COMMON ENTRANCE TEST-2016

DATE	SUBJECT	TIME
DAY-1	BIOLOGY	10.30 A.M. TO 11.50 A.M.

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	176161

DOs :

1. Check whether the CET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. This Question Booklet is issued to you by the invigilator after the **2nd Bell i.e., after 10.30 a.m.**
3. The Serial Number of this question booklet should be entered on the OMR answer sheet.
4. The Version Code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
5. Compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts:

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. The **3rd Bell rings at 10.40 a.m., till then;**
   - Do not remove the paper seal 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.

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains 60 questions and each question will have one statement and four distracters. (Four different options / choices.)
2. After the **3rd Bell is rung at 10.40 a.m.,** remove the paper seal on the right hand side of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by a complete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 70 minutes:
   - Read each question carefully.
   - Choose the correct answer from out of the four available distracters (options / choices) given under each question / statement.
   - **Completely darken / shade the relevant circle with a BLUE OR BLACK INK BALL POINT PEN against the question number on the OMR answer sheet.**

Correct Method of shading the circle on the OMR answer sheet is as shown below :

4. Please note that even a minute unintended ink dot on the OMR answer sheet will also be recognized and recorded by the scanner. Therefore, avoid multiple markings of any kind on the OMR answer sheet.
5. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same.
6. After the **last bell is rung at 11.50 a.m.,** stop writing on the OMR answer sheet and affix your LEFT HAND THUMB IMPRESSION on the OMR answer sheet as per the instructions.
7. Hand over the **OMR ANSWER SHEET** to the room invigilator as it is.
8. After separating the top sheet (Our Copy), the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
9. Preserve the replica of the OMR answer sheet for a minimum period of ONE year.

B

[Turn Over

1. In a taxonomic hierarchy, the number of common characters will increase as we go from

(1) Species to Kingdom (2) Kingdom to Species

(3) Class to Order (4) Genus to Species

2. Which one of the following statement is correct ?

(1) Chasmogamous flowers always exhibits geitonogamy.

(2) Cleistogamous flowers always exhibits autogamy.

(3) Chasmogamous flowers never exhibits autogamy.

(4) Cleistogamous flowers exhibits both autogamy and geitonogamy.

3. E. coli bacteria grew in $^{15}NH_4Cl$ medium for several generations are allowed to grow in $^{14}NH_4Cl$ medium. After 2 generations, the bacteria are isolated from the medium and DNA of bacteria centrifuged in CsCl. The result of the density gradient of DNA is -

(1) only hybrid DNA (2) both hybrid and heavy DNA

(3) both heavy and light DNA (4) both hybrid and light DNA

4. In which type of interactions, both the interacting organisms do not live close together ?

(1) Predation (2) Parasitism

(3) Mutualism (4) Competition

5. Facultative absorption of water from primary urine is influenced by the hormone

(1) Androgens (2) Epinephrine

(3) Vasopressin (4) Thyroxine

Space For Rough Work

6. In a dithecous anther, each pollen sac contain 1000 MMC. What is the total number of pollen-grains produced by the anther ?

(1) 4,000 (2) 8,000

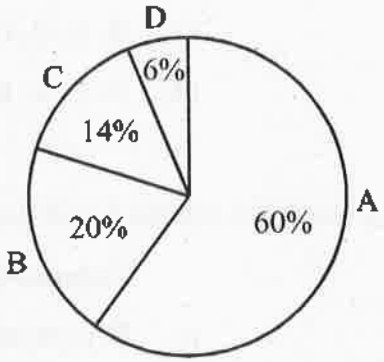
(3) 16,000 (4) 32,000

7. Identify the correct equation for Hardy-Weinberg law.

(1) $p + q = 1$ (2) $p - q = 1$

(3) $(p + q)^2 = 1$ (4) $(p - q)^2 = 1$

8. The relative contribution of various green house gases to total global warming is given in the following diagram :



Identify the green house gases.

(1) A = CO_2 ; B = CH_4 ; C = CFCs ; D = N_2O

(2) A = CO_2 ; B = CFCs ; C = CH_4 ; D = N_2O

(3) A = CFCs ; B = CO_2 ; C = CH_4 ; D = N_2O

(4) A = CFCs ; B = CH_4 ; C = CO_2 ; D = N_2O

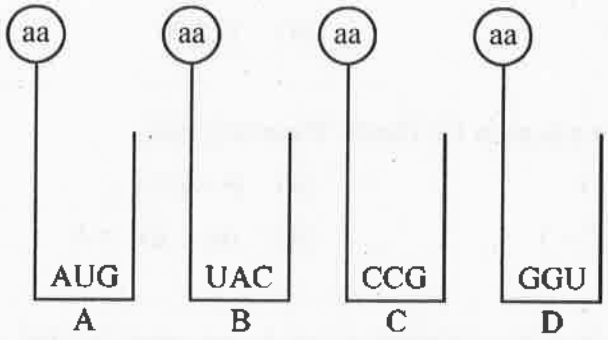
9. In plants, lateral roots arise from

(1) epidermis (2) hypodermis

(3) endodermis (4) pericycle

Space For Rough Work

10. Find the sequence of binding of the following aminoacyl t-RNA complexes during translation to m-RNA transcribed by a DNA segment having the base sequences 3′TACATGGGTCCG5′.



Choose the answer showing the correct order of alphabets.

(1) A, B, D, C (2) B, A, D, C

(3) C, D, B, A (4) D, C, A, B

11. Match the plant structures given in the column-I with their plants given in the column-II.

	Column-I		**Column-II**
A.	Prothallus	p.	Bryophytes
B.	Microsporophyll	q.	Pteridophytes
C.	Protonema	r.	Angiosperms
D.	PEN	s.	Gymnosperms

(1) A-r, B-p, C-s, D-q (2) A-s, B-r, C-p, D-q

(3) A-q, B-s, C-r, D-p (4) A-q, B-s, C-p, D-r

12. Snow blindness is caused due to

(1) Ozone hole (2) Nuclear winter

(3) Acid rain (4) Green house effect

Space For Rough Work

13. A person who has allergy, the type of antibody produced in his body is

(1) IgA (2) IgG

(3) IgE (4) IgM

14. Elution means

(1) separation of DNA fragments on agarose gel.

(2) cutting and extraction of DNA bands from the agarose gel.

(3) making the DNA bands visible under UV radiation.

(4) isolating alien DNA from the choice organism.

15. The edible part of the fruit of apple is

(1) Thalamus (2) Pericarp

(3) Endocarp (4) Involucre

16. Identify a micro-organism that can produces biomass of protein.

(1) *Monoscus purpureus*

(2) *Aspergillus niger*

(3) *Methylophilus methylotrophus*

(4) *Trichoderma polysporum*

17. What is the function of the enzyme 'recombinase' during meiosis ?

(1) Formation of synaptonemal complex

(2) Crossing over between non-sister chromatids

(3) Condensation of chromosomes

(4) Alignment of bivalent chromosomes on equatorial plate

Space For Rough Work

18. Identify from the following group of animals, which exhibit oestrous cycle.

(1) Lion, deer, dog and cow

(2) Cow, monkey, elephant and ape

(3) Monkey, ape, man and elephant

(4) Lion, dog, monkey and ape

19. The codons UUU and UUC codes for phenylalanine only. This feature of genetic code is called

(1) commaless (2) non-overlapping

(3) degenerate (4) non-ambiguous

20. One of the following area is an example for secondary succession, if the succession takes place in/on

(1) abandoned farm land (2) newly cooled lava

(3) newly created pond (4) bare rock

21. A doctor identifies symptoms of nasal congestion, headache, sore throat, hoarseness, cough in a patient. The conclusion is that, the patient is infected by a pathogen

(1) Adeno virus (2) Rhino virus

(3) Plasmodium (4) Salmonella

22. The puffed-up appearance of dough is due to fermentation by bacteria. Identify the gas liberated during the process.

(1) Methane (2) Carbon dioxide

(3) Hydrogen sulphide (4) Ammonia

Space For Rough Work

23. Most suitable method of introducing alien DNA into a plant cell is

(1) biolistics (2) microinjection

(3) lipofection (4) heat shock method

24. Which one of these is not an accessory glands in male reproductive system ?

(1) Prostate gland (2) Seminal vesicle

(3) Cowper's gland (4) Bartholin's gland

25. Find the mis-match from the following pairs :

(1) Divergent evolution → thorn of bougainvillia and tendril of cucurbita

(2) Adaptive radiation → Australian marsupials

(3) Natural selection → Industrial melanism

(4) Genetic drift → Constant gene frequency

26. What is the role of competitive inhibitor during enzyme action ?

(1) It enhances enzyme action.

(2) It declines the enzyme action.

(3) It alters the active site of the enzyme and prevents the binding of substrate.

(4) It inhibits breaking of chemical bonds of the substrate.

27. Some of the events occur during life cycle of plasmodium are given below. Identify the correct statement.

(1) The sporozoites reproduce sexually in liver cells.

(2) The gametocytes develop in RBC.

(3) Female mosquito take up sporozoites with blood meal.

(4) When mosquito bites a man, gametocytes are injected.

Space For Rough Work

28. Read the following statements carefully and choose the correct statements :

a. In a transcription unit, the promoter located at the 5′ end of coding strand.

b. The single strand DNA having the polarity 5′ → 3′ is the template strand.

c. RNA polymerase binds to the operator during transcription.

d. Single base DNA differences occur in humans are called Single Nucleotide Polymorphism (SNPs).

(1) Statements a and b (2) Statements b and c

(3) Statements b and d (4) Statements a and d

29. Amniocentesis is one of the methods

(1) adapted for MTP (2) of birth control

(3) for foetal sex determination (4) used for safe parturition

30. Connel's field experiment on the rocky sea coast of Scotland, where larger Barnacle balanus dominates the intertidal area and removes the smaller Barnacle cathamalus. This happened due to

(1) Predation (2) Competition

(3) Parasitism (4) Mutualism

31. Choose the incorrect statement from the following.

(1) Tendons attach muscle to bone.

(2) Ciliated epithelium is the modified columnar epithelium.

(3) Adipose tissue is a type of dense connective tissue.

(4) Cartilage is made up of chondrocytes.

Space For Rough Work

32. Desired genes have been introduced into transgenic animals to obtain large scale production of useful biological products encoded by these genes. This approach is generally referred to as

(1) hybridoma technology (2) molecular farming

(3) gene therapy (4) down stream processing

33. A plant is provided with ideal conditions for photosynthesis and supplied with isotope $^{14}CO_2$. When the products of the process are analysed carefully, what would be the nature of products ?

(1) Both glucose and oxygen are labelled.

(2) Only oxygen is labelled but glucose is normal.

(3) Both glucose and oxygen are normal.

(4) Only glucose is labelled and oxygen is normal.

34. Which among these is not a post fertilization event ?

(1) Gametogenesis (2) Embryogenesis

(3) Fruit formation (4) Seed formation

35. Sarcomere is the functional unit of contraction in a muscle fibre. Identify the portion of myofibril that constitute a sarcomere.

(1) The portion of myofibril between two successive 'Z' line.

(2) The portion of myofibril between two successive 'I' band.

(3) The portion of myofibril between two successive 'A' band.

(4) The portion of myofibril between two successive 'M' line.

Space For Rough Work

36. Some desert beetles can survive on "metabolic water", without ever drinking liquid water which

(1) was produced as water in the organisms they eat.

(2) is absorbed from the air along with respiratory oxygen.

(3) is a breakdown product of pyruvate inside the mitochondria, along with carbon dioxide.

(4) is a breakdown product from glycolysis in the cytoplasm.

37. The gene disorder phenylketonuria is an example for

(1) Polygenic inheritance (2) Pleiotropy

(3) Multiple allelism (4) Multiple factor

38. A population is correctly defined as having which of the following characteristics ?

a. Inhabiting the same geography area

b. Individuals belonging to same species

c. Possessing a constant and uniform density and dispertion

(1) a and b only (2) b and c only

(3) a and c only (4) b only

39. Choose the correct sequence of events occur in human reproduction.

(1) Gametogenesis → gestation → insemination → fertilization → implantation → parturition

(2) Gametogenesis → insemination → gestation → implantation → fertilization → parturition

(3) Gametogenesis → insemination → fertilization → implantation → gestation → parturition

(4) Gestation → gametogenesis → insemination → implantation → fertilization → parturition

Space For Rough Work

40. In a polysaccharide, number of monosaccharides are linked by

(1) peptide bond (2) phosphoester bond

(3) glycosidic bond (4) hydrogen bond

41. 'A' and 'B' are the two adjacent living cells. The cell 'A' has solute potential (ψ_s) of – 9 bars and pressure potential (ψ_p) of 4 bars, whereas cell 'B' has solute potential (ψ_s) of – 8 bars and pressure potential (ψ_p) of 5 bars. What will be the direction of water movement between these cells ?

(1) Cell A to Cell B

(2) Cell B to Cell A

(3) Do not move in any direction.

(4) Moves in both the directions.

42. Which one of the following statement is wrong with respect to separation of DNA fragments on gel electrophoresis ?

(1) The DNA fragments move towards anode under electric field through the matrix.

(2) The commonly used matrix is agarose gel.

(3) The DNA fragments resolve according to their size.

(4) The smaller DNA fragments separate first.

43. The rate of formation of new organic matter by deer in a forest ecosystem is called

(1) Primary productivity (2) Secondary productivity

(3) Standing crop (4) Net Primary productivity

Space For Rough Work

44. Digestion of proteins is incomplete in the absence of enterokinase, because

(1) Pepsinogen is not converted into pepsin.

(2) Chymotrypsinogen is not converted into chymotrypsin.

(3) Trypsinogen is not converted into trypsin.

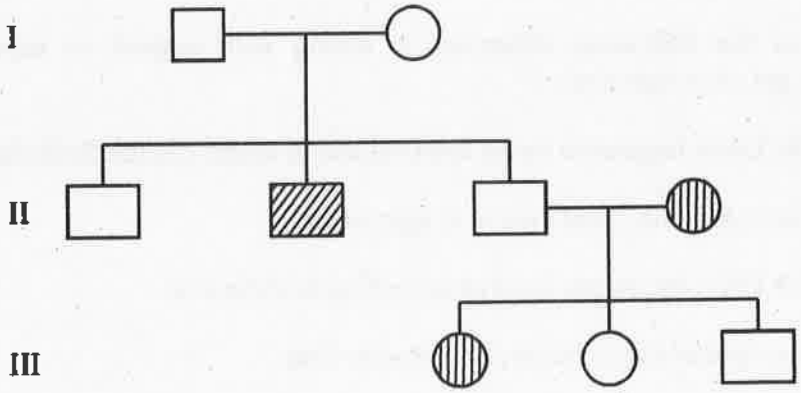
(4) Prorennin is not converted into rennin.

45. The primary treatment of sewage water involves

(1) sludge digestion (2) aerobic bacterial activity

(3) anaerobic bacterial activity (4) filtration and sedimentation

46. From the following pedigree chart of a family, one can make an analysis that,



(1) It is an autosomal dominant trait.

(2) It is an autosomal recessive trait.

(3) It is an allosomal dominant trait.

(4) It is an allosomal recessive trait.

Space For Rough Work

47. Offsprings formed during sexual reproduction exhibits more variation than those formed by asexual method, because,

(1) genetic material comes from two different individuals.

(2) greater amount of DNA is involved.

(3) sexual reproduction is more complicated.

(4) genetic material comes from male parent.

48. Pick the hormone which is not secreted by human placenta.

(1) hCG (2) hPL

(3) Prolactin (4) Estrogen

49. The phenomenon called 'Apical dominance' in plants is due to a phytohormone

(1) Auxins (2) Gibberellins

(3) Cytokinins (4) ABA

50. Plants obtained through tissue culture are genetically identical and they are obtained by somatic cells. What do you call them ?

(1) Somaclones (2) Monoclones

(3) Somatic hybrids (4) Cross hybrids

51. A human male is heterozygous for autosomal genes 'A' and 'B'. He is also hemizygous for haemophilic gene 'h'. What percentage of sperms will carry 'abh' genotype ?

(1) 25% (2) 50%

(3) 75% (4) 0%

Space For Rough Work

52. All the following interactions are mutualism, except

(1) association of algae and fungi in lichens

(2) association of fungi and roots of higher plants in mycorrhiza

(3) plant and animal relation for pollination

(4) association of cattle egret and grazing cattle

53. The hormone 'melatonin' is secreted by the gland

(1) Thyroid (2) Adrenal

(3) Pineal (4) Pituitary

54. A scrubber in the exhaust of a chemical industry removes

(1) hydrogen sulphide (2) sulphur dioxide

(3) nitrous oxide (4) carbon monoxide

55. Lactational amenorrhea

(1) prevents secretion of milk from breast

(2) prevents conception

(3) prevents secretion of prolactin

(4) prevents spermatogenesis

56. The gene for haemophilia is located on 'X' chromosome. Hence it is normally impossible for a

(1) haemophilic father to pass the gene to his daughter.

(2) carrier mother to pass the gene to her daughter.

(3) carrier mother to pass the gene to her son.

(4) haemophilic father to pass the gene to his son.

Space For Rough Work

57. Identify the incorrect statement from the following.

(1) B-cells produce antibody.

(2) Interferons kill viruses.

(3) Response of T-cells is called cell mediated immunity.

(4) Macrophages are the phagocytic cells.

58. A person admitted to hospital as he had myocardial infarction. A cardiologist injecting him 'streptokinase', why ?

(1) It reduces hypertension.

(2) It reduces the level of blood cholesterol.

(3) It stimulates heart beat.

(4) It acts as clot buster.

59. One of the breeding techniques useful to eliminate harmful recessive genes by selection is

(1) Artificial insemination (2) Out-breeding

(3) In-breeding (4) MOET

60. Which one of the following statements is not correct about a plasmid ?

(1) It is a circular DNA.

(2) It has antibiotic resistant gene.

(3) It has the ability of autonomous replication.

(4) It's DNA is as long as chromosomal DNA.

Space For Rough Work

A-1

Date : 28-MAY-16

COMMON ENTRANCE TEST - 2016

ANSWER KEYS - BIOLOGY

Qnno	A1
1	2
2	2
3	4
4	4
5	3
6	3
7	13
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9	4
10	2
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50	1
51	G
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56	4
57	2
58	4
59	3
60	4

Note:

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1. G - Indicates One GRACE MARK Awarded for the Question Number.
2. Value more than four indicates multiple answers are correct.