

1. In 'Lac Operon' concept, the structural genes (z , y and a) will code for the following enzymes respectively:

- A) β -galactosidase; lipase; transacetylase
- B) β -galactosidase; carboxylase; transacetylase
- C) β -galactosidase; permease; transacetylase
- D) β -galactosidase; permease; acetylase

2. Thorns of Bougainvillea and tendrils of Cucurbita represent which type of examples?

- A) Homologous organs
- B) Analogous organs
- C) Vestigial organs
- D) None of these

3. In β globin chain of haemoglobin of an individual, if the six amino acid composition Glutamic acid (Glu) is replaced by Valine (Val), then the individual will be suffering from:

- A) Albinism
- B) Haemophilia
- C) Sickle-cell anaemia
- D) Phenylketonuria

4. First transgenic cow 'Rosie' produced which type of human-protein enriched milk?

- A) Casein
- B) Alpha-lactalbumin
- C) Pacasein
- D) Albumin

5. Which of the following interspecific interaction is represented by (+,0) ?

- A) Mutualism
- B) Commensalism
- C) Amensalism
- D) Competition

6. In relative contribution of various greenhouse gases to total global warming which gas is having 14% contribution?

- A) N₂O
- B) CFC
- C) Methane
- D) CO₂

7. Match the column I with column II and write the correct option.

Column-I

i) Cellular barrier

ii) Physiological barrier

iii) Cytokine barrier

iv) Physical barrier Column-II (p) Saliva in the mouth (q) Interferons (r) Natural killer (type of lymphocyte) (s) Mucus coating of the respiratory tract

- A) (i - r), (ii - q), (iii - s), (iv - p)
- B) (i - r), (ii - p), (iii - q), (iv - s)
- C) (i - p), (ii - s), (iii - r), (iv - q)
- D) (i - p), (ii - q), (iii - s), (iv - r)

8. Identify the palindromic sequence from the following:

- A) 5'- GAATTC - 3'
- B) 5' - GAATTC - 3; 3' - CTTAAG - 5' 3' - CUUAAG - 5'
- C) 5' - TCATCA - 3'
- D) 5'- TACCAT - 3' 3' - AGTAGT - 5' 3' - ATGGTA - 5'

9. What will be the percentage of affected son, whose father is colour-blind and mother is normal?

- A) 0%
- B) 50%
- C) 25%
- D) 100%

10. Which part of the fallopian tube is close to ovary?

- A) Infundibulum
- B) Isthmus

C) Ampulla

D) Fimbriae

11. Which of the following match pair is the correct one?

A) Hydra: Pseudopodiospores

B) Amoeba: Gemmules

C) Sponges: Zoospores

D) Penicillium: Conidia

12. Isogametes are found in:

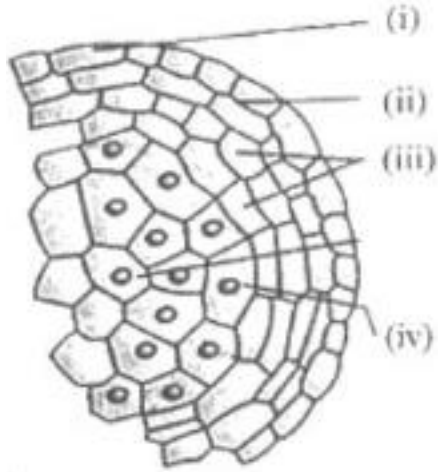
A) Fucus

B) Homo-sapiens

C) Cladophora

D) None of the above

13. Which of the following is the correct option for the figure given below?



iii) Middle layer (iv) Tapetum

iii) Endothecium (iv) Tapetum

C) (i) Tapetum (ii) Middle layer

iii) Endothecium (iv) Epidermis

A) (i) Epidermis (ii) Endothecium

B) (i) Epidermis (ii) Middle layer

D) (i) Epidermis (ii) Tapetum

C) Middle layer (iv) Endothecium

14. is the region on which, the ovule is connected to funicle.

A) Chalaza

B) Hilum

C) Micropylar region

D) Nucellus

15. Statement- ' X ' : Apomixis is seen in few flowering plant such as some species of Asteraceae and grasses.

Statement - ' Y ' : Apomixis is a form of asexual reproduction that mimics sexual reproduction.

Statement - ' Z ' : In some species of apomictic seeds, the diploid egg cell is formed without reduction division.

Choose the correct option:

A) ' X ' & ' Y ' are correct and ' Z ' is incorrect.

B) ' X ' is correct and ' Y ' & ' Z ' are incorrect.

C) ' X ' is incorrect and ' Y ' & ' Z ' are correct

D) All the above X, Y and Z statements are correct

16. Which of the following pathway is correct for the transport of spermatozoa?

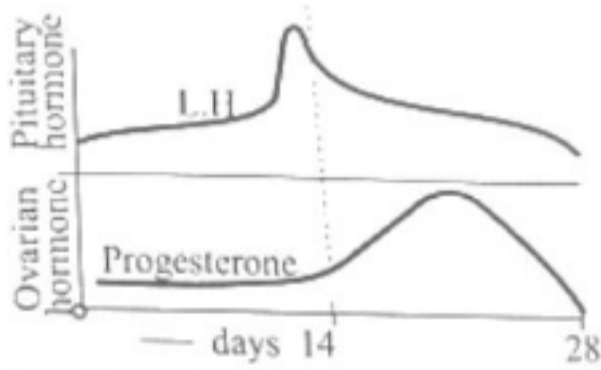
A) From seminiferous tubules to → rete testis → vasa efferentia → Epididymis.

B) From seminiferous tubules to → vas deferens → vasa efferentia → rete testis

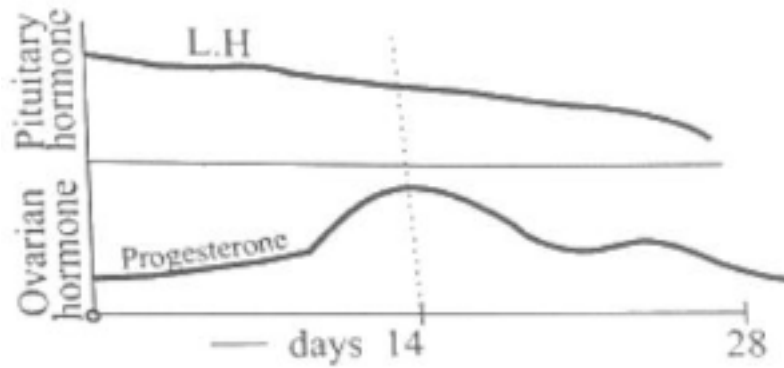
(C) From seminiferous tubules to → vasa efferentia → rete testis → vas deferens

D) From seminiferous tubules to → rete testis → vas deferens → vasa efferentia

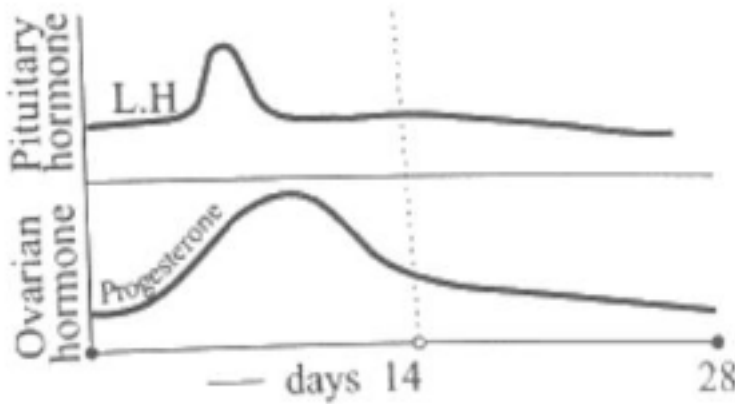
17. Which is the correct graphical representation option of the pituitary hormone and ovarian hormone in menstrual cycle?



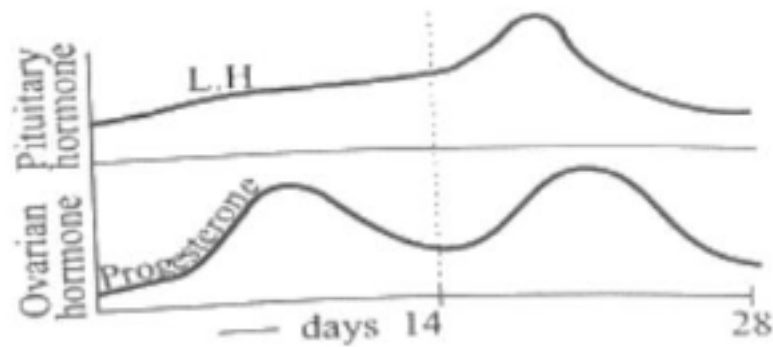
A) (A)



B) (B)



C) (C)



D) (D)

18. Foetus develop its limbs and digits in during embryonic development.

A) Four weeks

- B) Eight weeks
- C) Twelve weeks
- D) Two weeks

19. Multiload 375 is ..type of IUDs.

- A) Non-medicated
- B) Hormone releasing
- C) Cu releasing
- D) Mg releasing

20. is natural category of contraceptive method:

- A) Sterilisation
- B) Coitus interruptus
- C) Consuming pills
- D) Using Condoms

21. Yellowish fluid 'colostrum' secreted by mother during the initial days of lactation, is an example of:

- A) Passive immunity
- B) Auto immunity
- C) Active immunity
- D) Cell-mediated immunity

22. Match the following:

Column-I

Column-II

i) Papaver somniferum (p) Marijuana

ii) Cannabis sativa (q) Cocaine

iii) Erythroxyllum coca (r) Hallucinogenic properties

iv) Datura (s) Opioids Choose the right option showing the correct match

A) (i - s), (ii - p), (iii - q), (iv - r)

B) (i - q), (ii - r), (iii - s), (iv - p)

C) (i - p), (ii - q), (iii - r), (iv - s)

D) (i - r), (ii - s), (iii - p), (iv - q)

23. A person is suffering from chronic inflammation of lymphatic vessels of lower limbs and gross deformities of genital organs. Identify the disease, the person is suffering from:

A) Amoebiasis

B) Ascariasis

C) Filariasis

D) Malaria

24. Pusa Swarnim is X type of plant variety which is resistance to Y disease.

A) X - Wheat Y - Black rot

B) X - Brassica Y - White rust

C) X - Cauliflower Y - Leaf curl

D) X - Cowpea Y - Bacterial blight

25. Choose the correct option for X, Y and Z.

Crop	Variety	Insect Pests
(i) Rape seed Mustard	Pusa Gaurav	<u>Z</u>
(ii) <u>X</u>	Pusa Sem 2	Jassids
(iii) Okra	<u>Y</u>	Shoot borer

A) X-flat bean Y -Pusa A-4 Z-Aphids

B) X-Brassica Y-Pusa A-4 Z-Shoot borer

C) X-flat bean Y-Pusa Sem 3 Z-Fruit borer

D) X-Brassica Y-Pusa Sawani Z-Fruit borer

27. Choose the correct option for the statements for Mycorrhiza:

i) It absorbs phosphorus from soli.

ii) It forms root nodules with the association of Rhizobium

iii) They are resistance to root-borne pathogens, tolerance to salinity & drought.

iv) They fix atmospheric nitrogen.

A) (i) and (ii)

B) (i) and (iii)

C) (i), (ii) and (iii)

D) (ii) and (iv)

28. In recombinant DNA technology, which dye is used to stain the separated DNA fragments which can be visualised by exposure to UV radiation.

A) Ethidium bromide

B) Safranin

C) Leishman's stain

D) Acetocarmine

29. 'Meloidogyne incognita' infects the root of which plant and causes a great reduction in yield

A) Tomato

B) Corn

C) Cotton

D) Tobacco

30. Which of the following statement is incorrect for 'Genetically Modified plants'?

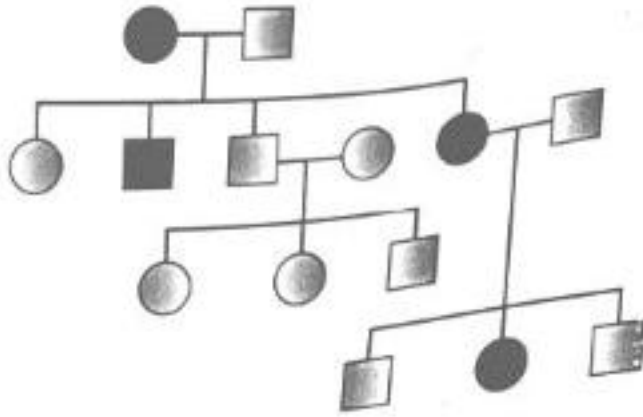
A) Increase the reliance on chemical pesticides

B) Enhanced nutritional value of food

C) Increase efficiency of mineral uses by plants

D) Made crops more tolerant to abiotic stresses (cold, drought, salt, heat)

31. Choose the correct option for the pedigree analysis given below:



- A) Autosomal dominant pedigree
- B) Autosomal recessive pedigree
- C) 'X'-linked dominant pedigree
- D) 'X'-linked recessive pedigree

32. In 'Mendel' dihybrid cross, which of the following result was obtained in F_2 generation?

- A) 9: 3: 3: 1 → genotype
- B) 1: 1: 1: 1 → genotype
- C) 9: 3: 3: 1 → phenotype
- D) 1: 1: 1: 1 → phenotype

33. Which kind of inheritance is show by human blood group?

- i) Incomplete dominance
 - ii) Co-dominance
 - iii) Multiple allele
 - iv) Pleiotropy
- A) (i) and (ii)
 - B) (ii) and (iv)
 - C) (ii) and (iii)
 - D) (iii) and (iv)

34. 'Central dogma' was proposed by X and these are the processes Y, Z comes in it respectively. Choose the correct option.

- A) X - Watson & Crick Y - transformation Z - replication
- B) X - Francis Crick Y - transcription Z - translation
- C) X - Frederick Griffith Y - transformation Z - transcription
- D) X - Hershey & Chase Y - replication Z - translation

35. Which was having lowest brain capacity during human evolution?

- A) Neanderthal man
- B) Homo sapiens
- C) Homo habilis
- D) Homo erectus

36. Through 'electrostatic precipitator' which of the following matter is removed?

- A) Particulate
- B) Gaseous
- C) Liquids
- D) None of the above

37. Which of the following is called the "Terror of Bengal"?

- A) Carrot grass
- B) Bloom-forming algae
- C) Lantana
- D) Water hyacinth

38. The largely tropical Amazonian rain forest in South America has numbers of bird species.

- A) 3000
- B) 427
- C) 1300
- D) 378

39. Bacterial and fungal enzymes degrade detritus into simpler inorganic substances. This process is called as

- A) Catabolism
- B) Mineralisation

C) Humification

D) Fragmentation

40. Verhulst - Pearl Logistic Growth is described by the following equation:

A) $dN/dt = rN$

B) $dN/dt = rN \left(\frac{K-N}{K} \right)$

C) $dt/dN = rN \left(\frac{K}{K-N} \right)$

D) $dN/dt = rN \left(\frac{K+N}{K} \right)$