Sample Question Paper - 1(TERM - I)

Class XII (Session - 2021-22)

Subject- Biology

Time Allowed: 90 minutes **Maximum 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

Q.1 Which of the following statements is not correct?

(a) Pollen germination and pollen tube growth are regulated by chemical components of pollen interacting with those of the pistil.

(b) Some reptiles have also been reported as pollinators in some plant species.

(c) Pollen grains of many species can germinate on the stigma of a flower, but only one pollen tube of the same species grows into the style.

(d) Insects that consume pollen or nectar without bringing about pollination are called pollen/ nectar robbers.

Q.2 What is the fate of the male gametes discharged in the synergid?

(a) One fuses with the egg and other fuses with central cell nuclei.

(b) One fuses with the egg, other(s) degenerates in the synergid.

(c) All fuse with the egg.

(d) One fuses with the egg, other(s) fuse(s) with synergid nucleus.

Q.3 Which of the following depicts the correct pathway of transport of sperms?

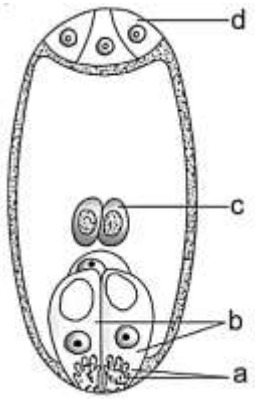
(a) Rete testis → Efferent ductules → Epididymis

(b) Rete testis → Epididymis → Efferent ductules → Vas deferens

(c) Rete testis → Vas deferens → Efferent ductules → Epididymis

(d) Efferent ductules → Rete testis → Vas deferens → Epididymis

Q.4 Examine the figure given below and select the right option giving all the four parts a, b, c and d. Correctly Identify a, b, c, d



(a) Synergids, Antipodal cells, Polar nuclei, Filiform apparatus

(b) Filiform apparatus, Egg, Polar nuclei, Nucellus

(c) Filiform apparatus, Synergids, Polar nuclei, Antipodal cell+

(d) Synergids, Polar nuclei, Filiform apparatus, Antipodal cell

Q.5 The Test-tube Baby Programme employs which one of the following techniques?

(a) Zygote intra fallopian transfer (ZIFT)

(b) Intra cytoplasmic sperm injection (ICSI)

(c) Intra uterine insemination (IUI)

(d) Gamete intra fallopian transfer (GIFT)

Q.6 The genotypes of a Husband and Wife are $I^A I^B$ and I_i^A. Among the blood types of their children, how many different genotypes and phenotypes are possible?

(a) 3 genotypes; 3 phenotypes

(b) 3 genotypes; 4 phenotypes

(c) 4 genotypes; 3 phenotypes

(d) 4 genotypes; 4 phenotypes

Q.7 Tayloret al conducted the experiments to prove semiconservative mode of chromosome replication on

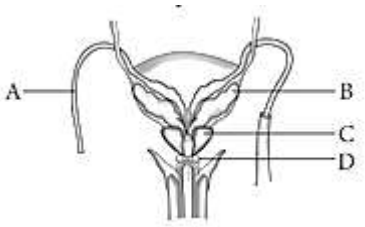
(a) Vinca rosea

(b) Vicia faba

(c) Drosophila melanogaster

(d) E. coli

Q.8 Given below is a diagrammatic sketch of a portion of human male reproductive system. Select the correct set of the names of the parts labelled A, B, C, D.



(a) A-Vas deferens, B-Seminal vesicle, C-Prostate, D-Bulbourethral gland

(b) A-Vas deferens, B-Seminal vesicle, C-Bulbourethral gland, D-Prostate

(c) A-Ureter, B-Seminal vesicle, C-Prostate, D-Bulbourethral gland

(d) A-Ureter, B-Prostate, C-Seminal vesicle, D-Bulbourethral gland

Q.9 A dioecious flowering plant prevents both

(a) Autogamy and xenogamy

(b) Autogamy and geitonogamy

(c) Geitonogamy and xenogamy

(d) Cleistogamy and xenogamy

Q.10 What are those structures that appear as 'beads - on - string' in the chromosomes when viewed under electron microscope?

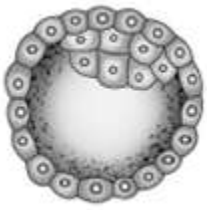
(1) Base pairs

(2) Genes

(3) Nucleotides

(4) Nucleosomes

Q.11 Identify the human developmental stage shown as well as the related right place of its occurrence in a normal pregnant woman and select the right option for the two, together.



Developmental stage	Site of occurrence
(a) Late morula	- Middle part of Fallopian tube
(b) Blastula	- End part of Fallopian tube
(c) Blastocyst	- Uterine wall
(d) 8-celled morula	- Starting point of Fallopian tube

Q.12 Semiconservative replication of DNA was first demonstrated in

(1) Escherichia coli

(2) Streptococcus pneumonia

(3) Salmonella typhimurium

(4) Drosophila melanogaste

Q.13 Medical Termination of Pregnancy (MTP) is considered safe up to how many weeks of pregnancy?

(1) Six weeks

(2) Eight weeks

(3) Twelve weeks

(4) Eighteen weeks

Q.14 Match the items given in column I with those in column II and select the correct option given below.

Column I	Column II
A. Proliferative phase	(i) Breakdown of endometrial lining
B. Secretory phase	(ii) Follicular phase
C. Menstruation	(iii) Luteal phase

	A	B	C
(a)	(iii)	(ii)	(i)
(b)	(i)	(iii)	(ii)

(c) (ii) (iii) (i)

(d) (iii) (i) (ii)

Q.15 Which of the following is not a property of the genetic code?

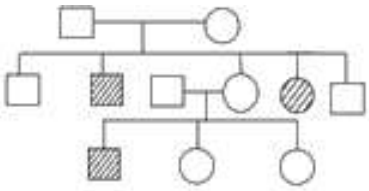
(1) Universal

(2) Non-overlapping

(3) Ambiguous

(4) Degeneracy

Q.16 Study the pedigree chart given below. What does it show?



(a) Inheritance of a condition like phenylketonuria as an autosomal recessive trait.

(b) The pedigree chart is wrong as this is not possible.

(c) Inheritance of a recessive sex-linked disease like haemophilia.

(d) Inheritance of a sex-linked inborn error of metabolism like phenylketonuria.

Q.17 An angiospermic plant is having 24 chromosomes in its leaf cells. The number of chromosomes present in synergid, pollen grain, nucellus & endosperm will be respectively

(1) 12,12,12,72

(2) 8,8,12,36

(3) 12,12,24,36

(4) 12,12,12,36

Q.18 Given below are four methods (A-D) and their modes of action (i-iv) in achieving contraception. Select their correct matching from the four options that follow.

Method	**Mode of Action**
A. The pill	(i) Prevents sperms reaching cervix
B. Condom	(ii) Prevents implantation
C. Vasectomy	(iii) Prevents ovulation
D. Copper T	(iv) Semen contains no sperms

(a) A − (iii), B − (iv), C − (i), D − (ii)

(b) A − (ii), B − (iii), C − (i), D − (iv)

(c) A − (iii), B − (i), C − (iv), D − (ii)

(d) A - (iv), B - (i), C-(ii), D - (iii)

Q.19 The DNA strand showing replication using Okazaki fragments also shows

(1) Continuous growth in 5′ − 3′ direction

(2) Discontinuous growth on 5′ − 3′ parental strand

(3) Discontinuous growth on 3′ − 5′ parental strand

(4) Involvement of one primer only

Q.20 Fetal ejection reflex in human female is induced by

(a) release of oxytocin from pituitary

(b) fully developed fetus and placenta

(c) differentiation of mammary glands

(d) pressure exerted by amniotic fluid.

Q.21 Seminal plasma in humans is rich in

(a) Fructose and calcium but has no enzymes

(b) Glucose and certain enzymes but has no calcium

(c) Fructose and certain enzymes but poor in calcium

(d) Fructose, calcium and certain enzymes

Q.22 Consider the statements given below regarding contraception and answer as directed thereafter.

(1) Medical termination of pregnancy (MTP) during first trimester is generally safe.

(2) Generally chances of conception are nil until mother breast-feeds the infant upto two years.

(3) Intrauterine devices like copper-T are effective contraceptives.

(4) Contraception pills may be taken upto one week after coitus to prevent conception.

Which two of the above statements are correct?

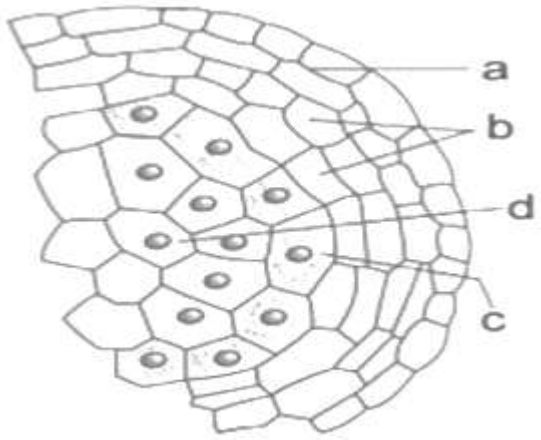
(a) 1,3

(b) 1,2

(c) 2,3

(d) 3,4

Q.23 Examine the figure given below and select the right option giving all the four parts a, b, c and d. Correctly identify ab c d



(a) Endothecium, Tapetum,Microspore mother cell, Middle layers

(b) Tapetum Endothecium Microspore mother cell Middle layers

(c) Endothecium Middle layer Tapetum Microspore mother cell

d) Endothecium Microspore mother cell Middle layer Tapetum

Q.24 Identification and binding of RNA polymerase to the promoter sequence is a function of

(a) Rho factor

(b) Sigma factor

(c) Beta factor

(d) Omega factor

SECTION - B

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

Q.25 Assertion: Genes pass from one generation to Another.

Reason: The unit of inheritance are 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

Q.26 Assertion : The bulbourethral gland is a male accessory gland.

Reason : Its secretion helps in the lubrication of the penis, thereby facilitating reproduction.

(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

Q.27 Assertion : Saheli - the new oral contraceptive for the female contains a nonsteroidal preparation.

Reason : It is 'once a week' pill with very few side effects and high contraceptive value.

(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

Q.28 Assertion: Cleistogamous flowers produce assured seed set in the absence of pollinators.

Reason: These flowers do not open at all.

(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

Q.29 Common floral reward provided by plants to pollinator are

(a) Nectar and pollen

(b) Pollen and enzymes

(c) Hormones and nectar

(d) All of these

Q.30 Match the following sexually transmitted diseases. column I) with their causative agent (column II) nd select the correct option.

Column I	**Column II**
A. Gonorrhoea	(i) HIV
B. Syphilis	(ii) Neisseria
C. Genital wart	(iii) Treponema
D. AIDS	(iv) Human papilloma virus

	A	**B**	**C**	**D**
(a)	(iii)	(iv)	(i)	(ii)
(b)	(iv)	(ii)	(iii)	(i)
(c)	(iv)	(iii)	(ii)	(i)
(d)	(ii)	(iii)	(iv)	(i)

Q.31 About which day in a normal human menstrual cycle does rapid secretion of LH (Popularly called LH-surge) normally occurs on

(1) 5 th day

(2) 11 th day

(3) 14 th day

(4) 20 th day

Q.32 Which one of the following fruits is parthenocarpic?

(a) Banana

(b) Brinjal

(c) Apple

(d) Jackfruit

Q.33 Match the following genes of the Lac operon with their respective products.

(A) i gene	(i) β-galactosidase
(B) z gene	(ii) Permease
(C) a gene	(iii) Repressor
(D) y gene	(iv) Transacetylase

Select the correct option.

	(A)	(B)	(C)	(D)
(a)	(iii)	(iv)	(i)	(ii)
(b)	(i)	(iii)	(ii)	(iv)
(c)	(iii)	(i)	(ii)	(iv)
(d)	(iii)	(i)	(iv)	(ii)

Q.34 Select the incorrect statement :

(1) LH triggers secretion of androgens from the Leydig cells

(2) FSH stimulates the sertoli cells which help in spermiogenesis

(3) LH triggers ovulation in ovary

(4) LH and FSH decrease gradually during the follicular phase

Q.35 A man and a woman, who do not show any apparent signs of a certain inherited disease, have seven children (2 daughters and 5 sons). Three of the sons suffer from the given disease but none of the daughters affected. Which of the following mode of inheritance do you suggest for this disease?

(a) Sex-linked dominant

(b) Sex-linked recessive

(c) Sex-limited recessive

(d) Autosomal dominant

Q.36 Which one of the following is the incorrect match of the events occurring during menstrual cycle?

(1) Menstruation: Breakdown of endometrium and ovum is not fertilised

(2) Ovulation: LH and FSH attain peak level

(3) Proliferative phase : Rapid regeneration of endometrium and maturation of Graafian follicle

(4) Development of corpus luteum : Follicular phase and increased secretion of progesterone

Q.37 Select the two correct statements out of the four (i -iv) statements given below about lac operon.

(i) Glucose or galactose may bind with the repressor and inactivate it.

(ii) In the absence of lactose, the repressor binds with the operator region.

(iii) The *z*-gene codes for permease.

(iv) This was elucidated by Francois Jacob and Jacques Monod.

The correct statements are

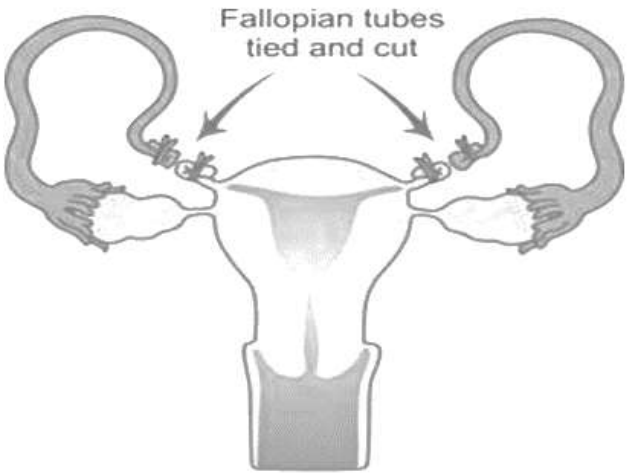
(a) (ii) and (iii)

(b) (i) and (iii)

(c) (ii) and (iv)

(d) (i) and (ii).

Q.38 What is the figure given below showing in particular?



(a) Vasectomy

(b) Ovarian cancer

(c) Uterine cancer

(d) Tubectomy

Q.39 Which of the following statements is correct?

(a) Sporopollenin can withstand high temperatures but not strong acids

(b) Sporopollenin can be degraded by enzymes

(c) Sporopollenin is made up of inorganic materials

(d) Sporopollenin can withstand high temperatures as well as strong acids and alkalis

Q.40 Menstrual flow occurs due to lack of

(a) FSH

(b) Oxytocin

(c) Vasopressin

(d) Progesterone

Q.41 The devices to discourage self pollination are

(a) Pollen release and stigma receptivity is not synchronised

(b) Anther and stigma are placed at different position

(c) Rejection of pollen by stigma of the same flowers

(d) All of theseThe devices to discourage self pollination are

Q.42 Which of the following parts of a DNA molecule are held together by hydrogen bonds?

(a) The carbons within the sugar-phosphate group.

(b) The carbons within the nitrogen-containing bases.

(c) Nucleotide bases on opposite strands of the helix.

(d) Successive nucleotides within a single strand of the helix.

Q.43 Which of the following depicts the correct pathway of transport of sperms?

(a) Rete testis, Efferent ductules, Epididymis, Vas deferens

(b) Rete testis, Epididymis, Efferent ductules, Vas deferens

(c) Rete testis, Vas deferens, Efferent ductules, Epididymis

(d) Efferent ductules, Rete testis, Vas deferens, Epididymis

Q.44 Which one of the following is the start codon?

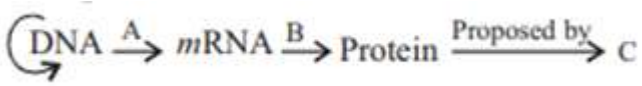
(a) UAG

(b) AUG

(c) UGA

(d) UAA

Q.45 The diagram shows an important concept in the genetic implication of DNA. Fill in the blanks A to C.



(a) A - Transcription, B -Translation, C - Francis Crick

(b) A - Translation, B - Extension, C - Rosalind Franklin

(c) A - Transcription, B - Replication, C - James Watson

(d) A - Translation, B - Transcription, C - Ervin Chargaff

Q.46 Long, ribbon-like pollen grains are seen in some

(1) Aquatic plants

(2) Wind-pollinated grasses+

(3) Gymnosperms

(4) Bird-pollinated flowers

Q.47 In angiosperms, functional megaspore develops into

(1) Endosperm

(2) Pollen sac

(3) Embryo sac

(4) Ovule

Q.48 Satellite DNA is important because it

(1) Code for enzymes needed for DNA replication

(2) Codes for proteins needed in cell cycle

(3) Shows high degree of polymorphism in population and also the same degree of polymorphism in an individual, which is heritable from parents to children

(4) Does not code for proteins and is same in all members of the population

SECTION C

Q.49 The reason why haemophilia is more commonly observed in human males than in females is due to

(a) the disease is due to *Y*-linked recessive mutation

(b) the disease is due to *X*-linked recessive mutation

(c) as a huge population of girls die in infancy

(d) the disease is due to X-linked dominant mutation

Q.50 Rarely females experience the physiological defect of haemophilia as they do so only when they are

(a) carrier for the defect

(b) wives of haemophilic husbands

(c) homozygous for the defect

(d) heterozygous for the defect

Q.51 Haemophilia is caused by

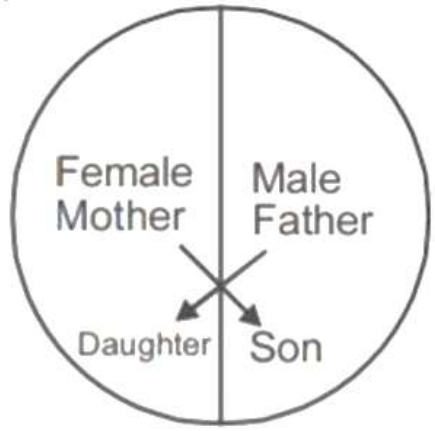
(a) Bacteria

(b) Virus

(c) Genetic mutation

(d) Cause unknown

Q.52 Represented below is the inheritance pattern of a certain type of traits in humans. Which one of the following conditions could be an example of this pattern?



(1) Phenylketonuria

(2) Sickle cell anaemia

(3) Haemophilia

(4) Thalassemia

Q.53 This disease falls under the same category as colourblindness in man

(a) Presbyopia

(b) Night blindness

(c) Diabetes insipidus

(d) Haemophilia

Q.54 Haemophilic man marries a normal woman. Their offsprings will be

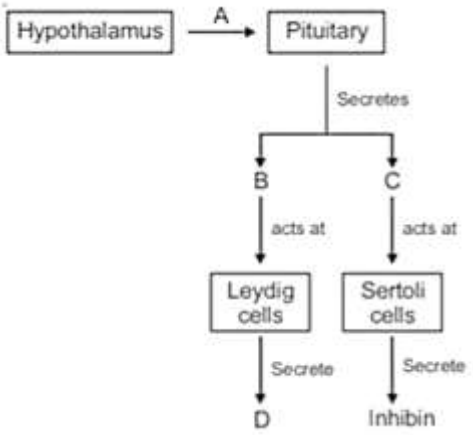
(1) All haemophilic

(2) All boys haemophilic

(3) All girls haemophilic

(4) All normal

Q.55 Study the flow chart. Name the hormones labelled as A, B, C, D at each stage. Choose the correct option.



	A	B	C	D
(1)	Gn - RH,	ICSH,	Androgen,	FSH
(2)	Gn – RH,	LH,	FSH,	Androgen
(3)	Gonadatropins,	LH,	FSH,	Testosterone
(4)	Gn – RH,	FSH,	LH,	Androgen

Q.56 The coconut water and the edible part of coconut are equivalent to

(1) Mesocarp

(2) Embryo

(3) Endosperm

(4) Endocarp

Q.57 A woman with two genes for haemophilia and one gene for colour blindness on one of the ' X ' chromosomes marries a normal man. How will the progeny be?

(a) 50% haemophilic colour-blind sons and 50% normal sons.

(b) 50% haemophilic daughters (carrier) and 50% colour blind daughters (carrier).

(c) All sons and daughters haemophilic and colourblind.

(d) Haemophilic and colour-blind daughters.

Q.58 Discontinuous synthesis of DNA occurs in one strand, because

(a) DNA molecule being synthesised is very long

(b) DNA dependent DNA polymerase catalyses polymerisation only in one direction (5'- 3')

(c) It is a more efficient process

(d) DNA ligase has to have a role

Q.59 The ovule of an angiosperm is technically equivalent to

(1) Megasporangium

(2) Megasporophyll

(3) Megaspore mother cell

(4) Megaspore

Q.60 Which of the following is hormone releasing IUD?

(1) LNG-20

(2) Multiload-375

(3) Lippes loop

(4) Cu7