form of life.

15. The inner, darker and harder portion of secondary xylem that can not conduct water, in an older dicot stem, is called .....
    1) Bast
    2) Alburnum
    3) Duramen
    4) Wood

(Space for Rough Work)

16. The following figure shows the stomatal apparatus. Identify the parts labelled as A, B, C and D



Choose the correct answer from the following.

1) A = Subsidiary cells, B = Chloroplasts, C = Stoma, D = Guard cells.
2) A = Guard cells, B = Stoma, C = Chloroplasts, D = Subsidiary cells.
3) A = Subsidiary cells, B = Stoma, C = Chloroplasts D = Guard cells
4) A = Guard cells, B = Chloroplasts, C = Stoma, D = Subsidiary cells

17. In which of the following plants, there will be no transpiration ?

1) Plants living in deserts
2) Aquatic, submerged plants
3) Plants growing in hilly regions
4) Aquatic plants with floating leaves

18. Which of the following groups of algae do not have eukaryotic organization ?

1) Blue green algae
2) Green algae
3) Golden brown algae
4) Red algae

19. Identify from the following, a hormone produced by the pituitary gland in both males and females but functional only in females.

1) Relaxin
2) Vasopressin
3) Somatotropic hormone
4) Prolactin

20. Which one of the following is not a characteristic feature of bryophytes ?

1) Filamentous rhizoids
2) Dominant gametophytic generation
3) Vascular tissues
4) Amphibious habitat

(Space for Rough Work)

21. Green house effect is the cumulative result of the influences of certain gases. Identify the gas, which is not involved in this influence.

1) Chloroflurocarbons
2) Methane
3) Carbon dioxide
4) Nitrogen

22. Column I lists some principles, pertaining to physiology of plants. Column II lists the names of scientists who proposed the idea. Match the two columns. Identify the correct choice from those given

Column - I	Column - II
A. Mass flow hypothesis	p. J. C. Bose
B. Relay pump theory	q. Strasburger
C. Transpiration pull theory	r. Munch
D. Pulsatile movement theory	s. Godlewski
	t. Dixon and Jolly

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

23. Which one of the following types of silk is being produced extensively in South India?

1) Mulberry
2) Eri
3) Muga
4) Tussar

24. Identify from the following plant parts, the major contributors to human food.

1) Root
2) Stem
3) Leaves
4) Fruits

25. Alcohol is the most socially accepted narcotic drug. Excessive consumption of alcohol leads to .....

1) Loss of Memory
2) State of hallucination
3) Cirrhosis of liver
4) Suppression of brain functions

(Space for Rough Work)

26. Haemophilia is a condition where there is .....

1) No production of melanin in the skin
2) No production of haemoglobin in the blood
3) A delay in the clotting of blood
4) A failure in the clotting mechanism of blood

27. Read the statements A and B

A) The human small intestine is the longest portion in the alimentary canal
B) Absorption of digested food requires a very large surface area

Identify the correct choice on the two statements

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

28. In the lac-operon model, lactose molecules function as

1) repressors which bind with the operator gene
2) Inducers which bind with the operator gene
3) Corepressors which bind with the repressor protein
4) Inducers which bind with the repressor protein

29. When a cell of diameter 2 μ grows to double its diameter, what will happen to its surface area volume relationship?

1) It will remain the same
2) It will reduce to half
3) It will double
4) It can not be determined

30. Which of the following is a genetically dominant trait in human beings?

1) O blood group
2) Colour blindness
3) Rh+ve blood group
4) Albinism

(Space for Rough Work)

31. Identify from the following, a characteristic pigment associated with chlorophyll-b molecules.
    1) Ferredoxin
    2) Plastoquinone
    3) Plastocyanin
    4) Cytochrome

32. In which of the following regions of a nephron does maximum reabsorption of useful substances, takes place?
    1) Glomerulus
    2) Henle's loop
    3) Distal convoluted tubule
    4) Proximal convoluted tubule

33. Which of the following statements is true with reference to cross pollination in angiosperms?
    1) It can fail to occur due to distance barrier
    2) It requires the production of a large number of pollen grains
    3) It most often results in high yield of plants
    4) It occur only in unisexual flowers

34. Which of the following natural process is likely to hasten organic evolution ?
    1) Overproduction
    2) Favourable environment
    3) Reproductive isolation
    4) Abundant genotypic variations

35. A technology which has found immense use in solving cases of disputed parentage, is .....
    1) DNA finger printing
    2) Polymerase chain reaction
    3) Recombinant DNA technology
    4) Monoclonal antibody production

(Space for Rough Work)

36. Identify from the following, a plant tissue in which lignin does not occur in the cellwalls

1) Sclerenchyma fibers
2) Collenchyma
3) Xylem tracheae
4) Sclereids

37. Which of the following statement is not true with reference to mitochondria?

1) They contain DNA
2) They divide in synchrony with cell cycle
3) They store and release chemical energy
4) They contain cristae

38. Column I lists the parts of the human brain and column II lists the functions. Match the two columns and identify the correct choice from those given

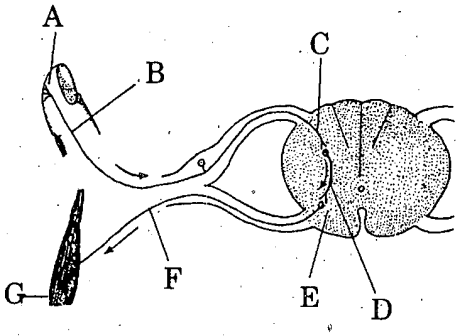
Column - I	Column - II
A. Cerebrum	p. controls the pituitary
B. Cerebellum	q. controls vision and hearing
C. Hypothalamus	r. controls the rate of heart beat
D. Midbrain	s. seat of intelligence
	t. maintains body posture

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

39. The site of EMP pathway of breakdown of glucose in a cell, is

1) Mitochondria
2) Nucleoplasm
3) Peroxysome
4) Cytoplasm

40. The following diagram indicates the reflex arc. Identify the parts labelled as A,B,C,D,E,F and G. Choose the correct option.



1) A = Sense organ; B = Sensory nerve; C = Ventral horn; D = Interneuron; E = Dorsal horn; F = Motor nerve; G = Effector
2) A = Sense organ; B = Sensory nerve ; C = Dorsal horn; D = Interneuron; E = Ventral horn; F = Motor nerve; G = Effector
3) A = Effector; B = Motor nerve; C = Ventral horn; D = Interneuron; E = Dorsal horn; F = Sensory nerve; G = Sense organ
4) A = Sense organ; B = Motor nerve; C = Dorsal horn; D = Interneuron; E = Ventral horn; F = Sensory nerve; G = Effector

41. How many human teeth appear twice during the life span of an individual?

1) 32 2) 16
3) 20 4) 22

42. If the size of a fertilized egg of frog is compared with the size of its blastula and gastrula stages, which of the following observations will be correct?

1) All the three will be of the same size
2) There is a progressive increase in size from zygote to blastula to gastrula
3) Gastrula will be larger, while zygote and blastula will be of same size
4) Zygote will be smaller, while blastula and gastrula will be larger.

43. During protein synthesis AUG functions as the initiator codon in mRNA. What should be the anticodon on the tRNA molecule that picks up and brings the amino acid specified by this codon?

1) TAC 2) UAC
3) GUA 4) CAU

44. Choose the odd pair out in the following

1) Epithelium - Keratin 2) Areolar connective tissue- collagen
3) Muscle fibre- actin 4) Neuron- melanin

45. The macronutrient which is an essential component of all organic compounds, yet not obtained by plants from soil, is

1) Carbon 2) Nitrogen
3) Magnesium 4) Phosphorous

(Space for Rough Work)

46. How many times a red blood corpuscle will have to pass through the heart in its journey from hepatic artery to the aorta?

1) Only once
2) Two times
3) Four times
4) Several times

47. The law of limiting factors was proposed with particular reference to photosynthesis. Identify the scientist who proposed this law.

1) Weismann
2) Calvin
3) Blackmann
4) Emerson

48. Osmoregulation in Paramecium is a function of ....

1) Trichocysts
2) Contractile vacuole
3) Cytostome
4) Cytopyge

49. Identify from the following the branch of biology which provides direct evidences in favour of organic evolution.

1) Taxonomy
2) Morphology
3) Embryology
4) Palaentology

50. Which of the following groups of cells in the male gonad, represent haploid cells?

1) Germinal epithelial cells
2) Spermatogonial cells
3) Primary spermatocytes
4) Secondary spermatocytes

(Space for Rough Work)

51. A nucleosome is a portion of the chromonema containing.....
    1) both DNA and histones 2) Only histones
    3) both DNA and RNA 4) Only DNA

52. Maximum amount of oxygen is exchanged from the blood in the _____
    1) arteries of the body 2) capillaries surrounding tissue cells
    3) capillaries surrounding the alveoli 4) left auricle of the heart

53. Which of the following term is used to describe the component isolated from a plant, for invitro culturing in the specific medium?
    1) Embryoid 2) Callus
    3) Explant 4) Synthetic seeds

54. If a cell has twice as much DNA as in a normal functional cell, it means that the cell _____
    1) has completed division 2) is preparing to divide
    3) has caesed to function 4) has reached the end of its lifespan

55. Apical dominance in plants is due to the presence of _____
    1) Gibberellins in the lateral bud 2) Cytokinins in the leaf apex
    3) Abscissic acid at the shoot tip 4) Auxins at the shoot tip

(Space for Rough Work)

56. Which of the following structures are derivatives of the endoderm?

1) Muscles and blood
2) Alimentary canal and respiratory structures
3) Skin and nerve cord
4) Excretory and reproductive structures

57. The sequence of nitrogen bases in a portion of a coding segment of DNA was AAT GCT TAG GCA. What will be the sequence of nitrogen bases in the corresponding region of the transcripted mRNA?

1) AAT GCT TAG GCA
2) UUT CGT TUC CGU
3) TTA CGA ATC CGT
4) UUA CGA AUC CGU

58. Which chamber of the human heart has the thickest muscular wall?

1) Left ventricle
2) Left auricle
3) Right ventricle
4) Right auricle

59. Entomology is concerned with the study of

1) Agricultural practices
2) Formation and properties of soil
3) Various aspects of insects
4) Various aspects of human life

60. Which of the following is called as a detritivore?

1) An animal feeding on a plant
2) An animal feeding on decaying organic matter
3) An animal feeding on another animal
4) A plant feeding on an animal

(Space for Rough Work)