

Paper II

Section Biology

1. Three of the four answers listed below produce portions of the seminal fluid. Select the exception.
 - a. bulbourethral gland
 - b. prostate
 - c. seminal vesicle
 - d. epididymis

2. All but which of the following hormones are in some way responsible for the production of sperm?
 - a. luteinizing hormone
 - b. follicle-stimulating hormone
 - c. gonadotropic releasing hormone
 - d. human chorionic gonadotropin
 - e. testosterone

3. Menstrual flow begins in response to
 - a. falling levels of estrogen.
 - b. rising levels of FSH and LH.
 - c. falling levels of progesterone.
 - d. falling levels of estrogen and progesterone.

4. Using your knowledge of the feedback loops of human female hormones, which of the following would you predict is the result of high levels of estrogen and progesterone in the blood?
 - a. absence of monthly ovulation
 - b. increased levels of LH
 - c. increased secretion of FSH
 - d. lack of growth of the corpus luteum

5. The passageway that channels ova from the ovary into the uterus is known as
 - a. a vagina.
 - b. a uterus.
 - c. an oviduct.
 - d. an endometrium.
 - e. all of these

6. What provides fructose to the semen in order to provide energy for ejaculated sperm?
 - a. the prostate gland
 - b. the ductus deferens
 - c. the bulbourethral gland
 - d. the seminal vesicles

7. The gray crescent is
 - a. formed where the sperm penetrates the egg.
 - b. the point where the first cleavage occurs.
 - c. formed opposite from where the sperm enters the egg.

- d. the portion of the egg where the yolk is found.
- e. located next to the dorsal lip of the blastopore.

8. In the process of blastula formation,

- a. the number of cells increases.
- b. the size of individual cells decreases, the number of cells increases, and the total amount of cytoplasm remains about the same.
- c. the total amount of cytoplasm remains about the same.
- d. only the size of individual cells decreases, and the number of cells increases.
- e. the size of individual cells decreases.

9. Ovulation is triggered by

- a. high levels of chorionic gonadotropin.
- b. high levels of progesterone.
- c. low levels of LH.
- d. high levels of LH.
- e. high levels of estrogen.

10. During human development, which of the following gives rise to the embryo?

- a. trophoblast
- b. placenta
- c. chorion
- d. amnion
- e. embryonic disk

11. FSH and LH are secreted by the

- a. ovaries.
- b. testes.
- c. uterus.
- d. hypothalamus.
- e. anterior pituitary.

12. Testosterone

- a. is responsible for the development of the male genitalia.
- b. stimulates sperm production.
- c. promotes the normal development and maintenance of sexual behavior.
- d. is responsible for secondary sexual characteristics.
- e. all of these

13. Which cells provide nourishment for developing sperm cells?

- a. Leydig cells
- b. germ cells
- c. Sertoli cells
- d. all of the above

14. The embryo is recognizable as human and is called a fetus by which week of pregnancy?
- twelfth
 - eighth
 - twenty-fourth
 - twentieth
 - sixteenth

15. Where in the sperm are the mitochondria located?
- the head
 - the acrosome
 - the tail
 - the mid piece

16. Which of the following is the most effective contraceptive approach of those listed?
- withdrawal
 - cheap condoms
 - diaphragm
 - rhythm method

17. The secretions of the interstitial cells (Leydig cells) eventually pass into the
- semen and vagina, only
 - vagina.
 - semen.
 - semen, vagina, and blood.
 - blood.

18. Which of the following cells are diploid?
- primary spermatocytes
 - spermatids
 - both primary spermatocytes and spermatogonia
 - secondary spermatocytes
 - spermatogonia

19. Shortly before menstruation:
- blood levels of FSH stabilize.
 - blood levels of estrogen and progesterone increase.
 - the corpus luteum secretes progesterone.
 - blood levels of estrogen and progesterone decrease.
 - none of the above occur.

20. Which of the following statements is false?
- Ovulation occurs when the follicle ruptures and releases an egg.
 - Implantation occurs about 36 hours after fertilization.
 - The blastocyst implants in the endometrial lining of the uterus.
 - Fertilization occurs in the upper regions of the oviduct.

e. Cleavage occurs when the zygote divides.

21. The germ layers are formed in which of the following stages?

- a. gastrula
- b. morula
- c. blastula
- d. zygote
- e. cleavage

22. Totipotent cell refers to

- (a) An undifferentiated cells capable of developing into complete embryo
- (b) An undifferentiated cell capable of developing into an organ
- (c) An undifferentiated cell capable of developing into a system or entire plant
- (d) Cells which lack the capability of differentiating into an organ or system

23. By tissue culture, indefinite number of plants from a small amount of parental tissue can be obtained. This technique is of great economic importance as

- (a) New species can be generated
- (b) Through somaclonal variation, a large number of variants can be isolated
- (c) It is a useful method to multiply genetically uniform population of elite species
- (d) Homozygous diploids can be obtained

24. The anther wall consists of four wall layers where

- (a) Endothecium lies inner to middle layers
- (b) Tapetum lies just inner to endothecium
- (c) Tapetum lies next to epidermis
- (d) Middle layers lie between endothecium and tapetum

The questions given below consist of two statements each, printed as Assertion and Reason. While answering these questions you are required to choose any one of the following four responses.

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

B. If both Assertion and Reason are true but Reason is not a correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

25. Assertion: Dichogamy refers to maturation of male and female sex organs at different times.

Reason: This is a safeguard against cross-pollination.

A B C D

26. Assertion: Some fruits are seedless or contain empty or non viable seeds.

Reason: They are produced without fertilization.

A B C D

27. Assertion: Meiosis and sexual fusion are essential in sexual reproduction.

Reason: Meiosis and sexual fusion are not essential in asexual reproduction.

A B C D

28. Assertion: Entomophilous plants produce less pollen when compared to anemophilous plants.

Reason: The wastage of pollen is reduced to the minimum in entomophilous plants because of the directional pollination.

A B C D

29. Assertion: The time involved between pollination and fertilization varies from species to species.

Reason : All the pollen that reach the stigma succeed in affecting fertilization.

A B C D

30. Assertion: Cross pollination results in healthy and stronger offsprings.

Reason: Due to phenomenon of hybrid vigour.

A B C D

31. Assertion: Red colour of flowers attracts butterflies and wasps, but not bees.

Reason: Bees are colour-blind to red.

A B C D

32. Assertion: A flower is a modified shoot.

Reason : All the floral parts are borne on the receptacle (or thalamus).

A B C D

33. Assertion: The endosperm of angiosperms is generally triploid (3).

Reason: It develops from primary endosperm nucleus formed by fusion of haploid male gamete and diploid secondary nucleus.

A B C D

34. Assertion : Self pollination occurs in Pteridophytes and monocots.

Reason: Cross pollination occurs in gymnosperms and dicots.

A B C D

35. Assertion: Fruits are formed only in angiosperms.

Reason: Fruits develop from ovaries which are found only in angiosperms.

A B C D

36. ASSERTION : Seed plants are highly evolved.

Reason: Seeds are found in gymnosperms and angiosperms.

A B C D

37. Assertion: In apomixis, plants of new genetic sequence are produced.

Reason : In apomixis, two individuals of same genetic sequence meet

A B C D

38. Assertion : A pollen grain of angiosperm is considered as the male gametophyte.

Reason: All the nuclei of the pollen grain produce male gametes.

A B C D

39. Assertion: Flowers are structures of sexual reproduction.

Reason: Various embryological processes of plants occur in the flower.

A B C D

40. Assertion: Insects visit flowers to gather honey.

Reason: Attraction of flowers prevents the insects from damaging other parts of the plant.

A B C D