



# BIOLOGY

## AIIMS PREVIOUS YEAR PAPERS

### ENGLISH

#### AIIMS 2017

#### Biology

1. Match column I with column II and choose the correct option.

Column-I	Column-II
A. Family	I. <i>tuberosum</i>
B. Kingdom	II. Polymoniales
C. Order	III. <i>Solanum</i>
D. Species	IV. Plantae
E. Genus	V. Solanaceae

A. A –IV, B –III, C – V, D – II, E –I

B. A –V, B –IV, C –II, D – I, E – III

C. A –IV, B – V, C – II, D – I, E – III

D. A –V, B –III, C – II, D – I, E – IV

**Answer: B**



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2. Consider the following statements regarding the major pigments and stored food in the different groups of algae and select the correct options given.

(a) In Chlorophyceae, the stored food material is starch and the major pigments are chlorophyll-a and chlorophyll-b.

(b) In Phaeophyceae, laminarin is the stored food and major pigments are chlorophyll-a and chlorophyll-b.

(d) In Rhodophyceae, floridean starch is the

stored food and the major pigments are chlorophyll-a, chlorophyll-d, and phycoerythrin.

A. (i) is correct, but (ii) and (iii) are incorrect

B. (i) and (ii) are correct, but (iii) is incorrect

C. (i) and (iii) are correct, but (ii) is incorrect

D. (iii) is correct, but (i) and (ii) are incorrect

**Answer: D**



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**3.** Column-I contains organisms and column-II contains their excretory structures. Choose the correct match from the options given below.

<b>Column-I (Organism) structures)</b>	<b>Column-II (Excretory</b>
A. Cockroach	I. Nephridia
B. Cat fish	II. Malpighian tubules
C. Earthworm	III. Kidneys
D. <i>Balanoglossus</i>	IV. Flame cells
E. Flatworm	V. Proboscis gland

A. A – I, B – III, C – II, D – IV, E – V

B. A – III, B – I, C – II, D – V, E – IV

C. A – II, B – I, C – III, D – V, E – IV

D. A – II, B – III, C – I, D – V, E – IV

**Answer: D**



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**4. Assertion :** In a DNA molecule, A-T rich parts melt before G-C rich parts.

**Reason :** In between A and T there are three H-

bond, whereas in between G and C there are two H-bonds

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct, reason is not a correct explanation for assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: C**



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5. Nucleotides are building blocks of nucleic acids. Each nucleotide is a composite molecule formed by

- A. base-sugar-phosphate.
- B. base-sugar-OH.
- C.  $(\text{base-sugar-phosphate})_n$
- D. sugar-phosphate.



**Answer: A**



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**6. Match the description (given in column I) with correct stage of prophase I (given column**

II) and choose the correct option.

Column I		Column II	
A.	Chromosomes are moved to spindle equator	I.	Pachytene
B.	Centromere splits and chromatids move apart	II.	Zygotene
C.	Pairing between homologous chromosomes takes place	III.	Anaphase
D.	Crossing between homologous chromosomes	IV.	Metaphase

A. A – I, B – II, C – III, D – IV

B. A – II, B – III, C – IV, D – I

C. A – IV, B – III, C – II, D – I

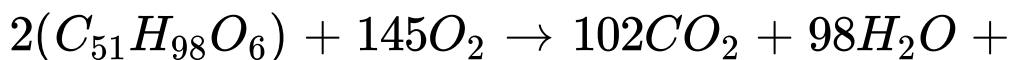
D. A – III, B – I, C – IV, D – II

**Answer: C**



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7. Refer the given equation.



Energy The RQ in this case is

A. 1

B. 0.7

C. 1.45

D. 1.62

**Answer: B**



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**8. Assertion:** Water and electrolytes are almost fully absorbed in the large intestine.

**Reason:** In large intestine, haustral contraction (slow segmenting movements)

roll the forming faeces over and over, causing absorption of water and electrolytes.

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct, reason is not a correct explanation for assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: A**



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**9. Assertion :** A cerebellum is related with skillful voluntary movement and involuntary activity like body balance, equilibrium etc.

**Reason :** It is part of hind brain and it is situated behind the pons.

A. Assertion is correct, reason is correct,  
reason is a correct explanation for

assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: B**



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**10.** In a practical test, a student has to identify the organisms in which syngamy does not occur. In those organisms the female gamete undergoes development to form new organisms without fertilization. This phenomenon is called "X". Identify the organisms and the phenomenon "X".

A. Frog, Parthenogenesis

B. Lizards, Gametogenesis

C. Rotifers, Embryogenesis



## D. Honeybee, Parthenogenesis

**Answer: D**



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**11. Assertion :** Endosperm is a nutritive tissue and it is triploid

**Reason :** Endosperm is formed by fusion of secondary nucleus to second male gamete. It is used by developing embryo for nutrition.

A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

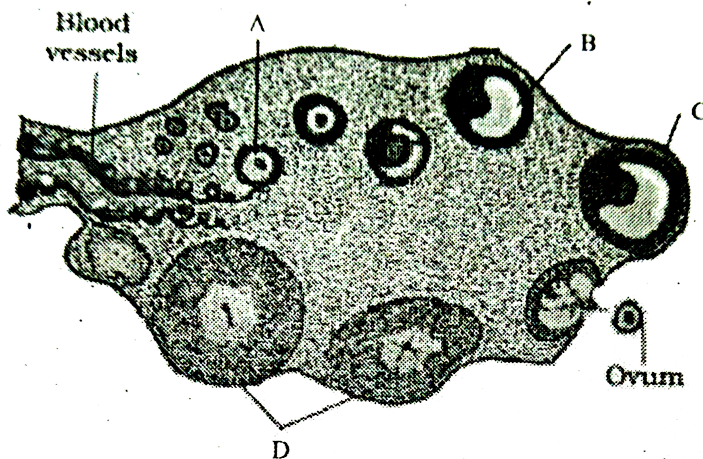
D. Assertion is incorrect, reason is correct.

**Answer: A**



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12. The figure given below shows the sectional view of ovary. Select the option which gives correct identification of marked structure (A to D) and its feature



A. A: Primary follicle, it is also called gamete mother cell.

B. B: Corpus luteum, it cannot be formed and added after birth.

C. C: Graafian follicle, mature follicle which ruptures to release secondary oocyte

D. D: Tertiary follicle, a large number of this follicle degenerates during the phase from birth to puberty.

**Answer: C**



**13.** Select the correct match of the techniques given in column I with its feature given in column II.

	Column I		Column II
A.	ICSI	I	Artificially introduction of semen into the vagina or uterus.
B.	IUI	II	Transfer of ovum collected from a donor into the fallopian tube where fertilization occur
C.	IUT	III	Formation of embryo by directly injecting sperm into the
D.	GIFT	IV	Transfer of the zygote or early embryo (with upto 8 blastomeres) into a fallopian tube.
E.	ZIFT	V	Transfer of embryo with more

A. A – V, B – IV, C – I, D – III, E – IV

B. A – I, B – II, C – III, D – IV, E – V

C. A – III, B – V, C – II, D – IV, E – I

D. A – III, B – I, C – V, D – II, E – IV

**Answer: D**



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**14.** Assertion: In humans, the gamete contributed by male determines whether the child produced will be male or female.

Reason: Sex in humans is polygenic trait depending upon a cumulative effect of some genes on X-chromosome and some on Y-chromosome.

a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

c) If Assertion is true but the Reason is false.

d) If both Assertion and Reason are false.

A. Assertion is correct, reason is correct, reason is a correct explanation for

assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: C**



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**15. [A]:** Replication and transcription occur in the nucleus but translation occurs in the cytoplasm.

**[R]:** mRNA is transferred from the nucleus in the cytoplasm where ribosomes and amino acids are available for protein synthesis.

A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

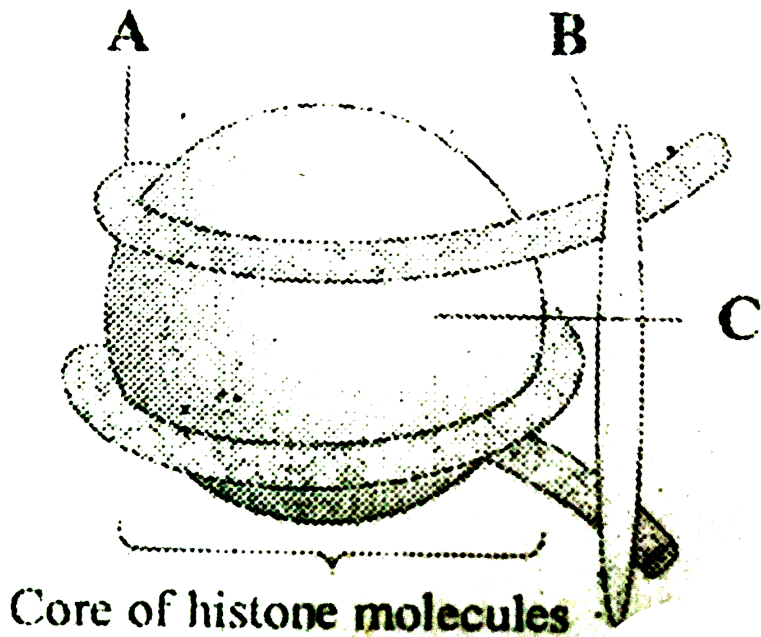
D. Assertion is incorrect, reason is correct.

**Answer: A**



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16. The given figure shows the structure of nucleosome with their parts labelled as A, B & C. Identify A, B and C.



A. A- DNA, B-  $H_1$  histone, C - Histone octamer

B.  $A-H_1$  histone, B – DNA, C – Histone octamer

C. A – Histone octamer, B – RNA,  $C-H_1$  histone

D. A – RNA,  $B-H_1$  histone, C – Histone octamer

**Answer: A**



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17. Match the codons given in column I with their respective amino acids given in column II and choose the correct answer.

Column -I (Codons)		Column -II (Amino acids)	
A	UUU	I.	Serine
B	GGG	II.	Methionine
C	UCU	III.	Phenylalanine
D	CCC	IV.	Glycine

A. A – III, B – IV, C – I, D – V, E – II

B. A – III, B – I, C – IV, D – V, E – II

C. A – III, B – IV, C – V, D – I, E – II

D. A – II, B – IV, C – I, D – V, E – III

**Answer: A**



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**18.** According to Hardy-Weinberg principle, allele and genotype frequencies in a population will remain constant from generation to generation in the absence of other evolutionary influences. It makes several assumptions which were given below.

- i. Random Mating
- ii. Sexual Reproduction

iii. Non-overlapping Generations

iv. Occurrence of Natural Selection

v. Small size of population.

Identify two assumptions which do not meet for a population to reach Hardy-Weinberg Equilibrium?

A. iv and v

B. ii and iv

C. iii, iv and v

D. i, ii and iii

**Answer: A**



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**19. Assertion :** In plant tissue culture, somatic embryos can be induced from any plant cell.

**reason :** Any viable plant cell can differentiate into somatic embryos.

A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.



B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: A**



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**20. Assertion:** Protoplast fusion is one of the major advantages of tissue culture

**Reason:** The naked protoplasts of two different plants fuse to form a hybrid.

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct, reason is not a correct explanation for assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: B**



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**21.** Which one of the following statement regarding BOD is true?

A. The greater the BOD of waste water, more is its polluting potential.

B. The greater the BOD of waste water, less is its polluting potential

C. The lesser the BOD of waste water, more is its polluting potential.

D. The lesser the BOD of waste water, less is its polluting potential.

**Answer: A**



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**22.** Biodiversity loss occurs due to

(i) habitat loss and fragmentation

(ii) co-extinction

(iii) over-exploitation

(iv) alien species invasion.

(a) (i) and (ii)

(b) (i), (ii) and (iii)

(c) (ii), (iii) and (iv)

(d) (i), (ii), (iii) and (iv)

A. (i) and (ii)

B. (i), (ii) and (iii)

C. (ii), (iii) and (iv)

D. (i), (ii), (iii) and (iv)

**Answer: D**



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**23. Assertion:** Communities that comprise of more species tend to be more stable.

**Reason:** A higher number of species results in less annual variation in total biomass.

A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: A**



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**24.** Euro-II norms stipulate that sulphur should be controlled at

A. 350, 150

B. 150, 350

C. 350, 250

D. 150, 250

**Answer: A**



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**25.** Assertion: Eutrophication shows increase in productivity in water.

Reason: With increasing eutrophication, the diversity of the phytoplankton increases

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct, reason is not a correct explanation for assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: B**



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**26. [A] :** In a food chain , membrane of successive higher levels are fewer in number .

**[R] :** Number of organisms at any trophic level depends upon the availability of organisms which serve as food at the lower level .

A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: D**



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**27. Assertion :** Species are groups of potentially interbreeding natural populations which are isolated from other such groups.

**Reason :** Distinctive morphological characters are displayed due to reproductive isolation.

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: B**



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**28.** Assertion: Insertion of recombinant DNA within the coding sequence of  $\beta$  – galactosidase results in colourless colonies.

Reason : Presence of insert results in inactivation of enzyme  $\beta$  – galactosidase known as insertional inactivation

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: A**



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**29. Assertion :** Artificially acquired passive immunity results when antibodies or lymphocytes produced outside the host are introduced into a host.

**Reason :** A bone marrow transplant given to a patient with genetic immunodeficiency is an example of artificially acquired active immunity.

A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.



B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: B**



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**30. Assertion :** Inflammation of a skeletal joint may immobilize the movements of the joint.

Reason : Uric acid crystals in the joint cavity and ossification of articular cartilage lead to this.

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct, reason is not a correct explanation for

assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: A**



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**31. Assertion :** Auxins help to prevent fruits and leaves droop at early stages.

**Reason :** Auxins promote the abscission of older mature leaves and fruits.

A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: B**



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**32. Assertion:** The squamous epithelium is made of a single thin layer of flattened cells with irregular boundaries.

**Reason:** They are found in walls of blood vessels and air sacs of wings.

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: B**



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**33.** Assertion: Ambulacral system plays a major role in locomotion of echinoderm.

Reason: Hydraulic pressure of fluid and contraction of muscle of tube feet make possible movement of echinoderm.

A. Assertion is correct, reason is correct, reason is a correct explanation for assertion.

B. Assertion is correct, reason is correct, reason is not a correct explanation for

assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: A**



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**34.** Assertion: TMV is a virus which causes mosaic disease.

Reason: TMV has RNA as genetic material.



A. Assertion is correct, reason is correct,  
reason is a correct explanation for  
assertion.

B. Assertion is correct, reason is correct,  
reason is not a correct explanation for  
assertion

C. Assertion is correct, reason is incorrect

D. Assertion is incorrect, reason is correct.

**Answer: A**



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**35.** Which of the following is a modified stem for the protection of plants from browsing animals?

A. Tendrils

B. Thorns

C. Rhizome

D. Tuber

**Answer: B**



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**36.** Which of the following was most similar to modern man ?

A. Java man

B. Neanderthal man

C. Homo habilis

D. Cro-Magnon man

**Answer: D**



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**37.** Explant is required to be disinfected before placing in culture. This is done by

- A. autoclaving
- B. ultra-violet rays
- C. clorax or hypochlorite
- D. X-rays

**Answer: C**



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**38.** Which one of the following is a viral disease of poultry?

A. Anthrax

B. Ranikhet

C. Coccidiosis

D. None of these

**Answer: B**



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**39.** The free-living fungus *Trichoderma* can be used for

- A. killing insects
- B. biological control of plant diseases
- C. controlling butterfly caterp
- D. producing antibiotics

**Answer: B**



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**40.** Arrange the following ecosystems in increasing order of their mean NPP (tons/ha/year).

(A) Tropical deciduous forest

(B) Temperate coniferous forest

(C ) Tropical rainforest

(D) Temperate deciduous forest

A.  $B > A > D > C$

B.  $D > B > A > C$

C.  $A > C > D > B$

$$D. B > D > A > C$$

**Answer: D**



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**41.** Fungi are filamentous with the exception of X which is unicellular. Identify X.

A. Yeast

B. Albugo

C. Mucor



D. Mucor

**Answer: A**



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**42.** Which of the following statements is not correct for viruses ?

A. Viruses are obligate parasites

B. Viruses can multiply only when they are inside the living cells.

C. Viruses cannot pass through bacterial filters.

D. Viruses are made up of protein and DNA or RNA (never both DNA and RNA).

**Answer: C**



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**43.** Which of the following statements about cyanobacteria is incorrect ?

- A. It is also called blue green algae.
- B. They are chemosynthetic autotrophs.
- C. It forms blooms in polluted water bodies
- D. It is unicellular, colonial or filamentous,  
marine or terrestrial bacteria.

**Answer: B**



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**44.** Leaf of dicotyledonous plants possess .... Venation, while .... Venation is the characteristic of most monocotyledons.

- A. reticulate and parallel
- B. parallel and reticulate
- C. reticulate and perpendicular
- D. obliquely and parallel

**Answer: A**



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**45.** A condition where the protoxylem lies towards periphery and metaxylem lies towards the centre is

- A. centre, periphery
- B. periphery, centre
- C. periphery, periphery
- D. centre, centre

**Answer: A**



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**46.** A female cockroach can be differentiated from a male cockroach, due to the presence of :

- A. long antennae
- B. wingless body
- C. elongated abdomen
- D. anal styles

**Answer: D**



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**47.** The sensory papillae in frogs are associated with

A. smell

B. hearing

C. respiration

D. touch

**Answer: D**



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**48.** In earthworm setae are present in all segments except

- A. first and the last segments
- B. first segment and the clitellum
- C. first segment
- D. clitellum and last segments

**Answer: D**



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**49.** Which of the following statements is/are incorrect?

(i) Water and minerals, and food are generally moved by a mass or bulk flow system.

(ii) Bulk flow can be achieved either through a positive hydrostatic pressure gradient or a negative hydrostatic pressure gradient.

(iii) The bulk movement of substances through the conducting tissues of plants is called translocation.

(iv) Xylem translocates organic and inorganic solutes, mainly from roots to the aerial parts

of the plants.

(v) Phloem translocates water, mineral salts, some organic nitrogen and hormones, from the leaves to other parts of the plants.

A. (ii), (iii) and (v)

B. (ii), (iii) and (iv)

C. (iv) and (v)

D. (ii) and (v)

**Answer: C**



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50. In alcoholic fermentation,  $NAD^+$  is produced during the

A. reduction of acetyldehyde to ethanol.

B. oxidation of glucose.

C. oxidation of glucose.

D. hydrolysis of ATP to ADP.

**Answer: A**



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51. Which of the following statement is true ?

- A. Pepsin cannot digest casein.
- B. Trypsin can digest collagen.
- C. Pepsin cannot digest collagen.
- D. Chymotrypsin can digest casein.

**Answer: D**



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**52.** AIDS contains or Human immuno deficiency (HIV) virus has protein coat and genetic material which is

- A. Single stranded DNA.
- B. Single stranded RNA.
- C. Double stranded RNA.
- D. Double stranded DNA

**Answer: B**



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**53.** Which one of the following pairs of diseases is viral as well as transmitted by mosquitoes?

- A. Elephantiasis and dengue
- B. Yellow fever and sleeping sickness
- C. Encephalitis and sleeping sickness
- D. Yellow fever and dengue

**Answer: D**



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**54.** Which variety of rice was patented by a U.S. company even though the highest number of varieties of this rice are found in India ?

A. Sharbati Sonara

B. Co-667

C. Basmati

D. Lerma Roja

**Answer: C**



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**55.** Which of the following hormone acts upon the renal tubule and blood capillaries?

A. Glucagon

B. Aldosterone

C. Vasopressin

D. Glucocorticoids

**Answer: C**



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