

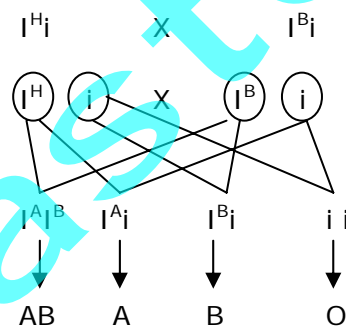
# CET – BIOLOGY – 2011

## **VERSION CODE: A – 1**

1. Four children belonging to the same parents have the following blood groups A, B, AB and O. Hence, the genotypes of the two parents are .....
- 1) Both parents are homozygous for 'A' group
  - 2) One parent is homozygous for 'A' and another parent is homozygous for 'B'
  - 3) One parent is heterozygous for 'A' and another parent is heterozygous for 'B'
  - 4) Both parents are homozygous for 'B' group

**Ans: (3)**

One parent is heterozygous for 'A' and another parent is heterozygous for 'B'



2. Mitotic stages are not observed in .....
- 1) Cosmarium
  - 2) E.coli
  - 3) Saccharomyces
  - 4) Chlorella

**Ans: (2) E.coli**

Because, it is bacterium. It undergoes binary fission

3. The types of ribosomes found in prokaryotic cell are .....
- 1) 100 S
  - 2) 80 S
  - 3) 60 S
  - 4) 70 S

**Ans: (4) 70 S**

4. The name of Smt. Thimmakka is associated with the
- 1) planting and conservation of avenue trees
  - 2) agitations against hydroelectric project
  - 3) 'Appiko' movement
  - 4) conservation of fauna and flora of the western ghats

**Ans: (1) planting and conservation of avenue trees**

5. Dog distemper is a disease carried by a .....
- 1) bacterium
  - 2) viroid
  - 3) prion
  - 4) virus

**Ans: (4) virus**

6. When a fresh water protozoan is placed in marine water, .....
- 1) the contractile vacuole disappears
  - 2) the contractile vacuole increases in size
  - 3) a number of contractile vacuoles appear
  - 4) the contractile vacuole remains unchanged

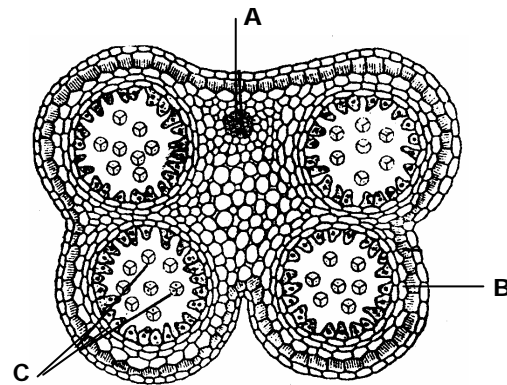
**Ans: (1) the contractile vacuole disappears**

Because, it does conserve water and does not eliminate water

7. The 2005 Nobel Prize for Physiology / Medicine was awarded to Barry Marshall and Robin Warren of Australia for their discover of .....
- 1) human papilloma virus causing cervical cancer
  - 2) bacterium Helicobacter pylori causing peptic ulcer
  - 3) prions, a new biological principle of infection
  - 4) Human Immunodeficiency Virus

**Ans: (2) bacterium Helicobacter pylori causing peptic ulcer**

8. The following is the diagram of T.S. of Anther. Identify the parts labeled A, B, C



- 1) A = Connective, B = Endothecium, C = Pollen grain
- 2) A = Endothecium, B = Connective, C = Pollen grain
- 3) A = Pollen grain, B = Connective, C = Endothecium
- 4) A = Endothecium, B = Pollen grain, C = Connective

**Ans: (1) A = Connective, B = Endothecium, C = Pollen grain**

9. Pick the mammal with true placenta

- 1) Kangaroo
- 2) Echidna
- 3) Platypus
- 4) Mongoose

**Ans: (4) Kangaroo**

Kangaroo = pouched mammal. (2) and (3) are egg laying mammals

10. Which one of the following is correct?

- 1) Introns are present in m-RNA and exons are present in t-RNA
- 2) Codons are present in m-RNA and anticodons in t-RNA
- 3) Every intron is a set of three terminator codons
- 4) Exons are present in eukaryotes while introns are present in prokaryotes

**Ans: (2) Codons are present in m-RNA and anticodons in t-RNA**

Introns (non-coding) Exons (coding) are present in Eukaryotes. Prokaryotes do not have introns

11. Casparian strips are present in the ..... of the root.

- 1) epiblema            2) cortex            3) perycycle            4) endodermis

**Ans: (4) endodermis**

Endodermis of monocot root, that is, Suberin – 'U' shaped thickening

12. How do you differentiate a frog from a toad?

- 1) Frog has no exoskeleton but toad has scales  
2) Frog respire through lungs but toad respire through skin  
3) Frog has a tail but toad has no tail  
4) Frog has no parotid glands but toad has a pair of parotid glands

**Ans: (4) Frog has no parotid glands but toad has a pair of parotid glands**

13. Column I contains larval stages and Column II contains the group to which it belongs. Match them correctly and choose the right answer.

	Column – I		Column – II
A	Planula	p	Annelida
B	Tornaria	q	Mollusca
C	Trochophore	r	Arthropoda
D	Bipinnaria	s	Chordata
E	Glochidium	t	Echinodermata
		u	Coelenterata

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

**Ans: (1) A = u, B = s, C = p, D = t, E = q**

14. Read the following statements A and B.

A: Many organs of aquatic plants float in water.

B: Large air gaps are present in the collenchyma tissues of lotus leaf.

Select the correct answer.

- 1) Statement A is correct and B is wrong
- 2) Statement B is correct and A is wrong
- 3) Statements A and B both are correct
- 4) Statements A and B both are wrong

**Ans: (1) Statement A is correct and B is wrong**

Aerenchyma is a parenchyma

15. Arrange the following in the ascending order of Linnaean hierarchy

- 1) Kingdom – order – species – genus – class – family – phylum
- 2) Kingdom – family – genus – species – class – phylum – order
- 3) Kingdom – phylum – class – order – family – genus – species
- 4) Species – genus – family – order – class – phylum – kingdom

**Ans: (4) Species – genus – family – order – class – phylum – kingdom**

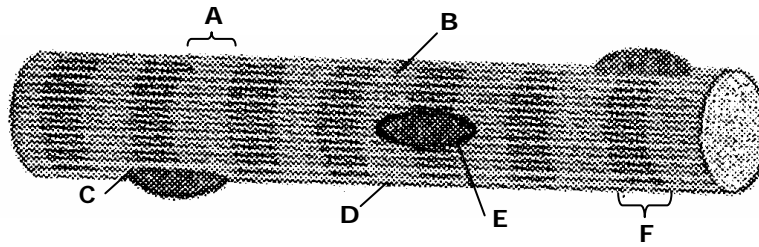
16. Animals which possess cleidoic eggs exhibit.

- 1) External fertilization and internal development
- 2) Internal fertilization and internal development
- 3) Internal fertilization and external development
- 4) External fertilization and external development

**Ans: (3) Internal fertilization and external development**

They are land eggs. E.g. reptiles

17. The diagram given below represents the histology of a striped muscle. Label the parts A, B, C, D, E and F.



- 1) A – Sarcoplasm, B – Nucleus, C – Sarcolemma, D – Myofibril, E – Dark band, F – Light band
- 2) A – Sarcoplasm, B – Light band, C – Myofibril, D – Sarcolemma, E – Nucleus, F - Dark band
- 3) A – Light band, B – Sarcoplasm, C – Myofibril, D – Sarcolemma, E – Nucleus, F – Dark band
- 4) A – Sarcolemma, B – Nucleus, C – Dark band, D – Light band, E – Sarcoplasm, F – Myofibril

**Ans: (3) A – Light band, B – Sarcoplasm, C – Myofibril, D – Sarcolemma, E – Nucleus, F – Dark band**

18. Populations are said to be allopatric when .....

- 1) they are physically isolated by natural barriers
- 2) they are sharing the same area but cannot interbreed
- 3) they live together and breed freely to produce viable offspring
- 4) they are isolated but often come together for breeding

**Ans: (1) they are physically isolated by natural barriers**

(2) = Sympatric population

19. The World Intellectual Property Day is observed on .....

- |                               |                               |
|-------------------------------|-------------------------------|
| 1) February, 29 <sup>th</sup> | 2) June, 30 <sup>th</sup>     |
| 3) April, 26 <sup>th</sup>    | 4) September, 5 <sup>th</sup> |

**Ans: (3) April, 26<sup>th</sup>**



**Ans: (1) 10: 6**

In 9: 3: 3: 1 ratio, (9 + 1) 10 are parental and (3 + 3) 6 are recombinants.

25. A balanced diet does NOT include .....

- 1) Carbohydrates and fats
- 2) Nucleic acids and enzymes
- 3) Proteins and vitamins
- 4) Minerals and salts

**Ans: (2) Nucleic acids and enzymes**

26. Match the types of the fruits listed in Column I, with the examples listed on Column II. Choose the answer which gives the correct combination of alphabets of the two columns.

	Column – I		Column – II
A	Capsule	p	Paddy
B	Berry	q	Mango
C	Drupe	r	Sunflower
D	Cypsela	s	Tomato
		t	Ladies finger

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

**Ans: (1) A = t, B = s, C = q, D = r**

27. In genetic code, 61 codons code for 20 different types of amino acids. This is called

- 1) Colinearity
- 2) Commaless
- 3) Degeneracy
- 4) Nonambiguity

**Ans: (3) Degeneracy**

28. BY the statement 'survival of the fittest', Darwin meant that .....

- 1) The strongest of all species survives
- 2) The most intelligent of the species survives
- 3) The cleverest of the species survives
- 4) The most adaptable of the species to changes survives

**Ans: (4) The most adaptable of the species to changes survives**

29. Which one of the following plants is considered as lesser known species of food crops?

- 1) Psophocarpus tetragonolobus
- 2) Sorghum Vulgare
- 3) Eleusine Coracana
- 3) Pennisetum typhoides

**Ans: (1) Psophocarpus tetragonolobus**

30. When 2 to 3 drops of Benedicts reagent are added to a urine sample and heated gently, it turns yellow. This colour change indicates that .....

- 1) Urine contains 2% glucose
- 2) Urine contains 0.5<sup>th</sup> glucose
- 3) Urine contains 1.5% glucose
- 4) Urine contains 1% glucose

**Ans: (4) Urine contains 1% glucose**

(1) = 2% = brick red;                      (2) = 0.5% = green

31. BT brinjal is an example of transgenic crops. In this, BT refers to

- 1) Bacillus tuberculosis
- 2) Biotechnology
- 3) Betacarotene
- 4) Bacillus thuringiensis

**Ans: (4) Bacillus thuringiensis**

32. Which one of the following is NOT an antitranspirant?

- 1) PMA
- 2) BAP
- 3) Silicon oil
- 4) Low viscosity

**Ans: (2) BAP.**

Benzyl aminopurine. It is a synthetic cytokinin.

PMA. Phenyl mercuric acetate – a fungicide used as antitranspirant.

Low viscosity wax and silicon oil are antitranspirants.

33. The brainstem is made up of

- 1) Midbrain, pons, cerebellum
- 2) Midbrain, pond, medulla oblongata
- 3) Diencephalon, medulla oblongata, cerebellum
- 4) Cerebellum, cerebrum, medulla oblongata

**Ans: (2) Midbrain, pons, medulla oblongata**

34. The loosely arranged nonchlorophyllous parenchyma cells present in lenticels are called

- 1) Complementary cells
- 2) Passage cells
- 3) Water stomata
- 4) Albuminous cells

**Ans: (1) Complementary cells**

Water stomata are hydathode

Passage cells are thin walled endodermal cells of roots

Albuminous cells are parenchyma cells associated with the sieve cells of gymnosperm.

35. Column I contains terms and column II contains definitions. Match them correctly and choose the right answer.

	Column I		Column II
A	Parturition	p	Attachment of zygote to endometrium
B	Gestation	q	Release of egg from Graafian follicle
C	Ovulation	r	Delivery of baby from uterus
D	Implantation	s	Duration between pregnancy and birth
E	Conception	t	Formation of zygote by fusion of the egg and sperm
		u	Stoppage of ovulation and menstruation

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

**Ans: (4) A = r, B = s, C = q, D = p, E = t**

36. CAM pathway is observed in

- 1) Pineapple      2) Maize      3) Sunflower      4) Sugarcane

**Ans: (1) Pineapple**

37. The number of ATP produced when a molecule of glucose undergoes fermentation is

- 1) 4      2) 36      3) 2      4) 38

**Ans: (3) – Two**

Gross ATP production = 04

2 ATP are used in the initial process of glycolysis. Therefore  $4 - 2 = 02$

38. Silk produced by Antheraea mylitta is also called

- 1) Muga silk      2) Tassar silk      3) Eri silk      4) Mysore silk

**Ans: (2) Tassar silk**

Muga silk by Antheraea assama

Eri silk by Philosamia ricini

39. Which of the following hormones is a steroid?

- 1) Estrogen      2) Insulin      3) Glucagon      4) Thyroxine

**Ans: (1) Estrogen**

Insulin & glucagons – peptide hormones

Thyroxine – amine hormone

40. More men suffer from colour blindness than women because

- 1) women are more resistant to disease than men  
2) the male sex hormone testosterone cause the disease  
3) the colour blind gene is carried on the 'Y' chromosome  
4) men are hemizygous and one defective gene is enough to make them colour blind

**Ans: (4) Men are hemizygous and one defective gene is enough to make them colour blind**

Colourblind is x-linked recessive character. In male there is single x-chromosome and corresponding gene on y – chromosome is absent.

41. Which one of the following theories on the origin of life is mostly accepted?
- 1) Special creation
  - 2) Steady state
  - 3) Panspermia
  - 4) Chemical origin

**Ans: (4) Chemical origin**

Panspermia. Life comes from outerspace

Special creation: God created the earth in 7 days.

42. The rosette habit of cabbage can be changed by application of
- 1) IAA
  - 2) GA
  - 3) ABA
  - 4) Ethaphon

**Ans: (2) GA**

Gibberlic acid induces rapid elongation of internode

43. Effective filtration pressure in glomerulus is caused due to
- 1) powerful pumping action of the heart
  - 2) secretion of adrenalin
  - 3) Afferent arteriole is slightly larger than efferent arteriole
  - 4) Vacuum develops in proximal convoluted tubule and sucks the blood

**Ans: (3) Afferent arteriole is slightly larger than efferent arteriole.**

This increases the volume of blood in glomerulus and increase the filtration rate.

44. Banana bunchytop virus is transmitted through
- 1) Pentalonia nigronervosa
  - 2) Aedes aegypti
  - 3) Culex sp
  - 4) Agribacterium sp

**Ans: (1) Pentalonia nigronervosa (Aphid)**

Aedes aegypti: vector for dengue feces, chikun gunya, yellow fever etc.

Culex sp: vector for J.B.E

45. In a tissue culture media, the resource of the phytohormone is

- 1) Agar agar      2) Glucose      3) Micronutrients      4) Coconut milk

**Ans: (4) Coconut milk**

Coconut milk contain cytokinin.

46. With reference to the pituitary, which of the following statements is true?

- 1) Neurohypophysis secretes vasopressin and oxytocin  
2) Neurohypophysis secretes TSH and STH  
3) Neurohypophysis collects and stores vasopressin and oxytocin  
4) Adenohypophysis secretes vasopressin and oxytocin

**Ans: (3) Neurohypophysis collects and stores vasopressin and oxytocin**

Neurohypophysis donot secrete hormones vasopressin and oxytocin are secreted by hypothalamus and stored released by Neurohypophysis.

47. Column I contains terms and column II contains their meanings. Match them properly and choose the right answer.

	Column I		Column II
A	Glycogenesis	p	Conversion of glycogen to glucose
B	Glycosuria	q	Conversion of glucose to glucogen
C	Glyconeogenesis	r	Excretion of glucose in urine
D	Glycogenolysis	s	Conversion of noncarbohydrate sources to glucose
E		t	Conversion of glucose to starch

1) A = p, B = q, C = r, D = s

2) A = q, B = r, C = s, D = p

3) A = q, B = p, C = r, D = s

4) A = p, B = t, C = q, D = s

**Ans: (2) A = q, B = r, C = s, D = p**

48. The term genetic RNA refers to
- 1) genetic material of RNA viruses
  - 2) the RNA that carries genetic message
  - 3) the RNA that helps gene regulation in lac-operon
  - 4) the RNA present in mitochondria

**Ans: (2) the RNA that carries genetic message**

49. As per the guidelines of the Indian Red Cross society, which of the following persons is recommended for blood donation?
- 1) People not in good health, under the influence of alcohol or drugs
  - 2) Ladies during menstruation, pregnancy and breast feeding
  - 3) Healthy women but unwed and below the age of 35
  - 4) Persons who are immunized with live vaccines

**Ans: (4) Person who are immunized with live vaccines**

But donor should be symptoms free.

50. In a typical heart, if EDV is 120 ml of blood and ESV is 50 ml of blood, the stroke volume (SV) is
- 1)  $120 - 50 = 70$  ml
  - 2)  $120 + 50 = 170$  ml
  - 3)  $120 \times 50 = 6000$  ml
  - 4)  $120 \div 50 = 2.4$  ml

**Ans: (1)  $120 - 50 = 70$  ml**

EDV = End diastolic volume

ESV = End systolic volume

SU = EDU - ESV

51. The term, 'southern blotting' refers to
- 1) transfer of DNA fragments from invitro cellulose membrane to electrophoresis gel
  - 2) attachment of probes to DNA fragments
  - 3) transfer of DNA fragments from electrophoresis gel to nitrocellulose sheet.
  - 4) comparison of DNA fragments from two sources

**Ans: (3) transfer of DNA fragments from electrophoresis gel into nitrocellulose sheet**

Developed by E.M Southern

52. In some chordates, the notochord is modified as the vertebral column. Such animals are called vertebrates. Which of the following statements make sense?

- 1) All chordates are vertebrates but all vertebrates are not chordates
- 2) All vertebrates are chordates and all chordates are vertebrates
- 3) All vertebrates are chordates but all chordates are not vertebrates
- 4) chordates are not vertebrates and vertebrates are not chordates

**Ans: (3) All vertebrates are chordates but all chordates are not vertebrates**  
cephalochordate do not possess spinal cord

53. A clone is

- 1) a group of genetically similar organisms produced through asexual reproduction
- 2) a group of genetically similar organisms produced through sexual reproduction
- 3) a group of dissimilar organisms produced as a result of asexual reproduction
- 4) a group of genetically dissimilar organisms produced as a result of sexual reproduction

**Ans: (1) a group of genetically similar organisms produced through asexual reproduction.**

54. The space between the plasma membrane and the cell wall of a plasmolyzed cell surrounded by a hypertonic solution is occupied by the

- 1) hypotonic solution
- 2) isotonic solution
- 3) hypertonic solution
- 4) water

**Ans: (3) hypertonic solution**

Because cell wall is permeable membrane but cell membrane is selective permeable.

But Answer is given in the question itself

55. When the blood contains a high percentage of CO<sub>2</sub> and a very low percentage of O<sub>2</sub>, the breathing stops and the person becomes unconscious. This condition is known as

- 1) suffocation      2) asphyxia      3) emphysema      4) eupnoea

**Ans: (2) Asphyxia**

Eupnoea: normal breathing.

Emphysema: is due to smoking this lead to short breath.

Suffocation: death caused by the obstruction of air pathway or due to hypoxia

56. Which one of the following is not related to guttation?

- 1) Water is given out in the form of droplets  
2) Water given out is impure  
3) Water is given out during daytime  
4) Guttation is of universal occurrence

**Ans: (3) water is given out during day time**

Guttation seen only in mesophytic plants during night and early morning

57. The force responsible for upward conduction of water against gravity comes from

- 1) transpiration      2) photosynthesis  
3) translocation      4) respiration

**Ans: (1) transpiration**

Pull or suction is called transpiration pull

58. Column I contains names of the sphincter muscles of the alimentary canal and column II contains their locations. Match them properly and choose the correct answer.

	Column I		Column II
A	Sphincter of ani internus	p	opening of hepatopancreatic duct into duodenum
B	Cardiac sphincter	q	between duodenum and posterior stomach
C	Sphincter of oddi	r	guarding the terminal part of alimentary canal
D	Ileocaecal sphincter	s	between oesophagus and anterior stomach
E	Pyloric sphincter	t	Between small intestine and bowel

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

**Ans: (3) A = r, B = s, C = p, D = t, E = q**

59. Which one of the following reactions is an example of oxidative decarboxylation?

- 1) Conversion of succinate to fumerate
- 2) Conversion of fumerate to malate
- 3) Conversion of private to acetyl CoA
- 4) Conversion of citrate to isocitrate

**Ans: (3) conversion of pyruvate to acetyl CoA**

-Preparatory phase of Kreb's cycle

60. Chemiosmosis hypothesis given by Peter Mitchel proposes the mechanism of

- 1) synthesis of NADH
- 2) synthesis of ATP
- 2) synthesis of FADH<sub>2</sub>
- 4) synthesis of NADPH

**Ans: (2) synthesis of ATP**