Akash model senior secondary school

Study- Material(Term- 1)

Class-. 12

Subject- Biology

SAMPLE QUESTION PAPER-1 (TERM 1) 2021-22

SUBJECT : BIOLOGY

CLASS : XII

Time : 90 Min **Marks : 35**

General Instructions :

1. ***The Question Paper contains three sections.***
2. ***Section A has 24 questions. Attempt any 20 questions.***
3. ***Section B has 24 questions. Attempt any 20 questions.***
4. ***Section C has 12 questions. Attempt any 10 questions.***
5. ***All questions carry equal marks.***
6. ***There is no negative marking.***

SECTION–A

Section A consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

1. Which of the following hormones are not secreted in the body of non-pregnant human female?

   a. Relaxin and progesterone

   b. hCG and estrogen

   c. relaxin and hCG

   d. hPL and FSH

2. How many types of gametes would be produced if the genotype of a parent is AaBB?

   a. 1 b. 2

   c. 3 d. 4

3. Pollen grains are well preserved as fossils because of presence of

a. sporopollenin

b. cellulose

c. lignocellulose

d. pectocellulose

4. Which of the following amino acid substitution is responsible for causing sickle cell anemia?

a. Valine is substituted by Glutamic acid in the áglobin chain at the sixth position.

b. Valine is substituted by Glutamic acid in the âglobin chain at the seventh position.

c. Glutamic acid is substituted by Valine in the áglobin chain at the sixth position.

d. Glutamic acid is substituted by Valine in the âglobin chain at the sixth position.

5. In human beings, where genotype AABBCC represents dark skin colour, aabbcc represents light skin colour and AaBbCc represents intermediate skin colour; the pattern of genetic inheritance can be termed as :

a. Pleiotropy and codominance

b. Pleiotropy and incomplete dominance

c. Polygenic and qualitative inheritance

d. Polygenic and quantitative inheritance

6. During megasporogenesis, potential megaspore mother cell undergoes following cell divisions to form female gametophyte

a. two meiotic divisions and three mitotic division

b. one meiotic and one mitotic division

c. one meiotic and three mitotic divisions

d. one meiotic and two mitotic divisions

7. Sertoli cells are found in
   a. The interstitial space between the seminiferous tubules in the testis
   b. In the germinal epithelium lining the inner surface of seminiferous tubules
   c. In the germinal epithelium of the ovary
   d. In the epithelium lining the fallopian tube

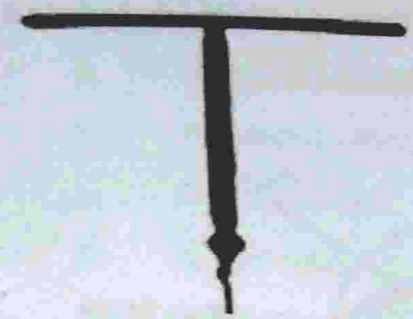
8. Identify the characteristics of a plant for wind pollination

	stigma	Colour of flower	Pollen grain
A	feathery	Brightly coloured	Non-sticky and light weight
B	normal	colourless	Large and sticky
C	feathery	colourless	Non-sticky and light weight
D	normal	White	sticky and light weight

9. Cleistogamous flowers are
   a. Male flowers which never open
   b. Female flowers which never open
   c. Bisexual flowers which never open
   d. Open bisexual flowers which perform self-pollination in bud condition

10. Zona radiata of ovum is sloughed off in
   a. Uterus
   b. Ampullary region
   c. Isthmus
   d. Infundibulum

11. IUD shown in the given diagram prevents pregnancy by



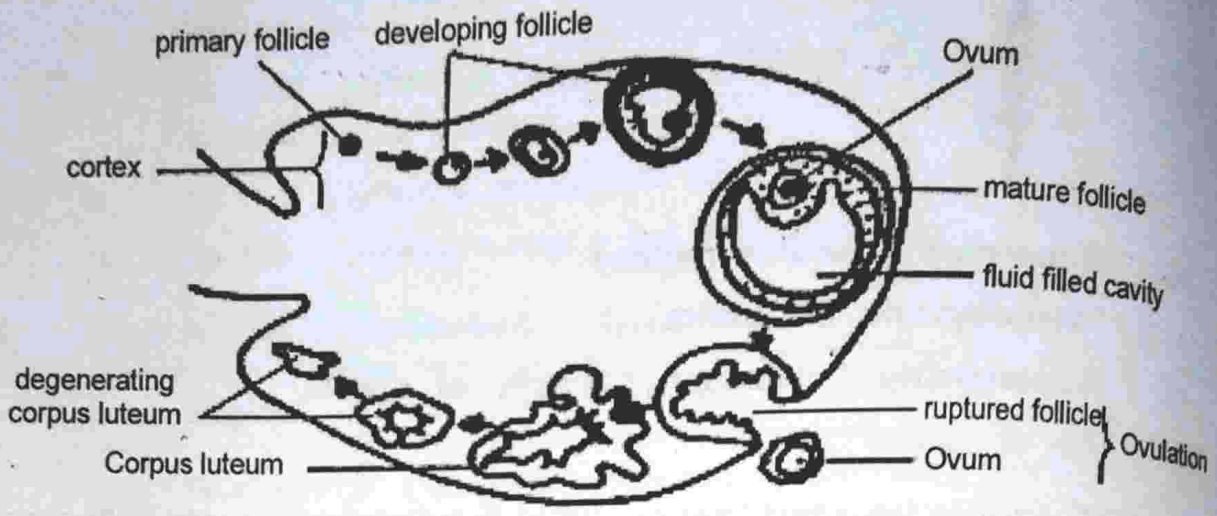
a. Suppressing sperm motility
b. Phagocytosis of sperm
c. Suppressing fertilization capacity of sperm
d. All of above

12. In ART, after in vitro fertilization, what is transplanted into fallopian tube
a. Embryo up to 24 celled stage
b. Only zygote
c. Blastocyst
d. Embryo up to 8-celled stage

13. Pea flowers are normally
a. Cross pollinated
b. Self- pollinated
c. Not pollinated
d. Dusted with pollen manually

14. Henkings observed presence of X-body in 50% sperms of insects. This X body was
a. Y-chromosome
b. X-chromosome
c. A and X chromosome
d. A and Y chromosome

15. On the basis of given diagram identify the correct sequence



	Primary follicle	Secondary follicle	Tertiary follicle
A	Primary oocyte	Primary oocyte	Secondary oocyte
B	Primary oocyte	Primary oocyte	Primary oocyte
C	Primary oocyte	Secondary oocyte	Secondary oocyte
D	Secondary oocyte	Secondary oocyte	Secondary oocyte

16. Pollen banks store pollen in
    a. Liquid CO_2
    b. Liquid hydrogen
    c. Liquid oxygen
    d. Liquid nitrogen

17. Radicle end of embryo is towards
    a. Micropyle
    b. Hilum
    c. Chalaza
    d. Funicle

18. A typical angiosperm embryo sac is 8-nucleate and

a. Single-celled

b. Seven-celled

c. Four-celled

d. Eight-celled

19. Short stretches of DNA used to identify complementary sequence in a sample are called

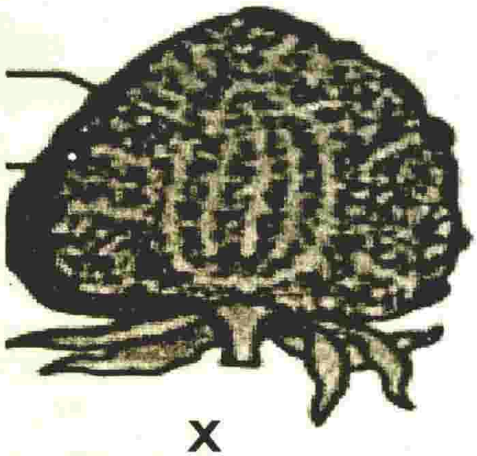
a. probes

b. markers

c. VNTRs

d. Primers

20. Which of the following statements are true related to fruit X and Y ?



X

Y

a. Fruit X is true fruit because its ovary is edible.

b. Fruit Y is false fruit because its ovary is edible.

c. Fruit Y is false fruit because its thalamus is edible.

d. Fruit X is false fruit because its thalamus is edible.

21. 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

22. The coconut water from tender coconut is
    a. cellular endosperm
    b. free nuclear endosperm
    c. both cellular and nuclear endosperm
    d. free nuclear embryo

23. Which of the following set of codons contains only termination codons?
    a. UAA, UGA, UAG
    b. UAA, UUU, UGG
    c. UGA, UAG, UUU
    d. UCC, UGG, UAG

24. Which of the following criteria must a molecule fulfill to act as a genetic material?
    i. It should not be able to generate its replica
    ii. It should chemically and structurally be stable
    iii. It should not allow slow mutation
    iv. It should be able to express itself in the form of Mendelian Characters
    a. (i) and (ii) b. (ii) and (iii)
    c. (iii) and (iv) d. (ii) and (iv)

SECTION-B

Section B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

Question no. 25 to 28 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. Both Assertion and Reason are true and Reason is not the correct explanation of Assertion.

C. Assertion is true but Reason is false.

D. Assertion is False but Reason is true.

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

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

26. Assertion: Population explosion continues in India.

Reason : There has been a lesser decline in birth rate as compared to decline in death rate.

27. Assertion: Pollen-pistil interaction is important in maintaining purity of species.

Reason : Stigma is able to differentiate between own type and foreign pollen grains.

28. Assertion : Replication of DNA begins at particular spots, each called 'ori' or origin of replication.

Reason: Ori contains a specific nucleotide sequence called autonomic replicating sequence or ARS.

29. Which of the following is wrongly matched pair?

a. Perimetrium – site of implantation of blastocyst.

b. Myometrium – involved in the contraction of uterine wall.

c. Ampullary - isthmic junction – site of fertilization.

d. Endometrium - undergoes cyclic changes during menstrual cycle.

30. A woman has a haemophilic son and two normal daughters. Her genotype and of her husband for this character would be
    a. XX and X^hY
    b. $XX^h$and X^hY
    c. $X^hX^h$and XY
    d. $XX^h$and XY

31. Frameshift mutation is caused by
    a. Deletion of base pairs
    b. Insertion of base pairs
    c. Both a and b
    d. None of the above

32. Klinefelter's syndrome has
    a. 44 + XXY
    b. XX + XO
    c. 45 + XY
    d. 66 + XXY

33. Ligase is an enzyme required for
    a. Joining DNA fragments
    b. Fragmentation of DNA
    c. Renaturation of DNA
    d. Denaturation of DNA

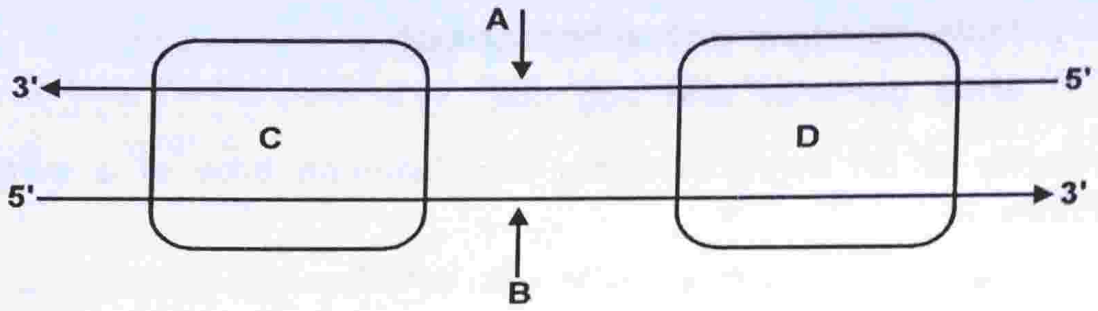
34. Which of the following combination in F. Grifitth's experiments resulted in both live R cells and live S cells of the pneumonia bacterium?
    a. Live R type cell+ Heat- killed S type cells
    b. Heat- killed R type cells + Live S type cell
    c. Heat- killed R type cells + Heat- killed S type cell
    d. All of the above.

35. A DNA sample was found to contain 23% guanine. What will be the percentage of adenine in this DNA?

a. 23% b. 46%

c. 54% d. 27%

36. Identify A,B,C,D in the figure



a. A. coding strand, B. Template strand
C. promoter, D. Terminator

b. A. Template strand, B. Coding strand
C. promoter, D. Terminator

c. A. coding strand, B. Template strand
C. Terminator, D. promoter

d. A. coding strand, B. Template strand
C. RNA polymerase, D. Terminator

37. Meselson and Stahl have provided

a. Experimental proof of semi-conservative replication of DNA

b. Structure of RNA

c. Structure of chlorophyll

d. Both b and c

38. Double fertilization is

a. Fusion of two male gametes with one egg

b. Fusion of one male gamete with two polar nuclei

c. Fusion of two male gametes of a pollen tube with two different eggs

d. Syngamy and triple fusion

39. Male gametophyte of angiosperms consists of

a. Vegetative cell and generative cell

b. Egg cell and synergid

c. Male gametes and antipodal cell

d. Male gametes and egg cell

40. Transfer of an ovum of donor into fallopian tube of a surrogate mother is

a. ET b. IUT

c. GIFT d. ZIFT

41. In case of incomplete dominance, F2 generation has

a. Genotypic ratio is similar to phenotypic ratio

b. Genotypic ratio is 3 : 1

c. Phenotypic ratio is 3: 1

d. None of the above

42. Which of the following pairs is wrongly matched?

a. XO sex determination—Grasshopper

b. ABO blood grouping—Codominance

c. Starch synthesis in pea—Multiple alleles

d. T.H. Morgan—linkage

43. Central dogma of modern biology is

a. RNA $\longrightarrow$ DNA $\longrightarrow$ Proteins

b. DNA $\longrightarrow$ RNA $\longrightarrow$ Proteins

c. RNA $\longrightarrow$ Proteins $\longrightarrow$ DNA

d. Protein $\longrightarrow$ RNA $\longrightarrow$ DNA

44. If both mother and father have blood group AB, they can have children of

a. Blood group AB only

b. Blood group A and B

c. Blood group A,B and AB

d. Blood group A,B ,AB and O

45. The transforming principle of *Streptococcus pneumoniae* as found out by Avery, MacLeod and McCarty was

a. mRNA

b. DNA

c. Protein

d. Polysaccharide

46. Similarity between DNA and RNA is that both have

a. Similar sugar

b. Similar mode of replication

c. Similar pyrimidines

d. Polymers of nucleotides

47. Which organism does not follow Central dogma of molecular biology?

a. Mucor

b. Chlamydomonas

c. Pea

d. HIV

48. "Beads on string" structure is seen under electron microscope for

a. Euchromatin

b. Heterochromatin

c. Nucleosomes in chromatin

d. Ribosomes in polysome

SECTION C

Section C consists of one case followed by 6 questions linked to this case (Q. No. 49 to 54). Besides this, 6 more questions are given. Attempt any 10 questions in this section. The first attempted 10 questions would be evaluated.

CASE STUDY

Oral pills are most widely used contraception method all over the world. They are of two types, hormonal and non-hormonal or nonsteroidal. There is a difference in the method of contraception by the two types of oral pills. While one type of pills prevent ovulation and hence function as contraceptive, the other type has no effect on ovulation. They check implantation due to changes in endometrium.

Read the above paragraph and answer questions 49–54.

49. What is contraception life of implants?

a. 6-8 months
b. 9-12 months
c. 1-2 years
d. 3-5 years

50. What is the composition of common oral pills?

a. Estrogen
b. Progesterone
c. Progesterone with or without estrogen
d. Oxytocin

51. Which one is a non-steroidal contraception pill?

a. Mala-D
b. Saheli
c. Mala-N
d. i-Pill

52. Emergency contraception can be used

a. Before sex
b. Just after sex

c. Up to one day after sex

d. Up to 72 hours after sex

53. Which one provides contraception for up to five years?

a. Copper T

b. Implant

c. Both implant and copper T

d. Injectables contraception

54. Sex determination of foetus is illegal in India because

a. Overpopulation

b. Female foeticide

c. Male foeticide

d. Both b and c

55. Polypeptide chain is initiated by

a. Glycine

b. Leucine

c. Lysine

d. Methionine

56. Amino acid binding site of tRNA is

a. 5' end

b. Anticodon loop

c. DHU loop

d. CCA3' end

57. hnRNA is

a. Heteronuclear RNA

b. Homonuclear RNA

c. Heterogeneous nuclear RNA

d. Homogeneous nuclear RNA

58. Cap of mRNA consists of

a. methyl uracil

b. Methyl guanosine triphosphate

c. Methyl cytosine monophosphate

d. Methyl adenosine triphosphate

59. Sex determination in honeybee is

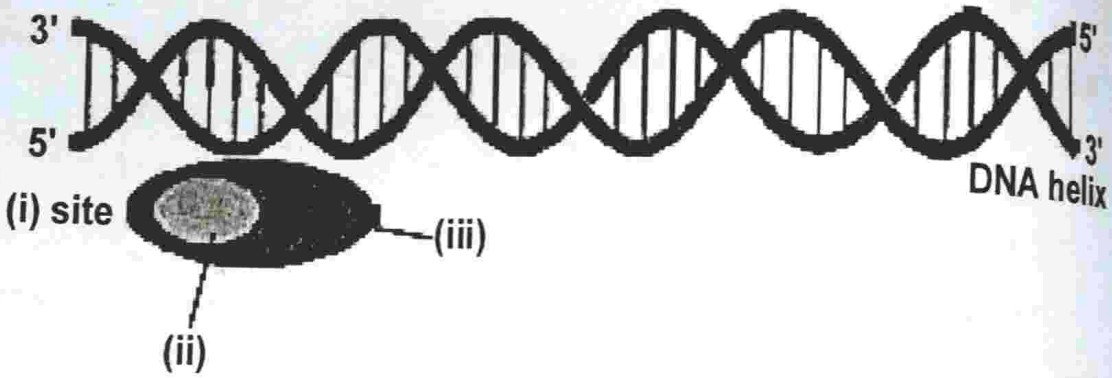
a. Haplodiploid

b. Male heterogamety

c. Female heterogamety

d. None of the above

60. Transcription unit is represented in the diagram given below.



Identify site (i), factor (ii) and Enzyme (iii) responsible for carryin out the process

a. (i) Promoter Site, (ii) Rho factor (iii) RNA polymerase

b. (i) Terminator Site, (ii) Sigma factor (iii) RNA polymerase

c. (i) Promoter Site, (ii) Sigma factor (iii) RNA polymerase

d. (i) Promoter Site, (ii) Sigma factor (iii) DNA polymerase

Question in lieu of diagram based Questions for VI Candidates Total alternative questions :

11. Cu T prevents pregnancy by
    a) Phagocytosis of sperms
    b) Supressing fertilisation capacity of sperms
    c) Supressing sperm motility
    d) All of the above

15. Corpus luteum secretes
    a) Estrogen
    b) Progesterone
    c) Relaxin
    d) Human placental lactogen

20. Which one is false fruit?
    a) Mango
    b) Orange
    c) Strawberry
    d) Brinjal

36 Which of the following is not the component of transcription unit?
    a) Structural gene
    b) promotor
    c) Repressor
    d) Terminator

60 In prokaryote transcription unit has
    a) monocistronic structural gene
    b) polycistronic structural gene
    c) split gene arrangement
    d) All of the above

SAMPLE QUESTION PAPER-2 (TERM 1) 2021-22

SUBJECT : BIOLOGY

CLASS : XII

Time : 90 Min **Marks : 35**

General Instructions :

1. ***The Question Paper contains three sections.***
2. ***Section A has 24 questions. Attempt any 20 questions.***
3. ***Section B has 24 questions. Attempt any 20 questions.***
4. ***Section C has 12 questions. Attempt any 10 questions.***
5. ***All questions carry equal marks.***
6. ***There is no negative marking.***

SECTION A

Section a consists of 24questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

1 The white Kernel from tender coconut is

A. Cellular endosperm

B. Free nuclear endosperm

C. Both cellular and nuclear endosperm

D. Free nuclear embryo

2 Persistent nucellus in the seeds is known as

A. Chalaza

B. Hilum

C. Pericarp

D. Perisperm

3 What is the fate of the male gametes discharged in the synergid?

A. One fuses with the egg and the other degenerates in the synergid.

B. All fuse with the egg.

C. One fuses with the egg and the other fuses with the synergid nucleus.

D. One fuses with the egg and the other fuses with the central cell nuclei.

4. A particular species of plant produces light, non-sticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by:

A. Insects B. Water

C. Wind D. animals

5 Endosperm is consumed by developing embryo in the seed of

A. pea B. maize

C. coconut D. castor

6 Meiotic division of the secondary oocyte is completed

A. prior to ovulation

B. at the time of copulation

C. after zygote formation

D. at the time of fusion of sperm with an ovum

7 In human beings at the end of 12 weeks (first trimester) of pregnancy, the following is observed.

A. Most of the organ systems are formed

B. The head is covered with fine hair.

C. Movement of the foetus.

D. Eyelids and eyelashes are formed

8 Select the correct option of haploid cells from the following groups.

A. Secondary spermatocyte, first polar body, ovum

B. Spermatogonia, primary spermatocyte, spermatid

C. Primary spermatocyte, Secondaryspermatocyte,second polar body

D. Primary oocyte,secondary oocyte, spermatid

9 Spermiation is the process of release of sperms from

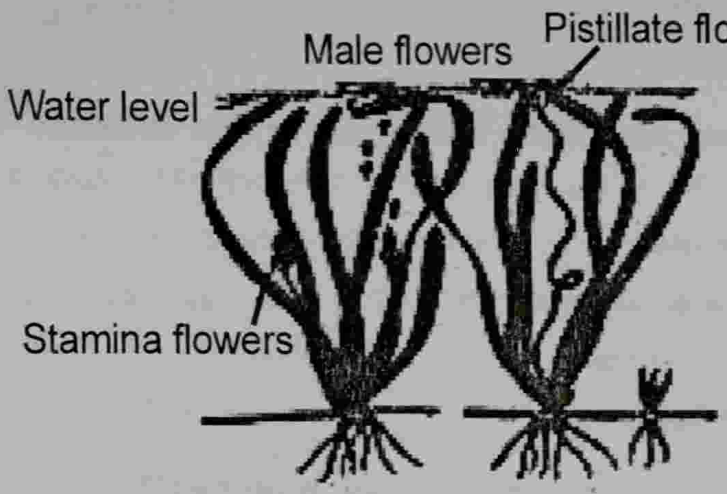
A. seminiferous tubules

B. Vas deferens

C. Epididymis

D. Prostate glands

10 In the dioecious aquatic plant shown, identify the characteristics of the male flowers that reach the female flower for pollination



	Size of the flower	Colour of the flower	Characteristic features of the 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

11 Apomictic embryos in citrus arise from

A. Diploid egg
B. Synergids
C. Maternal sporophytic tissue
D. Antipodal cells

12 How many types of gametes will be produced if the genotype of a parent is AaBb?

A. 1
B. 2
C. 3
D. 4

13 Chromosomal theory of inheritance was proposed by

A. Sutton and Boveri
B. Bateson and Punnet
C. T.H.Morgan
D. Watson and Crick

14 In which genetic condition,each cell in the affected has three sex chromosomes?

A. Thalassemia
B. Klinefelter's Syndrome
C. Phenylketonuria
D. Turner's syndrome

15 Which of the following is wrongly matched?

A. XO type sex determination_____grasshopper
B. ABO blood grouping————codominance
C. Starch synthesis in pea————Incomplete Dominance
D. T.H. Morgan————Transforming Principle

16 If a colourblind man marries a woman who is homozygous for normal colour vision,the probability of their son being colour blind is

A. 0
B. 0.5
C. 0.75
D. 1

17 Alleles are

A. Different phenotypes

B. True breeding homozygotes

C. Different forms of a gene

D. Heterozygotes

18 Test cross in plants or in Drosophila involves crossing

A. Between two genotypes with recessive trait

B. Between two F_1 hybrids

C. The F_1 hybrid with a double recessive genotype

D. Between two genotypes with dominant trait

19 Which of the following criteria must a molecule fulfil to act as a genetic material?

(i) It should be able to generate its replica

(ii) It should chemically and structurally be stable

(iii) It should not allow slow mutation

(iv) It should not be able to express itself in the form of Mendelian Characters.

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

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

20 If the distance between two consecutive base pairs is 0.34 nm and the total number of base pairs of a DNA double helix in a typical mammalian cell is 6.6×10^9bp,then the length of the DNA is approximately

A. 2.2 m B. 2.7m

C. 2 m D. 2.5 m

21 In E.coli, the lac operon gets switched on when

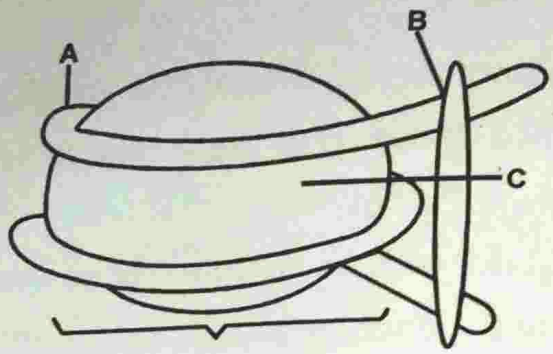
A. Lactose is present and it binds to the repressor

B. Repressor binds to operator

C. RNA polymerase binds to the operator

D. Lactose is present and it binds to RNA polymerase.

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



A. A-DNA, B-H1 Histone, C- Histone octamer

B. A- H1 Histone, B-DNA, C- Histone octamer

C. A- Histone octamer, B-RNA,C- H1 Histone

D. A-RNA, B-H1 Histone, C- Histone octamer

23 Taylor conducted the experiment to prove semiconservative mode of chromosome replication on

A. Vincarosea

B. Vicia faba

C. Drosophila melanogaster

D. E.coli

24 Some of the steps of DNA fingerprinting are given below. Identify the correct sequence from options given.

a. Electrophoresis of DNA fragments

b. Hybridisation with DNA probe

c. Digestion of DNA by restriction endonucleases

d. Autoradiographye.

e. Blotting of DNA fragments nitrocellulose membrane

A. C-A-B-E-D

B. C-A-E-B-D

C. A-E-C-B-D

D. A-C-E-D-B

SECTION-B

Section-B consists of 24 questions (Sl. No. 25-48). Attemptany 20 questions from this section.The first attempted 20 questions would be evaluated.

Questions no. 25-28 consists of two segments- assertion (A) and reason (R). Answer these questions selecting the appropriate options given below:

A. Both A and R are true and R is correct explanation of A.

B. Both A and R are true and R is not correct explanation of A.

C. A is true but R is false.

D. Both A and R are false.

25 Assertion : People generally misuse amniocentesis.

Reason : Amniocentesis is being used to determine the sex of the foetus instead of finding genetic disorders.

26 Assertion : Sterilisation is the most effective way of birth control.

Reason : Sterilisation can be easily reversed.

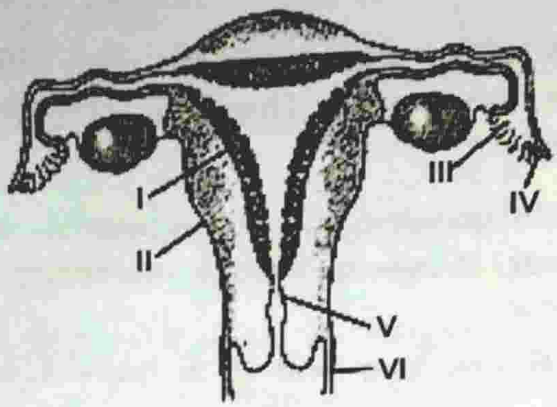
27 Assertion: Parturition is induced by a complex neuro endocrine mechanism.

Reason : At the end of gestation period, the maternal pituitary releases oxytocin which causes uterine contractions.

28 Assertion : The strength of linkage will be more when the distance between two genes is greater.

Reason : Crossing over will be relatively less frequent for the distantly located genes.

29 The given figure depicts a diagrammatic sectional view of the human female reproductive system. Which set of the three parts out of i-vi have been correctly identified



A. (II) endometrium (III) infundibulum(IV) fimbriae
B. (III) infundibulum(IV) fimbriae (V) cervix
C. (IV) oviducal funnel (V) uterus (VI) cervix
D. (I) perimetrium (II) myometrium (III) fallopian tube

30 In a fertilised ovule, n,2n and 3n condition occurs respectively in
A. Antipodal, zygote and endosperm
B. Zygote, nucellus and endosperm
C. Endosperm, nucellus and zygote
D. Antipodal, synergids and integuments

31 Even in absence of pollinating agents, seed-setting is assured in
A. Commelina
B. Zostera
C. Salvia
D. Fig

32 Identify the odd one out :
A. Labia minora
B. Fimbriae
C. Infundibulum
D. Isthmus

33 Which of the following STDs are not curable?

A. Chlamydiasis, Syphilis, Genital warts

B. HIV, Gonorrhoea, trichomoniasis

C. Gonorrhoea, Trichomoniasis, Hepatitis B

D. Genital herpes, Hepatitis B, HIV infection

34 Cu ions released from copper releasing Intrauterine Device (IUDs)

A. Prevent ovulation

B. Make uterus unsuitable for implantation

C. Increase phagocytosis of sperms

D. Suppress sperm motility

35 To produce 400 seeds, the number of meiotic divisions required will be

A. 400 B. 200

C. 500 D. 800

36 In a dihybrid cross where two parents differ in two pairs of contrasting traits seed colour yellow (YY) and seed colour green (yy) with seed shape round (RR) and seed shape wrinkled (rr), the number of green coloured seeds (yy) among sixteen products of F2 generation will be

A. 2 B. 4

C. 6 D. 8

37 In Antirrhinum, two plants with pink flowers were hybridised. The F1 plants produced red, pink and white flowers in the proportions of 1 red, 2 pink and 1 white. What could be the genotype of the two plants used for hybridisation? Red flower colour is determined by 'RR' and white by 'rr' genes.

A. rrrr B. RR

C. Rr D. rr

38 If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is

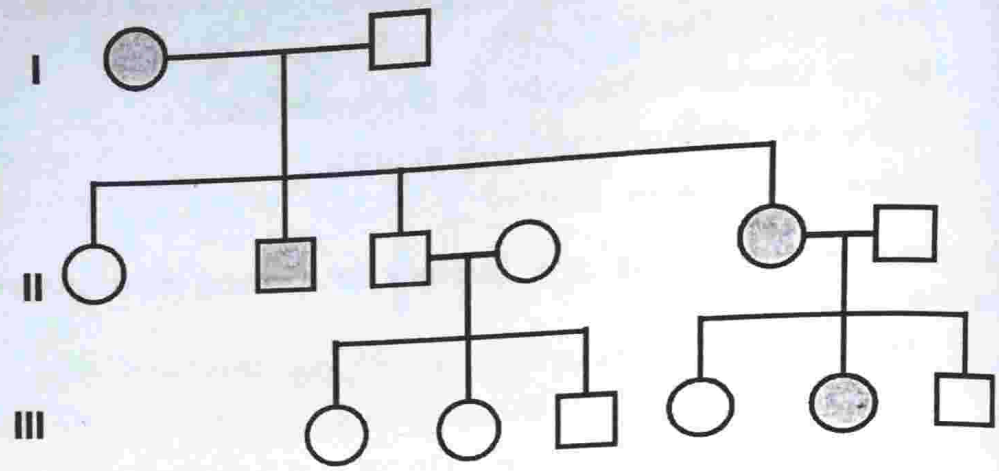
A. Autosomal dominant

B. Autosomal recessive

C. Sex-linked dominant

D. Sex-linked recessive

39



What pattern of inheritance is shown in the Pedigree?

A. Autosomal Dominant

B. Autosomal recessive

C. Sex Linked Dominant

D. Sex Linked Recessive

40 An individual with B blood group married to an individual with AB blood group can produce offspring with

A. A, B and AB blood groups

B. A and AB blood groups only

C. O and B Blood groups

D. All four types of blood groups

41 Second filial generation in a Mendelian cross resulted in both genotypic and phenotypic ratios as 1:2:1. It shows

A. Codominance

B. Dihybrid cross

C. Monohybrid cross with complete dominance

D. Monohybrid cross with incomplete dominance

42 Purines found both in DNA and RNA are

A. Guanine and cytosine

B. Cytosine and thymine

C. Adenine and thymine

D. Adenine and guanine

43 AGGTATCGCAT is a sequence from the coding strand of gene. What will be the corresponding sequence of the transcribed mRNA?

A. UCCAUAGCGUA

B. AGGUAUCGCAU

C. ACCUAUGCGAU

D. UGCTUTCGCAT

44 During DNA replication, okazaki fragments are used to elongate

A. The leading strand toward replication fork.

B. The lagging strand towards replication fork.

C. The leading strand away from replication fork.

D. The lagging strand away from replication fork

45 Identify the incorrect statement regarding Hershey and Chase experiment

A. Experiment proves that DNA is the genetic material.

B. They used bacteriophage.

C. Protein was labelled with P^{32} and DNA with S^{35}.

D. Bacteriophage is a virus.

46 Which of the following is the start Codon?

A. UGA
B. UAA
C. UAG
D. AUG

47 Satellite DNA is important because it :

A. Codes for enzymes needed for DNA replication.
B. Codes for proteins needed in cell cycle.
C. Shows high degree of polymorphism in population and also the same degree of polymorphism in an individual,which is heritable from parents to children.
D. Does not code for proteins and is same in all members of the population.

48 Some amino acids are coded by more than one codon indicates that genetic codes are :

A. Unambiguous
B. Degenerate
C. Universal
D. Initiator

SECTION C

Section C consists of one case followed by 6 questions linked to this case (Q.No.49 to 54).Besides this 6 more questions are given.Attempt any 10 in this section.

CASE

The first menstruation is called menarche and it usually occurs between 12 to 15 years. In human females, menstruation is repeated at an average interval is of 28/29 days and is called menstrual cycle. It is regulated by certain hormones as pituitary gland is stimulated by certain hormones produced in hypothalamus.The hormones produced by pituitary glands influence the ovaries which in turn affect the wall of the uterus.

49. (i) The breakdown of endometrium is the characteristic of

A. Proliferative phase

B. Luteal phase

C. Ovulatory phase

D. Menstrual phase

50 (ii) Which days of menstrual cycle marks the proliferative phase?

A. 1-5 B. 15-28

C. 6-13 D. 10-14

51 (iii) Identify the hormones that attains peak level during ovulatory phase.

A. FSH

B. LH

C. Progesterone

D. Both A and B

52 (iv) Which of the following occurs in the secretory phase?

A. Empty Graafian follicle changes into corpus luteum.

B. Primary follicle changes into graafian follicle.

C. Endometrium rebuilds and estrogen secretion increases.

D. LH surge induces release of ovum.

53 (v) Withdrawal of which hormone causes degeneration of corpus luteum?

A. FSH

B. LH

C. Progesterone

D. Estrogen

54 (vi) ASSERTION : Luteinising hormone stimulates ovulation resulting in formation of corpus luteum which secretes progesterone.

REASON : Presence of progesterone in urine is the indication of pregnancy.

A. Both A and R are true and R is correct explanation of A

B. Both A and R are true and R is not correct explanation of A

C. A is true but R is false

D. A is false but R is true

55 Sickle cell anaemia is

A. Caused by substitution of Val with Glu in beta globulin chain of haemoglobin.

B. Caused by change in single base pair of DNA.

C. Characterised by nucleated sickle shaped RBCs.

D. An autosomal linked dominant trait.

56 The cause of chromosomal disorders such as trisomy and monosomy is

A. Non-disjunction during meiosis

B. Overfertilization

C. Non-disjunction during mitosis

D. Translocation during meiosis

57 Percentage of crossing over is more when

A. Genes are located in different cells.

B. Genes are not linked

C. Linked genes are located close to each other.

D. Linked genes are located far apart from each other.

58. Choose the correct statement for the molecule given below :

D loop

Antic
lo

A. It is called

B. It has a c

C. It brings

D. Both A a

59. Choose the c

1

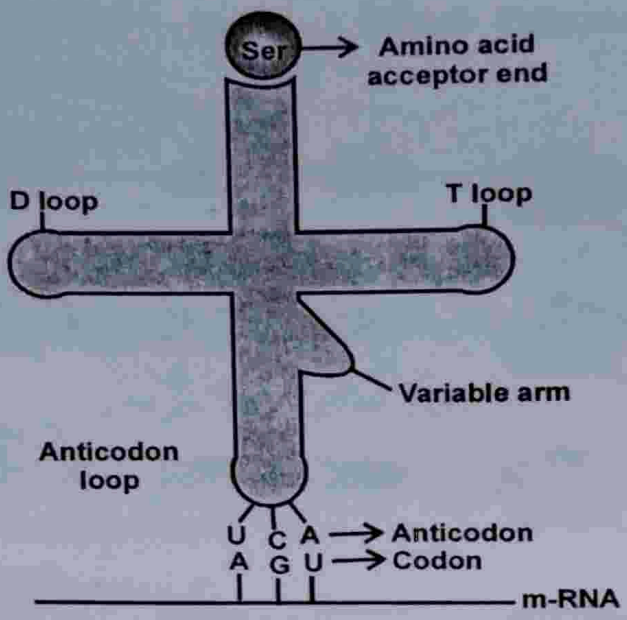
3

A. E-St

B. A-T
is

C. A-

D. A-



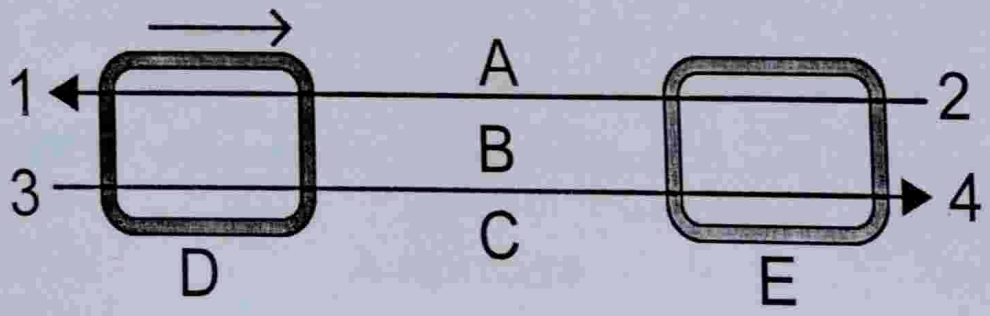
A. It is called an adapter molecule.

B. It has a clover leaf like structure

C. It brings amino acids from nucleoplasm

D. Both A and B are correct.

59. Choose the correct one from below :



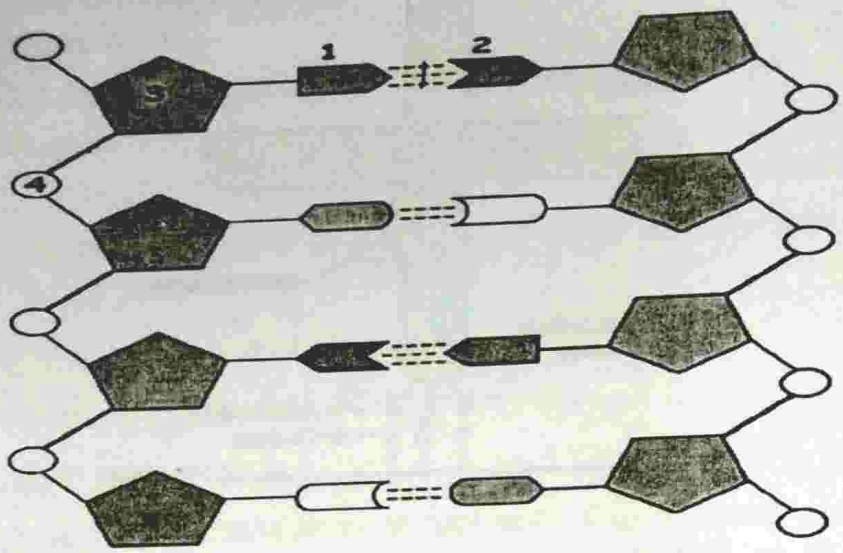
A. E-Structural Gene, D- promoter, C-Coding strand, 1 is 5'

B. A-Terminator Gene, D-Template strand, C-Coding Strand, 1 is 5'

C. A-Structural Gene, B-Template Strand, C-Coding Strand,1 is 3'

D. A-Structural Gene, B-Template Strand, C-Coding Strand, 1 is 5'

60. Identify the correct match :



A. 1 and 2_Hydrogen bond,1 and 3_Glycosidic Bond, 3 and 4_ Phosphoester bond.

B. 1 and 2_ Glycosidic Bond, 1 and 3_Phosphoester Bond and 3 and 4 Hydrogen Bond

C. 1 and 2_Phosphoester bond, 1 and 3_Hydrogen Bond,3 and 4 _Glycosidic Bond

D. 1 and 2 Hydrogen Bond,1 and 3_phosphoester Bond and 3 and 4_ Glycosidic Bond

Question in lieu of diagram based questions for VI candidatesTotal alternative questions-7

SECTION-A

10. Pollination in water hyacinth and water lily is brought about by the agency of

A. Water

B. Insects or wind

C. Birds

D. Bats

2 DNA fragments are

A. Positively charged

B. Negatively charged

C. Neutral

D. Either positively or negatively charged depending on their size

SECTION-B

29. Seminal plasma in human males is rich in

A. Ribose and potassium

B. Fructose and calcium

C. Glucose and calcium

D. DNA and testosterone

39. A pleiotropic gene

A. Controls multiple traits in an individual

B. Is expressed only in primitive plants

C. Is gene involved during Pliocene

D. Controls a trait only in combination with another gene

SECTION-C

58. RNA polymerase II is responsible for transcription of

A. rRNA

B. hnRNA

C. tRNA

D. snRNA

59 Which of the following is not a part of transcriptional unit in DNA ?

A. Inducer

B. Terminator

C. Promoter

D. Structural gene

60. The fact that a purine base always pairs with a pyrimidine base in the DNA double helix leads to

A. The antiparallel nature

B. Semiconservative nature

C. Uniform width throughout DNA

D. Uniform length in all DNA

SAMPLE QUESTION PAPER-3 (TERM 1) 2021-22

SUBJECT : BIOLOGY

CLASS : XII

Time : 90 Min **Marks : 5**

General Instructions :

1. ***The Question Paper contains three sections.***
2. ***Section A has 24 questions. Attempt any 20 questions.***
3. ***Section B has 24 questions. Attempt any 20 questions.***
4. ***Section C has 12 questions. Attempt any 10 questions.***
5. ***All questions carry equal marks.***
6. ***There is no negative marking.***

SECTION-A

Section–A consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

1 The egg apparatus in the embryo sac consists of

a) Two synergids and one egg cell

b) One synergid and two egg cells

c) Central cell

d) Only two egg cells

2. The ploidy of endosperm -

a) Haploid

b) Diploid

c) Triploid

d) Tetraploid

3. Which among the following plant is water pollinated ?

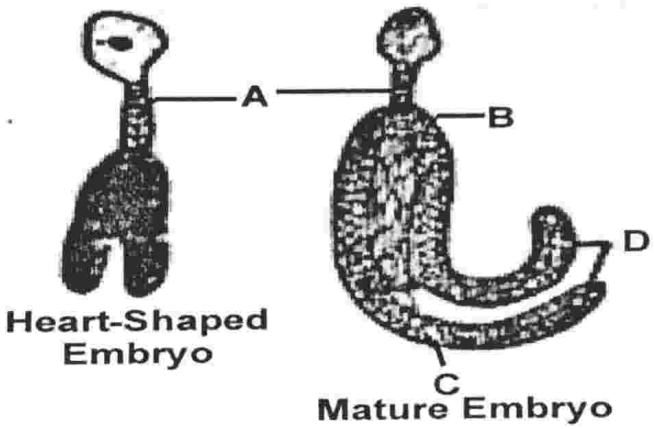
a) Water hyacinth

b) Water lily

c) Lotus

d) Vallisneria

4. In the given figures identify the parts labelled as A,B,C,D



a) A-Radicle, B – Cotyledon, C –Suspensor, D – Plumule

b) A- Suspensor, B – Cotyledon, C –Suspensor, D – Plumule

c) A- Cotyledon, B-Plumule, C- Suspensor, D –Radicle

d) A- Suspensor, B – Radicle , C – Plumule, D- cotyledons

5. In the given monocot Plant identify the adaptations for pollination.

a) Colourful large flowers, Winged Pollengrains, Sticky pollens
b) Colourless small flowers, Light dry pollens, Feathery stigma
c) Colourful large flowers , Heavy pollens, Non feathery stigma
d) Bright flowers, Large sized pollens, Feathery stigma

6. Which among the following is an example of albuminous seeds
a) Castor,Sunflower
b) Rice, Pea
c) Wheat, Groundnut
d) Pea, Groundnut

7. In an embryosacFiliform apparatus occurs in the
(a) Synergids
(b) Antipodals
(c) Egg nucleus
(d) Central cell

8. Spermiation is the process of the release of sperms from
(a) Seminiferous tubule
(b) Vas deferens
(c) Epididymis
(d) Prostate gland

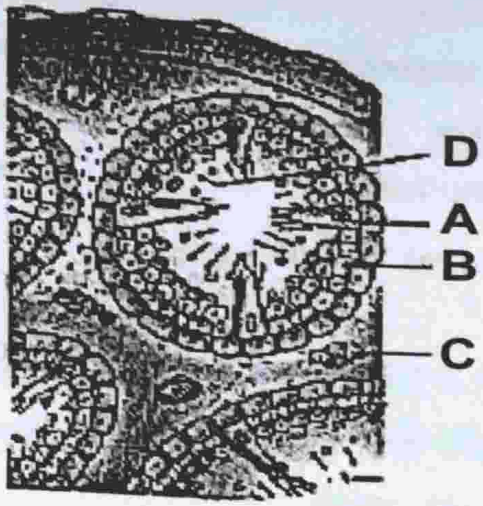
9. Which one of the following is not a male accessory gland ?
(a) Seminal vesicle
(b) Ampulla
(c) Prostate
(d) Bulbourethral gland

10. Which of the following is not a function of placenta?
a) Secretes relaxin
b) Facilitates removal of CO_2 and waste products

c) Secretes hPL and hCG

d) Supplies oxygen and nutrients

11. Observe the given figure and identify the parts labeled as A, B,C,D



	A	B	C	D
a)	Leydig's cell	Sperms	Sertoli cell	Spermatogonium
b)	Sperms	Sertoli cell	Spermatogonium	Leydig's cell
c)	Sertoli cell	Spermatogonium	Leydig's cell	Sperms
d)	Spermatogonium	Leydig's cell	Sperms	Sertoli cell

12. Genes with multiple phenotypic effects are known as

(a) Lethal genes

(b) Duplicate genes

(c) Pleiotropic genes

(d) Complimentary genes

13. How many types of gametes would be produced if the genotype of a parent is CCDd?

a) 1 b) 2

c) 3 d) 4

14. If the mother is carrier for an X linked character and father is normal then What is the chances of getting a normal son

(a) 0 %
(b) 25 %
(c) 50 %
(d) 75%

15. The classical example of point mutation is :

a) Hemophilia
b) Sickle cell anemia
c) Phenylketonuria
d) Cystic fibrosis

16. Genotypic ratio of dihybrid cross is :

a) 1:2:1
b) 2:1:2
c) 1:2:1:2:4:2:1:2:1
d) 1:2:1: 4:2:2:1:2:1

17. Phenotypic ratio and genotypic ratio remains same in

a) Monohybrid cross
b) Dihybridcross
c) Incomplete dominance
d) Multiple allelism

18. In which of the following condition the lac operon in E.coli, gets switched on ?

a) lactose or allolactose 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

19. Sickle cell anemia is caused by the replacement of

a) Valine by glutamic acid in beta polypeptide chain
b) Glutamic acid is replaced by valine in beta polypeptide chain
c) Glutamic acid is replaced by valine in alpha polypeptide chain
d) Valine is replaced by glutamic acid in alpha polypeptide chain

20. Which of the following is correct about mature RNA in eukaryotes?
    a) Exons and introns do not appear in the mature RNA.
    b) Exons appear, but introns do not appear in the mature RNA.
    c) Introns appear, but exons do not appear in the mature RNA.
    d) Both exons and introns appear in the mature RNA.

21. The unit of a nucleic acid is
    a) Nitrogen base
    b) Nucleotide
    c) Sugar
    d) Nucleoside

22. The bond seen between adjacent nucleotides is
    a) Glycosydic bond
    b) Ester bond
    c) Peptide bond
    d) Phosphodiester bond

23. In Messelson and Stahl's experiment after 80 minutes how many DNA molecules are formed in E.coli and how many are light and how many are intermediate in density ?
    a) 8 DNA, 4 light 4 intermediate
    b) 4 DNA 2 light , 2 intermediate
    c) 16 DNA 14 light, 2 intermediate
    d) 14 DNA, 12 light, 2 intermediate

24. 5'ACG CGA AUG CCC CGC GGG UAG CGA 3'. Identify the UTRs in the given sequence of mRNA
    a) CCC CGC UAG
    b) ACG CGA AUG
    c) ACG CGA CGA
    d) GGG UAG CGA

SECTION-B

Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

Question No. 25 to 28 consist of two statements. Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below :

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

25. Assertion : Lactational amenorrhea is the natural method of contraception.

Reason: It increases the phagocytosis of sperm.

26. **Assertion :** Transfer of an ovum collected form a donor into the fallopian tube of another female who cannot produce an ovum.

Reason : Transfer of early embryos with up to 8 blastomeres into the fallopian tube of the female is called ZIFT

27. **Assertion** : Syphilis, gonorrhoea and AIDS are some common STDs

Reason : STDs are not transmitted through sexual intercourse.

28. **Assertion** : Down's syndrome is the genetic disorder caused due to the presence of additional copy of X chromosome.

Reason : Both X chromosomes passes into single egg due to non-disjunction during oogenesis.

29. It is an Autosomal disorder that is caused by the trisomy of 21st chromosome

a) Turner's syndrome

b) Edward syndrome

c) Klinefelter's syndrome

d) Down's syndrome

30. Person having genotype I^AI^B would show the blood group as AB. This is because of

(a) pleiotropy

(b) codominance

(c) segregation

(d) incomplete dominance

31. ZZ/ZW type of sex determination is seen in

(a) Honey bee (b) Drosophila

(c) Cockroach (d) Peacock

32. A cross between two Red flowered plants resulted in offspring having few red flowered plants. What would be the genotypes of both the parents?

(a) RRandRr (b) Rr and Rr

(c) Rr and RR (d) RR and RR

33. Which of the following condition is applicable in a dihybrid cross having 9 : 3 : 3 : 1 ratio

(a) The alleles of two genes are interacting with each other

(b) It is a polygenic inheritance

(c) It is a case of multiple allelism

(d) The alleles of two genes are segregating independently

34. A single character controlled by many separate independent genes. What term will you give for this phenomenon ?

(a) Multiple allelism

(b) Polygenic inheritance

(c) Pleiotropy

(d) Polygeny

35. Mother and father of a person with 'O' blood group have 'A' and 'B' blood group respectively. What would be the genotype of both mother and father?

(a) Mother is homozygous for 'A' blood group and father is heterozygous for 'B'.

(b) Mother is heterozygous for 'A' blood group and father is homozygous for 'B'.

(c) Both mother and father are heterozygous for 'A' and 'B' blood group.

(d) Both mother and father are homozygous for 'A' and 'B' blood group.

36. Which one of the following statement is is true with respect to AUG

(a) It codes for methionine only

(b) It is also an initiation codon

(c) It codes for methionine in both prokaryotes and eukaryotes

(d) All of the above

37. To initiate translation process, the mRNA first binds with

(a) The smaller ribosomal sub-unit

(b) The larger ribosomal sub-unit

(c) The whole ribosome

(d) No such specificity exists

38. If the base sequence of a codon in mRNA is 5'UUC-3', the sequence of tRNA pairing with it must be

(a) 5' - AAG- 3'

(b) 5' - AAU - 3'

(c) 5' - AUG - 3'

(d) 5' - GUA - 3'

39. If the sequence of nitrogen bases of the coding strand of DNA in a transcription unit is 5' - A T G A A T G - 3', the sequence of bases in its RNA transcript would be

(a) 5' - A U G A A U G - 3'

(b) 5' - U A C U U A C - 3'

(c) 5' - C A U U C A U - 3'

(d) 5' - G U A A G U A - 3'

40. In humans most of the genes are located in———— chromosome and————chromosome has fewest genes

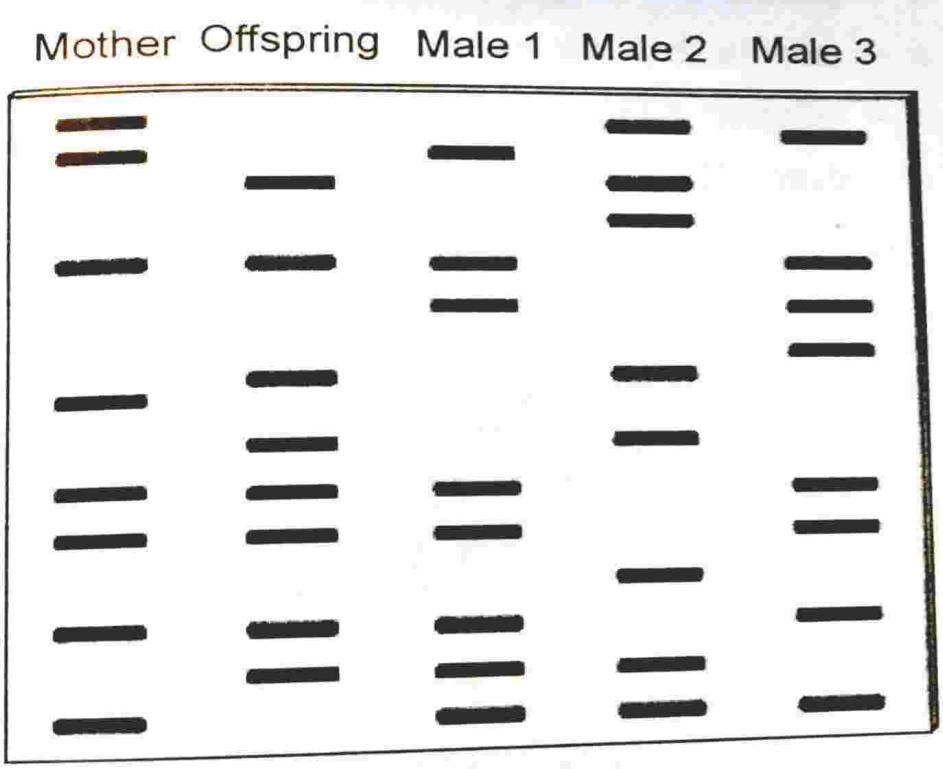
a) X, Y

b) 7 ,Y

c) 21, X

d) 1, Y

41. Identify the father of the child in this paternity dispute based on the DNA finger print of the alleged individuals.



a) Male 1

b) Male 3

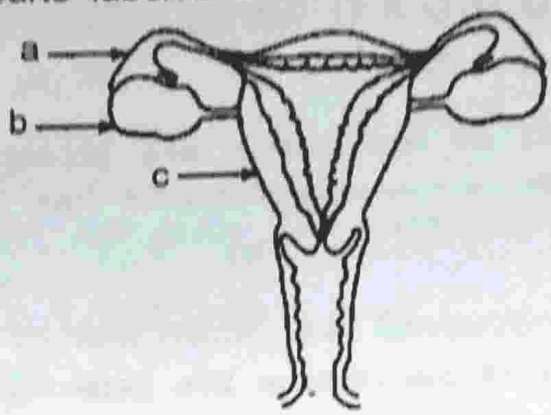
c) Male 2

d) None of these

42. Which among the following is not a part of female reproductive system

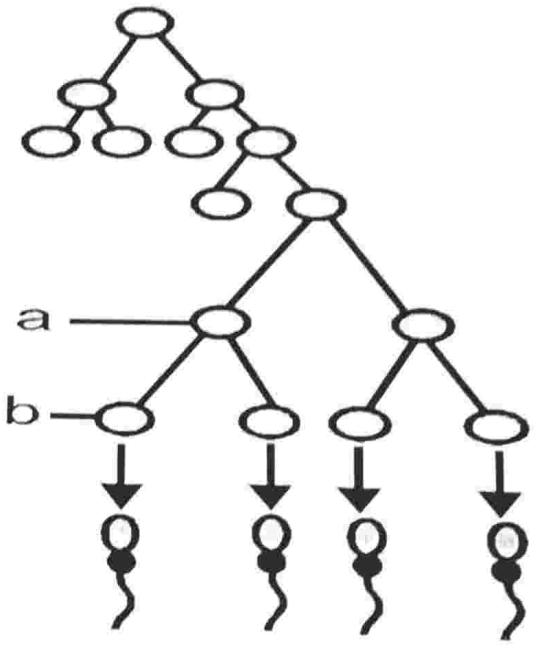
a) Ovary
b) Prostate
c) Cervix
d) Vagina

43. Identify the parts labeled as a, b, c from the given figure



a) a – uterus, b – ampula, c – cervix
b) a – ampula, b – uterus, c – cervix
c) a – fallopian tube, b – ovary, c – uterus
d) a – ovary, b – fallopian tube, c – uterus

44. Identify the parts labeled as a and b in the given diagram. And write the chromosome diagram in each one.



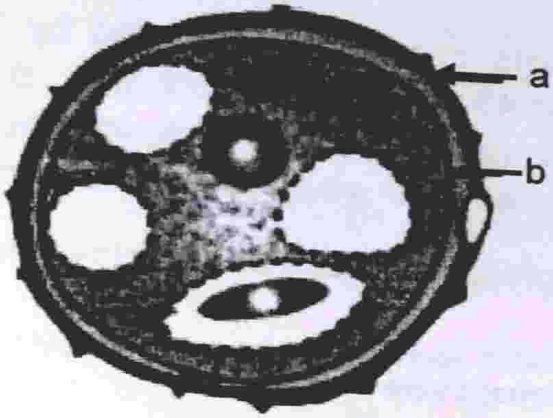
a) a- secondary spermatocyte, 2n = 46, b – spermatid, n = 23

b) a – secondary spermatocyte, n=23, b – spermatid, 2n = 46

c) a – secondary spermatocyte, n = 23, b – spermatid n = 23

d) a – spermatid, n = 23, b – secondary spermatocyte, n = 23

45. Identify the parts labeled as a and b in the diagram and mention the type of substance from which it is made.



a) a – exine, pectin; b – intine, lignin

b) a – exine, cellulose; b – intine, lignin

c) a – exine, sporopollenin; b – intine, pectin and cellulose

d) a – intine, sporopollenin; b – exine, pectin

46. Triploid tissue in angiosperm is

a) Endosperm

b) Nucellus

c) Endothecium

d) Tapetum

47. The chromosome number of a spore mother cell of angiosperm is 38. What will be the chromosome number of its endosperm cell?

a) 38 b) 19

c) 57 d) 65

48. In the production of test tube babies,

a) Fertilization is external but foetus formation is internal

b) Fertilization is internal but foetus formation is external

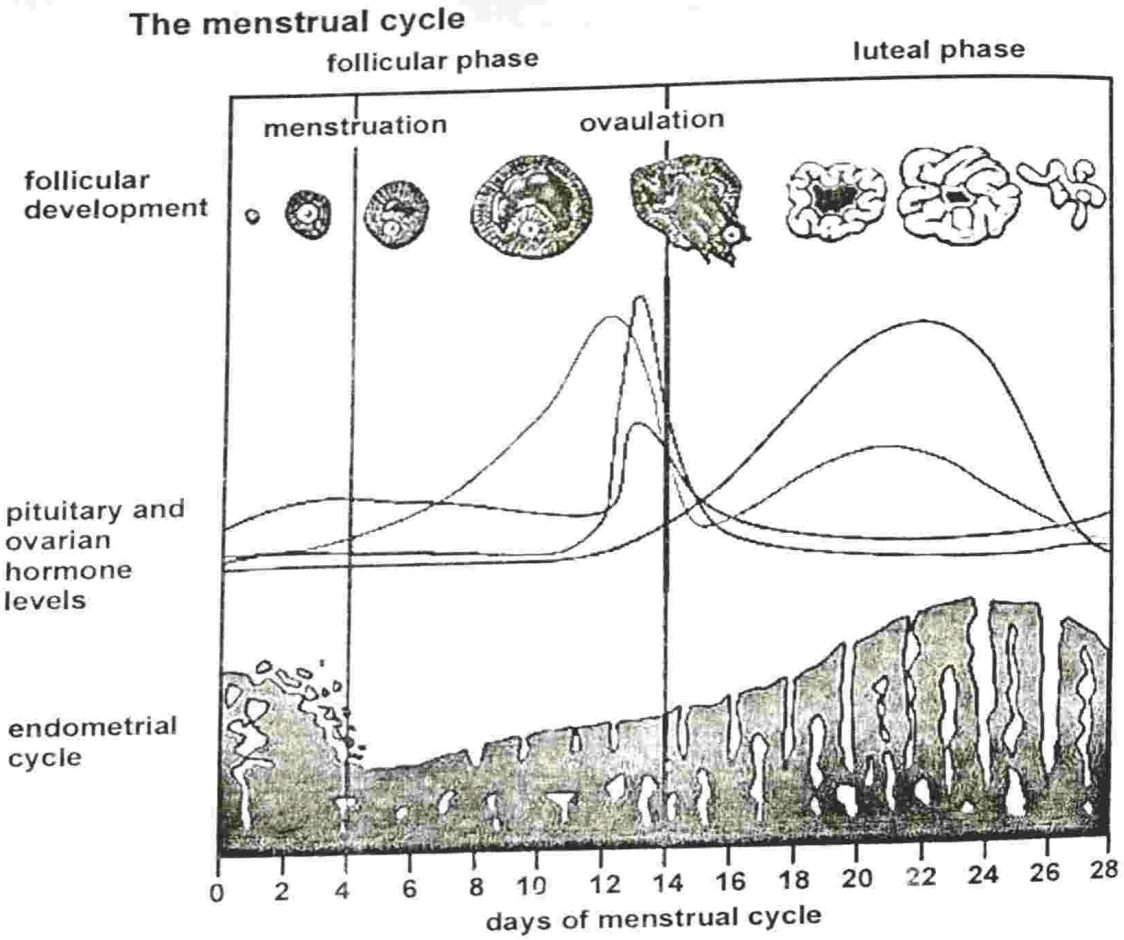
c) Fertilization and foetus formation are external

d) Fertilization and foetus formation are internal

SECTION–C

Section-C consists of one case followed by 6 questions linked to this case (Q.No.49 to 54). Besides this, 6 more questions are given. Attempt any 10 questions in this section. The first attempted 10 questions would be evaluated.

Study the Graphical representation below and and answer the questions



49. The break down of endometrium is characterized by
a) Proliferative phase
b) Leuteal phase
c) Ovulatory phase
d) Menstrual phase

50. In which days of menstrual cycle marks the proliferative phase ?
a) 1-5
b) 6-13
c) 10-14
d) 16-28

51. Identify the hormone that attains Peak level during Ovulatory phase
a) FSH
b) Progesterone
c) LH
d) Both a and b

52. Absence of which hormone causes degeneration of corpus leuteum
a) FSH
b) LH
c) Progesterone
d) Estrogen

53. Match the codons with their respective amino acids and choose the correct answer.

A. UUU	1. Valine
B. GAG	2. Methionine
C. GUG	3. Phenylalanine
D. AUG	4. Glutamic acid

	A	B	C	D
a)	2	3	1	4
b)	2	4	3	2
c)	3	4	1	2
d)	1	3	4	2

54. Which set of hormones are produced during pregnancy?

a) hCG, RelaxinhPL

b) hPL, Estrogen, Chorionic thyrotropin

c) Chorionic gonadotropin,estrogen,Chorionic thyrotropin

d) FSH, LH, hPL

55. What were the main criteria taken under consideration for the experiment by Hershey and Chase?

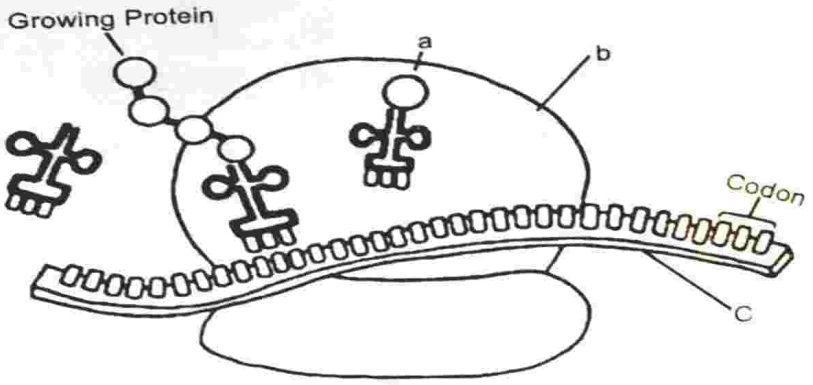
a) DNA contains phosphorus, protein contains sulphur

b) Protein contains phosphorus, DNA contains sulphur

c) Both DNA and protein contains phosphorus and not sulphur

d) Both DNA and protein contains sulfur and not phosphorus

56. Identify the label a, b, c from the given diagram



a) a – tRNA, b – ribosome, c – DNA

b) a – amino acid, b – mRNA, c – DNA

c) a – amino acid, b – ribosome, c – mRNA

d) a – ribosome, b – DNA, c – tRNA

57. A woman with 46 chromosomes and one 21st chromosome is characterized by

a) Turner's syndrome

b) Down's syndrome

c) Klinefilter's syndrome

d) all of these

58. In a double stranded DNA molecule, the % of cytosine is 18%. What would be the % of adenine?

a) 32%

b) 64%

c) 36%

d) 18%

59. The number of codones that code for different amino acid is

a) 16

b) 31

c) 61

d) 64

60. If the total amount of adenine and thymine in a double stranded DNA is 45%, the amount of guanine will be ?

a) 22.5%

b) 27.5%

c) 45%

d) 55%

Questions in lieu of diagram based questions for VI candidates
Total Question (alternative) 6

4 Embryonal axis consists of

a) epicotyl and hypocotyl

b) cotyledons

c) Scutellum

d) None of the above

5 Artificial hybridisation of unisexual flowers does not include

a) Emasculation

b) bagging

c) dusting

d) rebagging

11 The role of sertoli cells is -

a) to increase the no. of sperms

b) to transform spermatids into sperms

c) to provide nourishment to sperms

d) none of the above

41 The technique of DNA Fingerprinting was initially developed by

a) TH Morgan

b) Sutton and Boveri

c) Hargobind Khorana

d) Alec Jeffreys

44 Which of the following cells do not undergo meiotic cell division?

a) Sertoli cells

b) Primary spermatocytes

c) Secondary spermatocytes

d) All of the above

45 In pollen grain exine has prominent apertures where sporopollenin is absent

a) micropyle

b) germpores

c) Tapetum

d) Intine

MARKING SCHEME PAPER-1 (TERM 1) 2021-22

SUBJECT : BIOLOGY

CLASS : XII

Time : 90 Min **Marks : 35**

SECTION A

1.	C.	Relaxin and hCG	1
2.	B.	2	1
3.	A.	Sporopollenin	1
4.	D.	Glutamic acid is substituted by Valine in the β globinchain at the sixth position	1
5.	D.	Polygenic and quantitative inheritance	1
6.	C.	One meiotic and three mitotic divisions	1
7.	B.	In the germinal epithelium lining the inner surface of seminiferous tubules	1
8.	C.	feathery colourless Non sticky and light weight	1
9.	C.	Bisexual flowers which never open	1
10.	C.	Isthmus	1
11.	D.	All of above	1
12.	D.	embryo upto 8-celledstage	1
13.	B.	Self pollinated	1
14.	B.	X-chromosome	1
15.	A.	Primary oocyte Primary oocyte Secondary oocyte	1
16.	D.	Liquid nitrogen	1
17.	A.	Micropyle	1
18.	B.	Seven-celled	1
19.	A.	probes	1
20.	D.	Fruit X is false fruit because its thalamus is edible.	1

21. A. lactose is present and it binds to the repressor 1

22. B. free nuclear endosperm 1

23. A. UAA, UGA, UAG 1

24. D. (ii) and (iv) 1

SECTION B

25. C. Assertion is true but Reason is false. 1

26. A. Both Assertion and Reason are true and Reason is thecorrect explanation of Assertion. 1

27. A. Both Assertion and Reason are true and Reason is thecorrect explanation of Assertion. 1

28. A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion. 1

29. A. Perimetrium – site of implantation of blastocyst 1

30. D. $XX^h$and XY 1

31. C. Both a and b 1

32. A. 44 + XXY 1

33. A. Joining DNA fragments 1

34. A. Live R type cell+ Heat- killed S type cells 1

35. D. 27% 1

36. B. A. Template strand
B. Coding strand
C. promoter
D. Terminator 1

37. A. Experimental proof of semi-conservative replication of 1

38. D. Syngamy and triple fusion 1

39. A. Vegetative cell and generative cell 1

40. C. GIFT 1

41. A. Genotypic ratio is similar to phenotypic ratio 1

42. C. Starch synthesis in Pea—Multiple alleles 1
43. B. DNA → RNA → Proteins 1
44. C. Blood group A,B and AB 1
45. B. DNA 1
46. D. Polymers of nucleotides 1
47. D. HIV 1
48. C. Nucleosomes in chromatin 1

SECTION C

49. D. 3-5 years 1
50. C. Progesterone with or without estrogen 1
51. B. Saheli 1
52. D. Upto 72 hours after sex 1
53. C. Both implant and copper T 1
54. B. Female foeticide 1
55. D. Methionine 1
56. D. CCA3' end 1
57. C. Heterogeneous nuclear RNA 1
58. B. Methyl guanosine triphosphate 1
59. A. Haplodiploid 1
60. C. (i) Promoter Site, (ii) Sigma factor (iii) RNA polymerase 1

For blind student

Marking scheme in lieu of diagram based questions for VI candidates

11 C. Suppressing Sperm motility
15 B. Progesterone
20 C. Strawberry
36 C. Repressor
60 B. Polycistronic structural gene

MARKING SCHEME PAPER-2 (TERM 1) 2021-22

SUBJECT : BIOLOGY

CLASS : XII

Time : 90 Min **Marks : 35**

1	A.	Cellular endosperm	1
2	D.	Perisperm	1
3	D.	one fuses with the egg and other fuses with the central cell nuclei.	1
4	C.	wind	1
5	A.	Pea	1
6	D.	At the time of fusion of sperm with ovum	1
7	A.	Most of the organ systems are formed.	1
8	A.	Secondary spermatocyte, first polar body, ovum	1
9	A.	Seminiferous tubules	1
10	B.	Small,white,covered with mucilage	1
11	C.	Maternal sporophytic tissue	1
12	D.	4	1
13	A.	Sutton and Boveri	1
14	B.	Klinefelter's Syndrome	1
15	D.	TH Morgan-Transforming Principle	1
16	A.	0	1
17	C.	Different forms of a gene	1
18	C.	The F_1 hybrid with a double recessive genotype	1
19	A.	(i) and (ii)	1
20	A.	2.2 m	1
21	A.	Lactose is present and it binds to the repressor	1

22	A.	A. A-DNA, B-H1 Histone, C- Histone octamer	1
23	A.	Viciafaba	1
24	B.	C-A-E-B-D	1
25	A.	Both A and R are true and R is correct explanation of A	1
26	C.	A is true but R is false	1
27	A.	Both A and R are true and R is correct explanation of A	1
28	D.	Both A and R are false .	1
29	B.	(iii) infundibulum (iv) fimbriae (v) cervix	1
30	A.	Antipodal, zygote and endosperm	1
31	A.	Commelina	1
32	A.	Labia minora	1
33	D.	Genital herpes, Hepatitis B, HIV infection	1
34	D.	Suppress sperm motility	1
35	C.	500	1
36	B.	4	1
37	C.	Rr	1
38	D.	Sex-linked recessive	1
39	A.	Autosomal Dominant	1
40	A.	A, B and AB blood groups	1
41	D.	Monohybrid cross with incomplete dominance	1
42	D.	Adenine and guanine	1
43	B.	AGGUAUCGCAU	1
44	D.	The lagging strand away from replication fork	1
45	C.	Protein was labelled with P^{32} and DNA with S^{35}.	1
46	D.	AUG	1
47	C.	Shows high degree of polymorphism in population and also	

22	A.	A. A-DNA, B-H1 Histone, C- Histone octamer	1
23	A.	Viciafaba	1
24	B.	C-A-E-B-D	1
25	A.	Both A and R are true and R is correct explanation of A	1
26	C.	A is true but R is false	1
27	A.	Both A and R are true and R is correct explanation of A	1
28	D.	Both A and R are false .	1
29	B.	(iii) infundibulum (iv) fimbriae (v) cervix	1
30	A.	Antipodal, zygote and endosperm	1
31	A.	Commelina	1
32	A.	Labia minora	1
33	D.	Genital herpes, Hepatitis B, HIV infection	1
34	D.	Suppress sperm motility	1
35	C.	500	1
36	B.	4	1
37	C.	Rr	1
38	D.	Sex-linked recessive	1
39	A.	Autosomal Dominant	1
40	A.	A, B and AB blood groups	1
41	D.	Monohybrid cross with incomplete dominance	1
42	D.	Adenine and guanine	1
43	B.	AGGUAUCGCAU	1
44	D.	The lagging strand away from replication fork	1
45	C.	Protein was labelled with P^{32} and DNA with S^{35}.	1
46	D.	AUG	1
47	C.	Shows high degree of polymorphism in population and also	

		the same degree of polymorphism in an individual, which is heritable from parents to children.	1
48	B.	Degenarete	1
49	D.	Menstrual phase	1
50	C.	6-13	1
51	D.	Both A and B	1
52	A.	Empty Graffian follicle changes into corpus luteum	1
53	C.	Progesterone	1
54	C.	A is true but R is false	1
55	B.	Caused by change in single base pair of DNA.	1
56	A.	Non-disjunction during meiosis	1
57	C.	Linked genes are located close to each other	1
58	D.	Both A and B are correct	1
59	C.	A. Structural Gene, B. Template Strand, C. Coding Strand, is 3'	1
60	A.	1 and 2 _ Hydrogen bond,1 and 3_ Glycosidic Bond, 3 and 4_ Phosphoester bond	1

For blind student

Marking scheme in lieu of diagram based questions for VI candidates. Total Alternative Questions-7

10	B.	Insects or wind
22	B.	Negatively charged
29	B.	Fructose and calcium
39	A.	Controls multiple traits in an individual
58	B.	hnRNA
59	A.	Inducer
60	C.	Uniform width throughout DNA

MARKING SCHEME PAPER-3 (TERM 1) 2021-22

SUBJECT : BIOLOGY

CLASS : XII

Time : 90 Min **Marks : 50**

1	a)	Two synergids and one egg cell	1
2	c)	triploid	1
3	d)	Vallisneria	1
4	d)	A. Suspensor, B. Radicle, C. Plumule, D. Cotyledons	1
5	b)	Colourless small flowers, Light dry pollens, Feathery stigma	1
6	a)	Castor, Sunflower	1
7	a)	Synergids	1
8	a)	Seminiferous tubule	1
9	(b)	Ampulla	1
10	a).	Secretes relaxin	1
11.	c)	Sertoli cell, b) Sprmatogonia, c) Leydig's cell, d) sperms	1
12.	c)	Pleiotropic genes	1
13	b)	2	1
14	b)	25 %	1
15	b)	Sickle cell anemia	1
16	c)	1:2:1:2:4:2:1:2:1	1
17	c)	Incomplete dominance	1
18	a)	lactose or allolactose is present and it binds to the repressor	1
19.	b)	Glutamic acid is replaced by valine in beta polypeptide chain	1
20	b)	Exons appear, but introns do not appear in the mature RNA	1
21	b)	Nucleotide	1

22	d)	Phosphodiester bond	1
23	c)	16 DNA 14 light , 2 intermediate	1
24	c)	ACG CGA CGA	1

SECTION B

25	C.	A is true but R is false	1
26	B.	Both A and R are true and R is not the correct explanation of A	1
27	C.	A is true but R is false	1
28	D.	A is False but R is true	1
29	d)	Down's syndrome	1
30	(b)	codominance	1
31	d)	Peacock	1
32	(b)	Rr and Rr	1
33	(d)	The alleles of two genes are segregating independently	1
34	(b)	Polygenic inheritance	1
35	c)	Both mother and father are heterozygous for 'A' and 'B' blood group	1
36	(d)	All of the above	1
37	(a)	The smaller ribosomal sub-unit	1
38	(a)	5' - AAG- 3'	1
39	(a)	5' - A U G A A U G - 3'	1
40	d)	1, Y	1
41	c)	Male 2	1
42	b)	Prostate	1
43	c)	a – fallopian tube, b – ovary, c – uterus	1
44	c)	a–secondary spermatocyte, n=23, b – spermatid n = 23	1

45 c) a – exine, sporopollenin; b – intine, pectin and cellulose 1

46 a) Endosperm 1

47 c) 57 1

48 a) Fertilization is external but foetus formation is internal 1

SECTION C

49 d) Menstrual phase 1

50 b) 6-13 1

51 c) LH 1

52 c) Progesterone 1

53 a) A- 3 , B- 4 , C- 1, D - 2 1

54 a) hCG, RelaxinhPL 1

55 a) DNA contains phosphorus, protein contains sulphur 1

56 a) a – amino acid, b – ribosome, c – mRNA 1

57 b) Down's syndrome 1

58. a) 32% 1

59 c) 61 1

60 b) 27.5%

For blind student

Marking Scheme in lieu of diagram based questions for VI Candidates

4 a) epicotyl and hypocotyl

5 a) Emasculation

11 c) To provide nourishment to sperms

41 d) Alec Jeffreys

44 a) Sertoli Cells

45 b) germ pores 1