DISCUSSION QUESTIONS
CELL DIVISION AND REPRODUCTION

1. Sexual reproduction in spirogyra is describes as
   A. fragmentation
   B. conjugation
   C. binary fusion
   D. budding

2. Mitosis is different from meiosis in that mitosis results into
   A. four daughter cells with equal generic matter.
   B. two daughter cells with equal genetic matter
   C. four daughter cells with half the genetic matter.
   D. two daughter cells with half the genetic matter.

3. Which one of the following is an advantage of vegetative propagation?
   A. Competition between parent and offspring is minimal.
   B. Colonisation of new habitats is fast.
   C. Variation among offspring occurs.
   D. Maintenance of parental characteristics in offspring.

4. An endosperm is formed in plants when the second male nucleus fuses with the
   A. egg nucleus
   B. polar nuclei
   C. antipodal nuclei
   D. embryo sac

5. What stage of cell division is represented in the diagram below?
   A. Anaphase
   B. Propane
   C. Metaphase
   D. Telophase

6. The nucleus in the embryo sac that fuses with nucleus to form a zygote in flowering plant is
   A. Polar nucleus
   B. Antipodal nucleus
   C. Synergid nucleus
   D. Egg nucleus

7. During the development of a mammalian embryo four structures develop around the embryo, named
   (i) allantois.
   (ii) chorion.
   (iii) amnion
   (iv) yolk sac.

8. Which of these are productive membranes?
   A. (ii) and (iii)
   B. (i) and (iv)
   C. (iii) and (iv)
   D. (i) and (ii)

9. The following are advantages of vegetative propagation except
   A. maintenance of parental characteristics in the offspring.
   B. early maturity of the offspring
   C. production of more vigorous offspring.
   D. Possibility of raising offspring where otherwise would grow.

10. Plants can often be propagated from stems but rarely from roots because
   A. stems have more vascular bundles than roots.
   B. Stems often have buds which can easily sprout.
   C. Stems are stronger than roots and can withstand adverse conditions.
   D. Stems have thicker epidermis which prevents water loss.

11. A sexual reproduction in spirogyra takes place by
   A. fragmentation
   B. cell division
   C. conjugation
   D. binary fission.

12. Which of the following is not a difference between a typical plant cell and animal cell?

A. Animal cells contain small vacuoles whereas plant cells usually have one or two large vacuoles.
B. Animal cells have cell membranes only whereas plant cells have cell walls only.
C. Animal cells are usually flaccid whereas plant cells are usually turgid.
D. Animal cells never contain chlorophyll whereas plant cells do.

13. Which one of the following chromosomal changes results in the loss of genetic materials?
A. Duplication
B. Inversion
C. Translocation
D. Deletion

14. In higher flowering plants the first male gamete fuses with
A. polar nucleus
B. synergid nucleus
C. secondary nucleus
D. egg nucleus

15. The normal reproductive cycle of the human female involves the interaction of the
A. oviduct, thyroid gland and ovary.
B. Pituitary gland, ovary, uterus.
C. Adrenal gland, ovary and vagina.
D. Placenta, pituitary gland and uterus.

16. Which one of the following plants would depend most on wind for its reproduction?
A plant with……
A. Small inconspicuous flowers and light seeds.
B. Sticky pollen grains and explosive fruits.
C. Numerous pollen grains and enclosed stigma.
D. Coloured petals and small hairy fruits.

17. Spirogyra normally reproduces by
A. Binary fussion.
B. Conjugation.
C. Budding
D. Hyphae

18. In man the oestrus cycle is also known as
A. heat period
B. gestation period
C. Menstrual cycle
D. lactation cycle.

19. How is seed dormancy due to embryo immaturity overcome?
A. By improving seed coat permeability.
B. Allowing for an ripening period.
C. Putting hydrated seeds in a cold room or refrigerator.
D. Dry storage at high temperature.

19. In favourable conditions, yeast reproduces by
A. fragmentation
B. conjugation.
C. sporulation.
D. budding.

20. Meiotic cell division is important because it ensures that
A. there is variation in the number of chromosomes.
B. The number of chromosomes of a species is not doubled at fertilization.
C. The chromosomes of the daughter are identical.
D. Bas traits are not passed on from parents to offspring.

21. The main function of luteinising hormone in the reproductive cycle of a mammal is that it
A. causes ovulation.
B. causes thickening of the uterine walls.
C. initiates the growth of a graafian follicle.
D. maintains pregnancy for the first 3 months.

22. The function of amniotic fluid in foetal development is

A. protection of the foetus from shock.

B. transfer of nutrients from mother to foetus.

C. allowing gaseous exchange between mother and foetus.

D. prevention of dangerous substances from reaching the foetus.

23. Meiosis normally results in

A. halving the number of chromosomes.

B. production of identical cells.

C. maintaining the number of chromosomes.

D. propagation of new organisms.

24. What is the function of albumen in an egg? It

A. is a source of fat and protein for the embryo.

B. is a source of protein and water for the embryo.

C. suspends the embryo.

D. stores embryo's excretory products.

25. Which one of the following is a diploid cell?

A. Pollen grain

B. Ovun

C. Spermatoon

D. Alveolus

27. Which one of the following hormones is responsible for ovulation in mammals?

A. Oestrogen

B. Progestron

C. Follicle stimulating hormone

D. Luteinising hormones.

28. In humans, the hormone progesterone stimulates the

A. formation of egg cells.

B. formation of sperm cells.

C. production of milk by a lactating mother.

D. thickening of the uterine wall.

29. Meiosis leads to the production of

A. two daughter cells each with original number of chromosomes.

B. four daughter cells, each with original number of chromosomes.

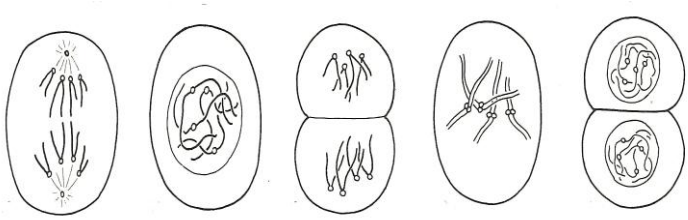
C. two daughter cells each with half the original number of chromosomes.

D. four daughter cells each with half the original number of chromosomes

Cell division and chromosomes

30. A cell in the basal layer of the skin contains 46 chromosomes and divides by mitosis to produce new skin cells. After ten successive divisions, how many chromosomes will the basal cell have?

31. The drawings below depict stages in the mitotic division of a cell



A B C D

(a) Write the letters in the order in which these stages occur.

(b) How many pairs of chromosomes are there in the cell?

(c) What is the diploid number of chromosomes in these cells?

32. Choose the most appropriate word to complete the sentence.

When chromosomes replicate, they produce ……...

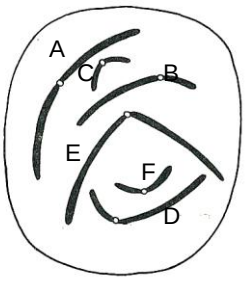
tissues, nuclei, chromatids, somatic cells

33. In which three of the following cells is mitosis unlikely to occur?

a sperm cell, an epithelial cell of a villus, a hair cell, a cell in the red bone marrow, a red blood
cell, a lymphocyte, a cell in the basal layer of the skin

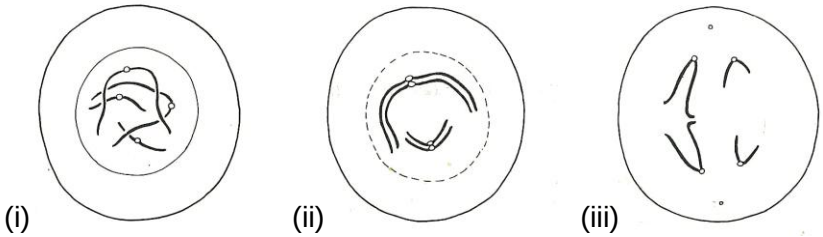
34. An animal has 36 chromosomes in each of its body cells. How many of these chromosomes came from its male parent?

35. Which pairs of chromosomes in the cell shown here
are homologous?



36. Fill in the missing words.
The ….. A ….. of a cell contains a fixed number of
chromosomes. Before mitosis, each chromosome
….. B ….. to produce two ….. C …...

37. The following drawings-show the sequence of events early in cell division.
(a) Is the division meiotic or mitotic?
(b) How do you know?



38. Give two examples in each case of organs or tissues in which you would expect
(a) meiosis, (b) mitosis to be taking place.