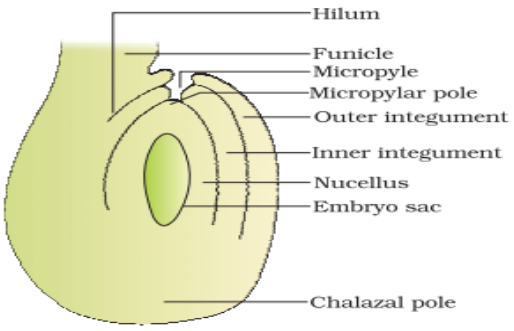
# INDIAN SCHOOL AL WADI AL KABIR
# DEPARTMENT OF SCIENCE 2021-22
# CLASS 12 – BIOLOGY – SET I – QP & MS

SECTION - A

1. In the figure of anatropous ovule given below, choose the correct option for the characteristic distribution of cells within the typical embryo sac. Number of cells at chalazal end Number of cells at micropylar end Number of nuclei left in central cell




a) 3-3-2

b) 3-2-3

c) 2-3-3

d) 2-2-4

2. The scutellum observed in a grain of maize is comparable to which part of the seed in other dicotyledonous?

a) Plumule

b) Cotyledon

c) Endosperm

d) Aleurone layer

3. How many meiotic divisions are required to produce 76 seeds in a Guava fruit

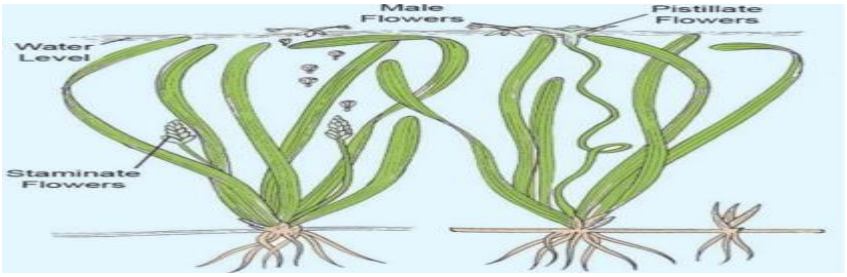
a) 95

b) 76

c) 19

d)304

4. In the dioecious aquatic plant shown, identify the characteristics of the male flowers that reach the female flowers for pollination: Size of the flower, Colour of flower, Characteristic feature of pollen grain




a) small-brightly coloured-Light weight and non-sticky

b) large-colourless-large and sticky

c) small-white-small covered with mucilage

d) large-colourless-non-sticky

5.‘Saheli’ a female antifertility pill, is used:
a) Daily
b) Weekly
c) Quarterly
d) Monthly

6. A nucleotide differs from a nucleoside. It has the

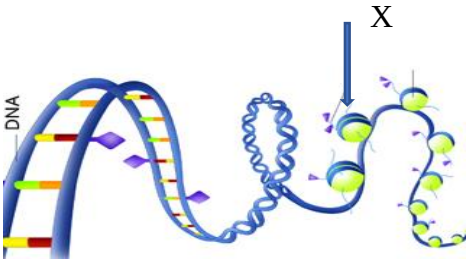
a) Base

b) Sugar

c) Phosphate group

d) Hydroxyl group

7. The given figure shows the packaging of DNA Identify the part labelled X




a) Chromosome

b) Histone

c) None of the above

d) Both (a) and (b)

8. Sickle cell anemia is a _____disease.

a) X linked

b) Autosomal dominant

c)Autosomal recessive

d) Y linked

9. Which of the following combination of chromosome numbers represents the correct sex determination pattern in honey bees?

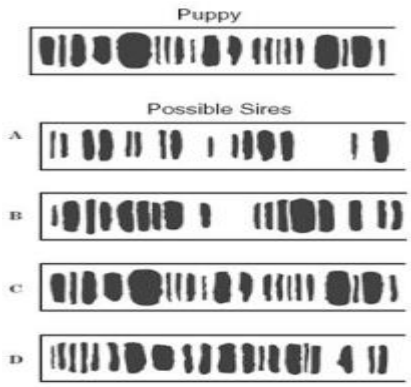
a) Male 16, Female 16

b) Male 31, Female 16

c) Male 16, Female 32

d) Male 32, Female 16

10. The DNA fingerprints were made from blood samples taken from a puppy and four possible sires of this puppy in an effort to determine the puppy's pedigree. According to the information given below, which sire was probably the father of this puppy.




a) C

b) A

c) D

d) C

11. Predict the effect if, the codon UAU coding for an amino acid at the 25$^{th}$ position of a polypeptide of 50 amino acids, is mutated to UAA.

a) 50 amino acids will be formed at the end of translation.
b) 25 amino acids will be formed at the end of translation
c) 24 amino acids will be formed at the end of translation
d) 49 amino acids will be formed at the end of translation

12. In E.coli, the lac operon gets switched on when
a) lactose is present and it binds to the repressor.
b) repressor binds to operator.
c) RNA polymerase binds to the operator.
d) lactose is present and it binds to RNA polymerase.

13.While planning for an artificial hybridization programme involving dioecious plants, which of the following steps would not be relevant:

a) Bagging of female flower

b) Dusting of pollen on stigma

c) Emasculation

d) Collection of pollen

SECTION - B

14. **Assertion:** Contraceptives are methods to prevent unwanted pregnancies.
**Reason:** Unwanted pregnancies can only be prevented by using oral contraceptives.
a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is False but R is true

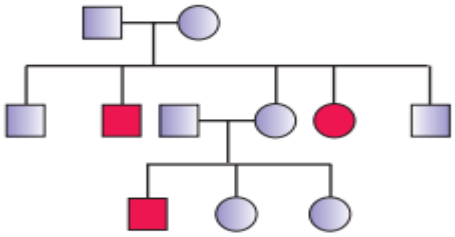
15. **Assertion:** Seed is the basis to our agriculture.
**Reason:** Dehydration & dormancy of mature seed is crucial for storage of seeds for future use.
a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is False but R is true

16. **Assertion**: When the two genes in a dihybrid cross are situated on the same chromosome, the proportion of parental gene combinations is much higher than nonparental type.
**Reason**: Higher parental gene combination can be attributed to crossing over between two genes.
a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is False but R is true

17. Lactational amenorrhea is the natural method of contraception.
(a) Due to absence of ovulation
(b) It inhibits estrogen and progesterone release
(c) It prevents attachment of zygote to endometrium
(d) It is a very good barrier method.

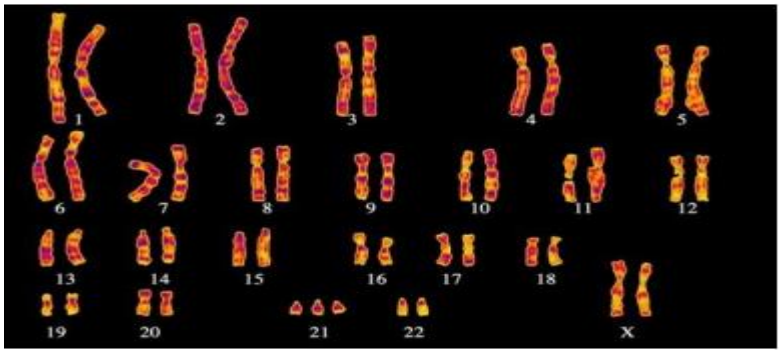
18.The key finding of Hershey and Chase experiment was that
a) Protein, not DNA, is the hereditary material.
b) DNA, not protein, is the hereditary material.
c) Protein and DNA play an equal role in determining inheritance.
d) Neither protein nor DNA play a role in determining inheritance.

19. What is the pattern of inheritance in the above pedigree chart?



a) Autosomal dominant
b) Autosomal recessive
c) Sex -linked dominant
d) Sex -linked recessive

20. A representative karyotype showing an individual suffering from a chromosomal disorder and the corresponding chromosomes of the individual is given below. Identify the disorder.




a) Klinefelter's Syndrome
b) Cri du syndrome
c) Turners Syndrome
d) Downs Syndrome

21. In Mendel's experiments F2 generation was obtained by

a) Crossing of F1 and F2

b) Crossing of F3 and F4

c) Selfing of F2

d)Selfing of F1

22. DNA probes used in finger printing are

a) Highly sensitive electron microscope
b) UV beams
c) X-ray scanners
d) DNA segments having radioactive isotopes

23. Map distance of genes on chromosome is calculated by

a) Non-cross over percentage
b) Recombination frequency of each gene loci

c) Cross over percentage

d) Number of mutant genes

24. Which of the following is not a copper releasing IUD?

a) LNG 20

b) CuT

c) Lippe's Loop

d) a and c

25. Non-coding sequences present within a gene is called:

(a) Exon

(b) Operon

(c) Promoter

(d) Intron

26. To analyse the genotype of an organism, it is made to

a) Self cross

b) Cross with recessive parent

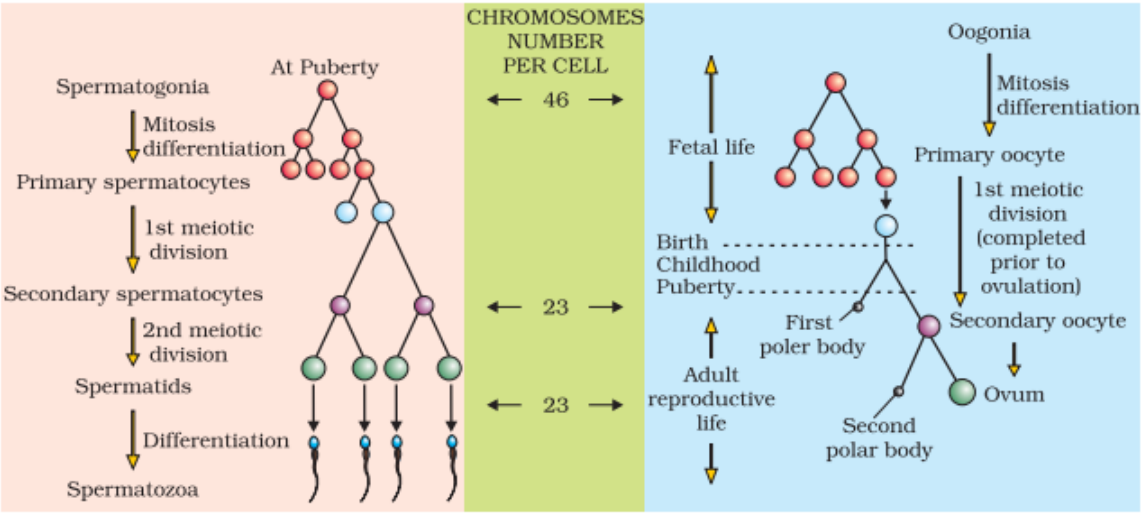
c) Cross with dominant parent

d) Cross with another species

SECTION - C

Case Study

To answer the questions, study the figure given below showing the diagrammatic representation of spermatogenesis (a) and Oogenesis (b)




27.Which of the following statement is incorrect for Oogenesis process

a) Oogenesis is initiated during the embryonic development stage

b) A couple of million gamete mother cells (oogonia) are formed within each foetal ovary

c) These cells start meiotic division and get temporarily arrested at the end of meiosis-I stage

d) No more oogonia are formed and added after birth.

28.The ploidy of the primary spermatocytes is

a) 2n

b) n

c) 3n

d) polyploidy

29.The primary Oocyte forms secondary Oocyte within

a) Secondary follicle

b) Graafian follicle

c) Tertiary follicle

d)Primary follicle

30. The secondary oocyte forms a new membrane surrounding it called

a) Corpus luteum

b) Antrum

c) zona pellucida

d) Graafian follicle

31. The immature male germ cell undergo division to produce sperms by the process of spermatogenesis. Choose the correct one with reference to above.

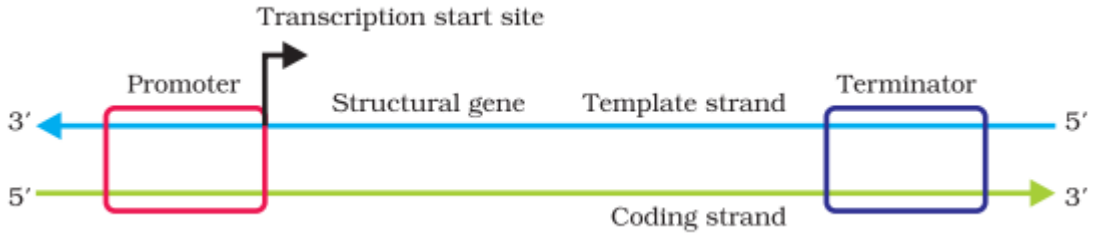
a) Spermatogonia have 46 chromosomes and always undergo meiotic cell division

b) Primary spermatocytes divide by mitotic cell division

c) Secondary spermatocytes have 23 chromosomes and undergo second meiotic division

d) Spermatozoa are transformed into spermatids

32.The figure given below is a schematic representation of a transcriptional unit, which statement is true for the coding strand



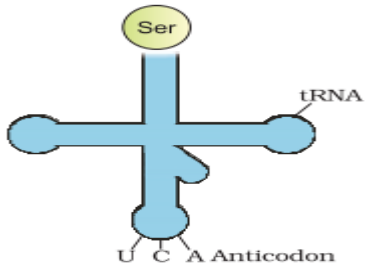

a) The strand which has the polarity (3'→5')

b) Strand which codes for proteins

c) All the reference point while defining a transcription unit is made with this strand.

d) The coding strand acts as a template during transcription.

33. Identify the codon for the given tRNA



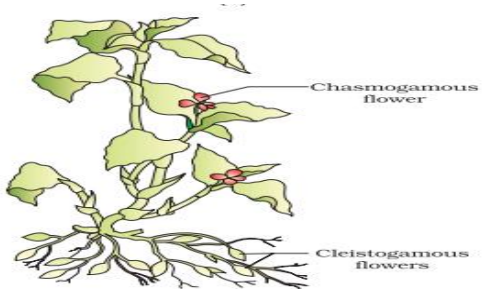

a) AGT

b) AGU

c) GAT

d)AAU

34.The figure given below is of Viola (common pansy) that has both Cleistogamous and Chasmogamous flower one of the two flower types withered and developed no further due to some unfavourable condition, but the other flower type on the same plant survived and it resulted in an assured seed set. Which of the following will be correct?



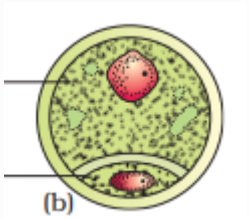

a) The flower type which survived is Cleistogamous and it always exhibits autogamy

b) The flower type which survived is Chasmogamous and it always exhibits geitonogamy.

c) The flower type which survived is Cleistogamous and it exhibits both autogamy and geitonogamy.

d) The flower type which survived is Chasmogamous and it never exhibits autogamy.

35.The figure given below is the figure of a matured pollen grain, identify the part marked (b)




a) Vegetative cell
b) Tube cell
c) Generative cell
d) Microspore Mother cell

ANSWERS

| | | | | | | |
|---|---|---|---|---|---|---|
| 1-b | 2-b | 3-a | 4-c | 5-b | 6-c | 7-b |
| 8-c | 9-c | 10-d | 11-c | 12-a | 13-c | 14-c |
| 15-a | 16-c | 17-a | 18-b | 19-b | 20-d | 21-d |
| 22-d | 23-b | 24-d | 25-d | 26-b | 27-c | 28-a |
| 29-c | 30-c | 31-c | 32-c | 33-b | 34-a | 35-c |

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