

CET – BIOLOGY – 2012

VERSION CODE: C – 4

1. Find out the **wrong** statement about angiosperm roots:

- a) Vascular bundles are collateral
- b) Xylem is centripetal in growth in the young roots
- c) Cuticle is absent in young stages
- d) The apex is protected by root cap

Ans: (a)

Collateral vascular bundles are seen in stem and leaves

2. Given below is the floral diagram of a flower. Which of the following descriptions of the flower matches the floral diagram?



- a) Homochlamydeous, polypetalous, pentamerous and bisexual
- b) Homochlamydeous, gamopetalous, tetramerous and unisexual
- c) Heterochlamydeous, gamopetalous, pentamerous and bisexual
- d) Heterochlamydeous, gamopetalous, tetramerous and bisexual

Ans: (d)

3. An interconnecting membranous network of the cell composed of vesicles, flattened sacs and tubules is:

- a) Endoplasmic reticulum
- b) Lysosome
- c) Nucleus
- d) Mitochondrion

Ans: (a)

4. Read the statements given below and identify the **incorrect** statement

- a) Scientific names indicate relationship between species
- b) Scientific names favour multiple naming for the same kind of an organism
- c) Scientific names are used all over the world
- d) Scientific names are often descriptive and tell us some important character of an organism.

Ans: (b)

Scientific name is unique to a individual.

5. The Lac Operon is turned on when allolactose molecules bind to:

- a) mRNA
- b) Repressor protein
- c) Promoter site
- d) Operator site

Ans: (b)

To promoter site RNA polymerase bind

6. Fearing that the child to be born may have a genetic disorder, a couple goes to a doctor. Which one of the following techniques is likely to be suggested by the doctor to cure the genetic disorder?
- r DNA technology
 - Embryo transfer
 - Hybridoma technology
 - Gene therapy

Ans: (d)

7. Select the group having only buffalo breeds of India from the following:

- Murrah, Nagapuri, Haryana, Ongole
- Nagapuri, Haryana, Ongole, Sindhi
- Surti, Mehsana, Murrah, Nagapuri
- Mehsana, Murrah, Nagapuri, Haryana

Ans: (c)

8. With regard to the ABO blood typing system, if a man who has type B blood and a woman who has type O blood were to have children, what blood types could the children have?

- AB or O
- A, B, AB or O
- A or O
- B or O

Ans (d)

9. Secretin and Cholecystokinin are the hormones secreted in:

- Ileum
- Oesophagus
- Pyloric stomach
- Duodenum

Ans: (d)

These two are gastrointestinal hormone secreted by duodenal epithelium.

10. Carbon dioxide is called a "greenhouse" gas, because

- it traps Infrared radiations
- it traps Ultraviolet radiations
- it is involved in photosynthesis
- it emits light

Ans: (a)

UV is filtered by ozone layer. IR radiation (heat waves) are directed towards earth by green house gases.

11. A fruit that develops from a single flower with a syncarpous pistil is:

- Multiple fruit
- Pseudocarp
- Simple fruit
- Aggregate fruit

Ans: (c)

Multiple fruit formed from single flower and apocarpous ovary

Aggregate fruit formed from inflorescence.

12. The volume of blood that enters into the aorta with each ventricular systole is called:

- Cardiac output
- Vital capacity
- Cardiac cycle
- Stroke volume

Ans: (d)

It is 70 ml. Cardiac output – volume of blood pumped by ventricles per minute.

13. The chromosomal complement of individuals with Turner's syndrome is:

- 44A + XO
- 44A + XXY
- 44A + XX
- 44A + XY

Ans: (a)

44A + XXY – Klinefelter syndrome

44A + XX – Normal female

44A + XY – Normal male

14. Choose the mismatched pair from the following:

- Oxytocin – Contraction of uterine muscles
- Prolactin – Milk production in mammary glands
- Insulin – Gluconeogenesis
- Glucagon – Glycogenolysis

Ans: (c)

Glucagon induce gluconeogenesis

15. One of the following is not a wildlife conservation project:
a) Project Tiger b) Project Hangul c) Project Dodo d) Project Indian Bustard

Ans: (c)

Extinct bird of Mauritius island.

16. Visible expression of the genetic phenomenon of crossing over is called
a) Chiasmata b) Spiralization c) Recombination d) Condensation

Ans: (a)

17. 3'AAA TGC GCG ATA 5' is the sequence of nucleotides on a gene; after transcription the m RNA formed against it and the sequence of bases in the corresponding binding anticodon will be:

- a) 5'UUU ACC TUG UAU 3' and 3'AAA-UGG-UAC-AUA5'
b) 5'UAU GUT CCA UUU 3' and 3'AUA-CAU-GGU-AAA5'
c) 5'UUU ACG CGC UAU 3' and 3'AAA-UGC-GCG-AUA5'
d) 5'UAU CGC GCA UUU 3' and 3'AUA-GCG-CGU-AAA5'

Ans: (c)

Codon and anticodon are complementary to each other.

18. Secondary cortex is also known as:
a) Phellogen b) Bark c) Phellem d) Phelloderm

Ans: (d)

Phellem is cork. Phellogen is cork cambium.

19. Pteridophytes are called vascular cryptogams, because they are non-seeded plants containing:

- a) Only Phloem b) Neither Xylem nor Phloem
c) Xylem and Phloem d) Only Xylem

Ans: (c)

Vascular – mean having xylem and phloem tissues.

20. The enzymes which are absolutely necessary for recombinant DNA technology are:

- a) Restriction endonucleases and Ligases
b) Peptidases and Ligases
c) Restriction endonucleases and topoisomerases
d) Endonucleases and polymerases

Ans: (a)

REN to cut DNA molecules and ligases to join DNA strands.

21. Stomata on the surface of the leaf open by:

- a) weakening of the cell walls of the guard cells to allow them to stretch
b) increasing the water potential in the guard cells
c) decreasing the solute concentration in the guard cells
d) increasing the solute concentration in the guard cells

Ans: (d)

Increasing the solute concentration in the guard cells.

As the solute concentration increases, the water potential becomes less negative. Hence the cell undergoes endosmosis. This results in the turgidity and opening of stomata.

22. Read the two statements A and B identify the correct choice from these given:

Statement A: *Agrobacterium tumefaciens* is the causative agent of crown gall disease of dicots.

Statement B: *Agrobacterium tumefaciens* cause infection by entering the palnt through wounds and injuries.

- a) Both statements A and B are correct
- b) Both statements A and B are wrong
- c) Statement A is correct and B is wrong
- d) Statement B is correct and A is wrong

Ans: (a)

Both the statements A and B are correct.

23. Which of the following is the correct pathway of observed water in roots of plants?

- a) Soil water → root hair cell → pericycle → cortical cells → passage cells → xylem
- b) Soil water → root hair cell → cortical cells → passage cells → pericycle → xylem
- c) Soil water → root hair cell → cortical cells → pericycle → passage cells → xylem
- d) Soil water → root hair cell → passage cells → cortical cells → xylem → pericycle

Ans: (b)

Passage cells are the transfusion cells of the endodermis of monocot root.

24. Usually the whorl in a flower that attracts insects and protects the essential parts is:

- a) Gynoecium
- b) Corolla
- c) Calyx
- d) Androecium

Ans: (b)

The coloured petals attract the pollinating agents

25. Vein loading is the active transport of sugars from:

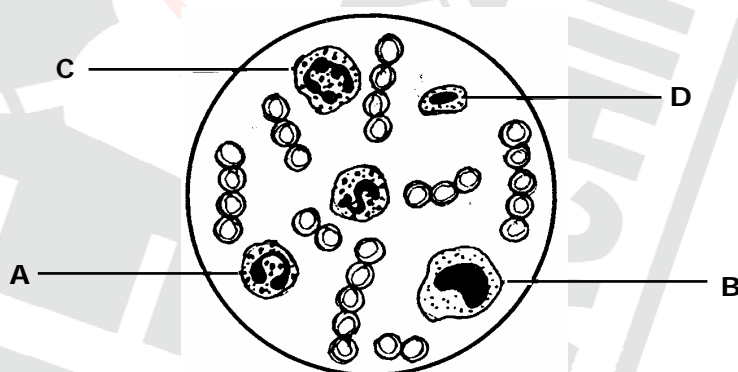
- a) Mesophyll cells to give sieve tubes
- b) Sieve tubes to mesophyll cells
- c) Mesophyll cells to vessels
- d) Vessels to mesophyll cells

Ans: (a)

Mesophyll cells to sieve tubes.

It requires H^+ ATP ase and sucrose sympoter.

26. Study the diagram given below and identify the cells labelled as A, B C and D, choose the correct option.



- a) A = Erythrocyte, B = Basophil, C = Neutrophil and D = Lymphocyte
- b) A = Eosinophil, B = Monocyte, C = Neutrophil and D = Lymphocyte
- c) A = Eosinophil, B = Erythrocyte, C = Neutrophil and D = Basophil
- d) A = Eosinophil, B = Lymphocyte, C = Neutrophil and D = Monocyte

Ans: (b)

Monocyte is the largest WBC with bean shaped nucleus. Neutrophil has nucleus with 3 or 4 lobes. Lymphocyte has spherical nucleus.

27. The sexually transmitted disease, that can affect both the male and the female genitals and may damage the eyes of babies born of infected mothers is
- a) Gonorrhoea b) Hepatitis c) AIDS d) Syphilis

Ans: (d)
Syphilis.

28. Chemiosmotic theory of ATP synthesis in the mitochondrion is based on
- a) H^+ gradient b) Na^+ gradient c) Ca^+ gradient d) K^+ gradient

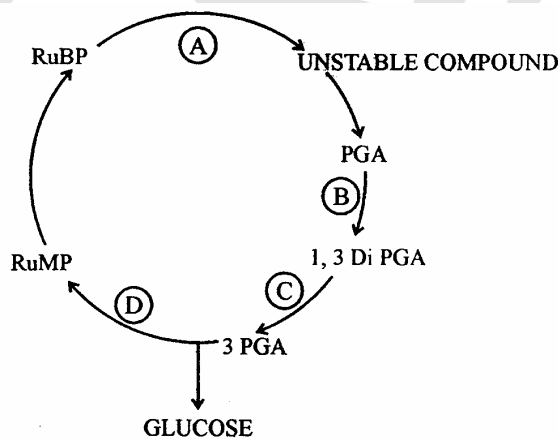
Ans: (a)
These protons move from intermembrane space to matrix through F_0F_1 particle.

29. Following are few characters of a disorder in human body
- a) inflammation of the mucous membrane of nasal passage
b) watery secretions by mucous glands
c) continuous sneezing
d) rise in body temperature
- Identify the disorder from the choices given below

- a) Bronchial carcinoma b) Emphysema
c) Bronchial asthma d) Rhinitis

Ans: (d)
Rhinitis. It is called hay fever.

30. In a condensed schematic representation of Dark reaction of photosynthesis given below, steps are indicated by alphabets. Select the option where the alphabets are correctly identified.



- a) A = CO_2 fixation, B = Phosphorylation, C = Reduction, D = Regeneration
b) A = CO_2 fixation, B = Phosphorylation, C = Regeneration, D = Reduction
c) A = CO_2 fixation, B = Reduction, C = Phosphorylation, D = Regeneration
d) A = Regeneration, B = CO_2 fixation, C = Reduction, D = Phosphorylation

Ans: (a)

31. Match the plants of economic importance given under Column I with their scientific names given under Column II and choose the correct option.

	Column I		Column II
	(Plants of Economic importance)		(Scientific names)
A	Spices	p	<i>Syzigium aromaticum</i>
B	Pulses	q	<i>Cajanus cajan</i>
C	Medicinal	r	<i>Adathoda vasica</i>
D	Cereals	s	<i>Sorghum vulgare</i>
		t	<i>Thea chinensis</i>

- a) A = t, B = r, C = q, D = p
 b) A = p, B = q, C = r, D = s
 c) A = p, B = r, C = s, D = t,
 d) A = p, B = s, C = r, D = q

Ans: (b)

32. If father shows normal genotype and mother shows a carrier trait for haemophilia:

- a) A male offspring has 50% chances of active disease
 b) Female offspring has probability of 50% to have active disease
 c) All the female offspring will be normal
 d) All the female offspring will be carriers

Ans: (a)

33. According to Best and Taylor's Theory, Which of the following does not play any role in blood clotting?

- a) Platelets b) Calcium ions c) Prothrombin d) Fibrinogen

Ans: (a)

34. Which of the following is **not** a character of cancerous tissues in our body?

- a) Metastasis b) Inability for differentiation
 c) Contact inhibition d) Neoplasia

Ans: (c)

The malignant cells have no contact inhibition.

35. Which of the following statements is **not true** for *Nostoc*?

- a) It is filamentous b) It is macroscopic
 c) It is prokaryotic d) It is autotrophic

Ans: (b)

It is microscopic

36. The system of classification of plants proposed by these two botanists is claimed to be natural system

- a) Aristotle and Theophrastus b) Darwin and Wallace
 c) Engler and Prantl d) Bentham and Hooker

Ans: (d)

(c) = Phylogenetic system.

37. Match the entries in Column I with those of Column II and choose the correct answer:

	Column I		Column II
	(Name of pollination)		(Type of pollination)
A	Cleistogamy	m	Insect pollination
B	Geitonogamy	n	Bud pollination
C	Entomophily	o	Pollination between flowers in the same plant
D	Xenogamy	p	Wind pollination
		q	Cross pollination

a) a – n; b – o; c – m; d – q

b) a – q; b – p; c – o; d – n

c) a – o; b – m; c – q; d – n

d) a – m; b – q; c – n; d – o

Ans: (a)

38. The host for *Cercospora personata* belongs to his family of angiosperms:

a) Malvaceae

b) Asclepiadaceae

c) Graminae

d) Leguminosae

Ans: (d)

Leguminosae

39. The final stage in the tissue culture programme before the new plants are taken out for cultivation in the fields is known as:

a) Caulogenesis

b) Embryogenesis

c) Micropropagation

d) Hardening

Ans: (d)

Hardening

40. An osmometer is filled with 0.5 M solution NaCl in water. In which of the following solutions it must be immersed in order to make it shrink?

a) Distilled water

b) 0.75 solution

c) 0.5 M solution

d) 0.05 solution

Ans: (b)

i.e. Hypertonic solution

41. Perishable vegetables can be maintained fresh for a longer period by spraying on them with a solution of:

a) Ethephon

b) Phenyl mercuric acetate

c) ABA

d) Cytokinin

Ans: (d)

BAP is sprayed over cabbage to retain the freshness

Cytokinin (BAP) delay senescence, promote cell division

42. The prebiotic atmosphere of the earth was of a reducing nature. It was transformed into an oxidizing atmosphere of present day due to the emergence of:

a) Photosynthetic bacteria

b) Eukaryotic algae

c) Cyanobacteria

d) Angiosperms

Ans: (c)

Carry out oxygenic photosynthesis.

43. Match the contraceptive methods given under Column – I with their examples given under Column – II. Select the correct choice from those given below:

	Column – I (Contraceptive Method)		Column – II (Examples)
A	Chemical	p	Tubectomy and vasectomy
B	IUDs	q	Copper T and Loop
C	Barriers	r	Condom and Cervical cap
D	Sterilization	s	Spermicidal Jelly and foam
		t	Coitus interruptus and calendar method

- a) A = p, B = r, C = q, D = t
 b) A = s, B = q, C = t, D = p
 c) A = s, B = q, C = r, D = p
 d) A = s, B = t, C = q, D = r

Ans: (c)

44. One of the following movements in our body is not completely involuntary. Identify it.

- a) Systole of the ventricles
 b) Dilation of pupil of the eye
 c) Deglutition
 d) Peristalsis

Ans: (c)

Initial swallowing process is voluntary.

45. This is not a GMO.

- a) Tracy
 b) Dolly
 c) Bt brinjal
 d) Golden rice

Ans: (b)

Dolly (sheep) first animal to be cloned.

46. The site of Krebs cycle is

- a) Intermembrane space of mitochondria
 b) Racker's particles
 c) Cytoplasm
 d) Mitochondrial matrix

Ans: (d)

47. Which is the cutting organ in the mouth parts of cockroach?

- a) Mandible
 b) Labrum
 c) Labium
 d) Maxillary palp

Ans: (a)

Chitinous jaw (mandible) helps in cutting the food.

48. If this enzyme were to be absent in our small intestine, digestion of proteins in our body would be severely affected.

- a) Lipase
 b) Enterokinase
 c) Pancreatic amylase
 d) Maltase

Ans: (b)

Enterokinase act as activating enzyme convert Trypsinogen into trypsin.

49. The frequency of heart beat in our body is maintained by:

- a) Node of Ranvier
 b) Chordae tendinae
 c) AV Node
 d) SA Node

Ans: (d)

SA node is called pace maker, establish basic frequency in which heart beats.

50. Hypothalamus of the brain is not involved in this function:

- a) Temperature control
 b) Accuracy of muscular movement
 c) Sleep-wake cycle
 d) Osmoregulation & Thirst

Ans: (b)

Accuracy of muscular movement controlled by cerebellum

51. The Hardy-Weinberg principle cannot operate if
- the population has no chance of interaction with other populations
 - free interbreeding occurs among all members of the population
 - the population is very large
 - frequent mutations occur in the population

Ans: (d)

Frequent mutations result in genetic drift

52. The adult animal in this phylum is radially symmetrical; but its larva exhibits bilateral symmetry:
- Arthropoda
 - Protozoa
 - Echinodermata
 - Coelenterata

Ans: (c)

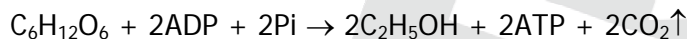
53. Identify the sense codon from the following:

- UAG
- UAA
- UGA
- AUG

Ans: (d)

AUG act as initiator codon and UAG, UAA, UGA nonsense codon.

54. Select a suitable name for this process:



- Lactate fermentation
- Aerobic respiration
- Alcoholic fermentation
- Photorespiration

Ans: (c)

Sugar is broken down partially into alcohol and CO₂ is evolved.

55. The condition of erythroblastosis foetalis occurs only when
- the mother is Rh⁺ and the foetus is Rh⁻
 - the mother is Rh⁻ and the foetus is Rh⁺
 - the husband is Rh⁺ and wife is Rh⁻
 - the husband is Rh⁻ and wife is Rh⁺

Ans: (b)

56. This is a nonbiodegradable pollutant:

- Oxides of nitrogen
- Lead vapour
- Sewage
- Sulphur dioxide

Ans: (b)

Lead is heavy metal and nonbiodegradable.

57. The time for optimum chances of conception in a woman is starting from the day of menstruation.

- 14th day
- 26th day
- 1st day
- 4th day

Ans: (a)

14th day of menstrual cycle, ovulation takes place.

58. The fourth cleavage plane during development of frog's egg is

- Single latitudinal
- Double latitudinal
- Double meridional
- Single meridional

Ans: (c)

Two vertical divisions take place simultaneously.

59. Which of the following parts of the vertebrate body arises from the mesoderm?

- Epidermis
- Lens of the eye
- Spinal cord
- Bony skeleton

Ans: (d)

Epidermis, lens of eye, spinal cord is ectodermal in origin.

60. Point out the correct method of showing scientific name of coconut palm derived by binomial nomenclature:

- cocos Nucifera*
- cocos nucifera*
- Cocos nucifera*
- Cocos Nucifera*

Ans: (c)