SUBJECT : BIOLOGY	DAY – 1
SESSION : MORNING	TIME : 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	137729

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 recognised 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

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1. Which vector can clone a small fragment of DNA ?

(1) Bacterial artificial chromosome

(2) Yeast artificial chromosome

(3) Plasmid

(4) Cosmid

2. Continued self pollination results in

(1) Inbreeding depression

(2) Self incompatibility

(3) Formation of unisexual flowers

(4) Gametes loose vigour

3. Identify the wrong statement.

(1) Alleles I^A and I^B produce sugars.

(2) Both I^A and I^B are present together and they express because of co-dominance.

(3) Alleles b and c also produce sugar.

(4) When I^B and b or i are present only I^B is expressed.

4. The codon AUG has dual function. It is an initiation codon and also codes for

(1) Formaldehyde (2) Methionine

(3) Phenylalanine (4) Serine

5. Natural killer lymphocytes are an example for

(1) Cytokine barrier (2) Physiological barrier

(3) Physical barrier (4) Cellular barrier

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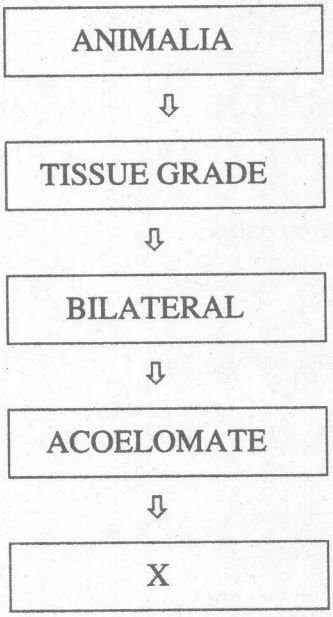
6. Identify the phylum X :



(1) Aschelminthes (2) Ctenophora

(3) Hemichordata (4) Platyhelminthes

7. With respect to *Eichorrnia* :

Statement X : It drains off Oxygen from water and is seen growing in standing water.

Statement Y : It is an indigenous species of our country.

(1) Both statements X and Y are correct.

(2) Both statements X and Y are wrong.

(3) Only statement X is correct and Y is wrong.

(4) Only statement Y is correct and X is wrong.

8. Seeds without fertilization is obtained from

(1) Parthenocarpy (2) Apomixis

(3) Polyembryony (4) Dormancy

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9. The hormone which acts on Sertoli cells and stimulates the process of spermiogenesis is

(1) Androgen (2) LH

(3) GnRH (4) FSH

10. The nitrogen base found only in DNA is also called

(1) 5-methyl uracil (2) NH_4Cl

(3) Uracil (4) Guanine

11. Hisardale is obtained by crossing

(1) Marino ewes with Bikaneri Rams

(2) Bikaneri ewes with Marino Rams

(3) Horse with Donkey

(4) Superior Bull with Superior Cow

12. The ancestors of modern day Frogs and Salamanders are

(1) Jawless fish (2) Coelocanth

(3) Icthyophis (4) Amphioxus

13. During sewage treatment biogas produced includes

(1) Methane, Oxygen, Hydrogen sulphide

(2) Hydrogen sulphide, Methane, Sulphur oxide

(3) Hydrogen sulphide, Nitrogen, Methane

(4) Methane, Hydrogen sulphide, Carbon dioxide

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14. If 30j of energy is trapped at producer level, then how much energy will be available to Peacock as food in the following chain ?

Plant → Mice → Snake → Peacock

(1) 0.03j (2) 0.003j

(3) 0.3j (4) 0.0003j

15. Which of the following is not an ex-situ conservation ?

(1) Seed bank (2) Botanical garden

(3) Cryopreservation (4) Biosphere reserves

16. One hormone hastens maturity period in juvenile conifers, a second hormone controls xylem differentiation, while the third increases the tolerance of plants to various stresses. They are respectively

(1) Auxin, Gibberellins, Cytokinin

(2) Auxin, Gibberellins, ABA

(3) Gibberellin, Auxin, Cytokinin

(4) Gibberellin, Auxin, ABA

17. The element responsible for the ring structure of chlorophyll and maintenance of ribosome structure is

(1) Mg^{+} (2) K^{+}

(3) Ca^{++} (4) S

18. Which of the following sentences is correct ?

(1) Cells of all living organisms have a nucleus.

(2) Both animal and plant cells have a well defined cell wall.

(3) In prokaryotes there are no membrane bound cell organelles.

(4) Cells are formed de novo from abiotic materials.

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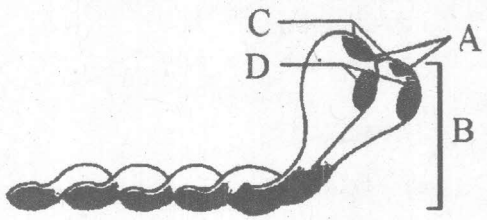
19. Label the correct parts of the Myosin monomer :



(1) A. Cross arm B. Actin binding site
C. Head D. ATP binding site

(2) A. Head B. Cross arm
C. Actin binding site D. ATP binding site

(3) A. Actin binding site B. Head
C. ATP binding site D. Cross arm

(4) A. ATP binding site B. Actin binding site
C. Head D. Cross arm

20. The 2000 year old seed excavated from King Herod's palace at dead sea belong to

(1) *Lupine articus* (2) *Strobilanthus kunthiana*

(3) *Dendrocalamus strictus* (4) *Phoenix dactylifera*

21. In a human foetus the limbs and digits develop after

(1) First trimester (2) 8 weeks

(3) 12 weeks (4) 5^{th} month

22. With respect to phenylketonuria identify which statement is not correct.

(1) It is an example of pleiotropy.

(2) It is an error in metabolism.

(3) It is a case of aneuploidy.

(4) Caused due to autosomal recessive trait.

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23. Match the following :

A.	VNTR	p.	Largest gene
B.	Introns and Exons	q.	DNA fingerprinting
C.	Dystrophin	r.	Bulk DNA
D.	Satellite DNA	s.	Splicing

(1) A – q, B – s, C – p, D – r

(2) A – s, B – p, C – q, D – r

(3) A – r, B – s, C – p, D – q

(4) A – q, B – p, C – s, D – r

24. RNA polymerase-I transcribes eukaryotic ribosome which does not consist of

(1) 28 SrRNA (2) 5 SrRNA

(3) 5.8 SrRNA (4) 18 SrRNA

25. The organism which completely lack a cell wall and can live without oxygen are

(1) Archaebacteria (2) Thermoacidophiles

(3) Mycoplasmas (4) Methanogens

26. Green house crops such as tomatoes and bell pepper produce higher yields. This is due to

(1) CO_2 is a limiting factor to photosynthesis.

(2) Tomatoes and bell pepper are not C_3 plants.

(3) CO_2 enriched atmosphere leads to higher yields.

(4) Due to diffused light in green house.

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27. A fall in glomerular filtration rate activates

(1) juxta glomerular cells to release rennin

(2) adrenal cortex to release aldosterone

(3) adrenal medulla to release adrenaline

(4) posterior pituitary to release vasopressin

28. The chromosome number in meiocyte is 34. The organism could be

(1) Dog (2) Apple

(3) Ophioglossum (4) Onion

29. Progestasert is an IUD which makes the uterus unsuitable and cervix hostile to the sperms as they are

(1) Copper releasing IUDs (2) Non-medicated IUDs

(3) Hormone releasing IUDs (4) Ideal contraceptive

30. Double lines in pedigree analysis show

(1) Sex unspecified (2) Consanguineous marriage

(3) Unaffected offspring (4) Normal mating

31. Smack and Crack are produced from

(1) *Cannabis sativa* and *Atropa belladonna*

(2) *Papaver somniferum* and *Erythroxylon coca*

(3) *Cannabis sativa* and *Papaver somniferum*

(4) *Erythroxylon coca* and *Atropa belladonna*

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32. Sonalika and Kalyan Sona are high yielding varieties of

(1) Rice (2) Maize

(3) Sugarcane (4) Wheat

33. BOD refers to

(1) The amount of oxygen consumed if all the organic matter in 1000 ml of water were oxidized by bacteria.

(2) The amount of oxygen released when all the organic matter was consumed by bacteria in 1 litre of water.

(3) The oxygen required for bacteria to grow in 1 litre of effluent.

(4) The amount of oxygen released if all the organic matter in 1000 ml of water were oxidized by bacteria.

34. During menstrual cycle the cyclical changes takes place in

(1) Endometrium (2) Myometrium

(3) Perimetrium (4) Corpus luteum

35. Assisted Reproductive Technology does not include

(1) In vitro fertilization and embryo transfer

(2) Gamete intra fallopian transfer

(3) Zygote extra fallopian transfer

(4) Artificial insemination

36. In a 3.2 Kbp long piece of DNA, 820 adenine bases were found. What would be the number of cytosine bases ?

(1) 1560 (2) 1480

(3) 780 (4) 740

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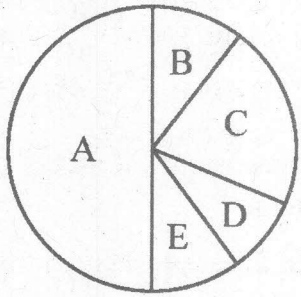
37. Given below is the representation of the extent of global diversity of vertebrates. What groups does the portions represent ?

VERTEBRATES



	A	B	C	D	E
(1)	Mammals	Birds	Fishes	Amphibians	Reptiles
(2)	Fishes	Mammals	Birds	Reptiles	Amphibians
(3)	Birds	Reptiles	Fishes	Mammals	Amphibians
(4)	Fishes	Amphibians	Mammals	Birds	Reptiles

38. Choose the correct statement :

(1) Pyruvate is formed in the mitochondrial matrix.

(2) During the conversion of Succinyl CoA to Succinic acid a molecule of ATP is synthesized.

(3) Oxygen is vital in respiration for removal of Hydrogen.

(4) There is complete breakdown of glucose in fermentation.

39. According to Robert Constanza, 50% of the total cost for ecosystem services goes to

(1) Recreation (2) Climate regulation

(3) Nutrient cycling (4) Soil formation

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40. The function of a selectable marker is

(1) Identify ori site.

(2) To destroy recognition sites.

(3) Eliminating transformants and permitting non-transformants.

(4) Elimination of non-transformants and permitting transformants.

41. Find the wrongly matched pair :

(1) Endemism – Species confined to one region and also found in other regions

(2) Alien species – Clarias gariepinus

(3) Lungs of the planet – Amazon rain forest

(4) Hot spots – Regions with species richness

42. If an inheritable mutation is observed in a population at high frequency, it is referred to as

(1) DNA polymorphism (2) Expressed sequence Tag

(3) Sequence annotation (4) Linkage

43. Which of the following would most likely help to slow down the greenhouse effect ?

(1) Ensuring that all excess paper packaging is burned to ashes.

(2) Promoting the use of private rather than public transport.

(3) Converting tropical forests into grazing land for cattle.

(4) Redesigning land fill dumps to allow methane to be collected.

44. Select the mismatch pair from the following :

(1) Insulin – Gluconeogenesis

(2) Glucagon – Glycogenolysis

(3) Oxytocin – Contraction of uterine muscles

(4) Prolactin – Milk production in mammary glands

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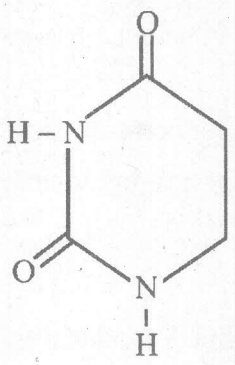
45. Identify this structure :



(1) Uracil
(2) Adenosine
(3) Adynylic Acid
(4) Cholesterol

46. Which of the following is not correct in mass flow hypothesis ?

(1) The sugar is moved bidirectionally.
(2) Loading of the phloem sets up a water potential gradient that facilitates the mass movement in the phloem.
(3) As hydrostatic pressure in the phloem sieve tube increases pressure flow stops and sap is accumulated in phloem.
(4) The sugar which is transported is sucrose.

47. In prokaryotes the Glycocalyx when it is thick is called

(1) Slime layer
(2) Mesosome
(3) Capsule
(4) Cell wall

48. The T-wave in an ECG represents

(1) Electrical excitation of atria
(2) Return of the ventricles from excited state
(3) Depolarisation of ventricles
(4) Beginning of systole

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49. Ernest chain and Howard Florey's contribution was

(1) Discovery of Streptokinase

(2) Discovery of DNA sequence

(3) Establishing the potential of penicillin as an effective antibiotic

(4) Production of genetically engineered insulin

50. Which of the following is not correct with respect to malaria ?

(1) Sporozoites multiply in blood.

(2) Malignant malaria is caused by *Plasmodium falciparum*.

(3) RBC's rupture and release haemozoin which causes chills.

(4) Female anopheles mosquito is the vector.

51. Three copies of chromosome – 21 in a child with Down's syndrome have been analysed using molecular biology technology to detect any possible DNA polymorphism with reference to different alleles located on chromosome – 21. Results showed that out of 3 copies 2 of the chromosomes of the child contain the same alleles as one of the mother's alleles. Based on this when did the non-disjunction event most likely occur ?

(1) Maternal meiosis – I (2) Maternal meiosis – II

(3) Paternal meiosis – I (4) Paternal meiosis – II

52. In 125 amino acid sequence if the codon for 25^{th} amino acid is mutated to UAA, then

(1) a polypeptide of 124 amino acids is formed.

(2) a polypeptide of 25 amino acids is formed.

(3) a polypeptide of 24 amino acids is formed.

(4) No polypeptides are formed.

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53. A scrubber in the exhaust of a chemical industrial plant removes

(1) Gases like Sulphur dioxide

(2) Particulate matter of the size 5 micrometers or above

(3) Gases like ozone or methane

(4) Gases like Nitrous oxide

54. The formation of two species from one ancestral species is known as

(1) phyletic evolution (2) divergent evolution

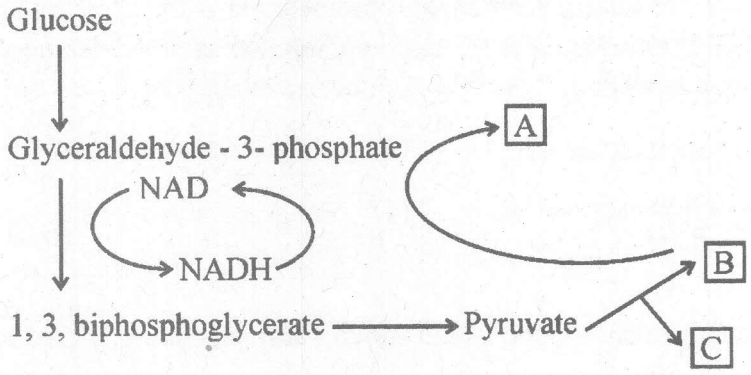
(3) convergent evolution (4) allopatry

55. The breakdown of detritus into small particles by detrivores is called

(1) Humification (2) Catabolism

(3) Leaching (4) Fragmentation

56. Choose the correct combination of labelling the molecules involved in the pathway of anaerobic respiration in Yeast.



(1) A – Ethanol, B- CO_2, C – Acetaldehyde

(2) A – CO_2, B – Ethanol, C – Acetaldehyde

(3) A – Acetaldehyde, B – CO_2, C – Ethanol

(4) A – Ethanol, B – Acetaldehyde, C – CO_2

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57. Which of the following conditions correctly describes the manner of determining the sex in the given example ?

(1) XO type of sex determines male sex in grasshopper.

(2) XO condition in humans as found in Klinefelter's syndrome determines female sex.

(3) Homozygous sex chromosome XX produce male in Drosophila.

(4) Homozygous sex chromosome ZZ determine female sex in birds.

58. Hibernating animals have tissues containing mitochondria with a membrane protein that accelerates electron transport while blocking the synthesis of ATP. What is the consequence of this ?

(1) Energy is saved because glycolysis and the citric acid cycle shuts down.

(2) The energy of respiration is converted into heat.

(3) Hibernating animals can synthesize fat instead of wasting energy of respiration.

(4) Pyruvate is converted to lactic acid by anaerobic fermentation.

59. The pioneer species in Xerarch and Hydrarch succession are respectively

(1) Lichens and sedges (2) Lichens and rooted hydrophytes

(3) Lichens and phytoplanktons (4) Phytoplanktons and lichens

60. With respect to DNA fragmentation

Statement A : Gel electrophoresis and elution are two important processes.

Statement B : After staining with ethidium bromide it has to be exposed to U.V. light.

(1) Both A and B are correct statements.

(2) Only A is correct and B is not correct.

(3) Only A is correct.

(4) Only B is correct.

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A-1

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Date : 29-MAY-15

COMMON ENTRANCE TEST - 2015

ANSWER KEYS - BIOLOGY

Qnno	A1
1	3
2	1
3	3
4	2
5	4
6	G
7	3
8	2
9	4
10	1
11	2
12	2
13	4
14	1
15	4
16	4
17	1
18	3
19	2
20	4
21	2
22	3
23	1
24	2
25	3
26	3
27	G
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29	3
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31	2
32	4
33	1
34	1
35	3
36	3
37	2
38	3
39	4
40	4
41	1
42	1
43	4
44	1
45	G
46	3
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54	2
55	4
56	4
57	1
58	2
59	3
60	1

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