

II PUC MID-TERM EXAMINATION, SEPT./OCT. - 2026

SUBJECT : BIOLOGY (36)

Time: 3 Hours

Max. Marks : 70

General Instructions:

1. The question paper consists of Four parts A, B, C & D.
2. PART-A consists of I and II and PART-D consists of two parts V and VI
3. All the parts are compulsory.
4. The answers for PART-A, written in the first two pages of the answer booklet are only considered for evaluation

PART-A

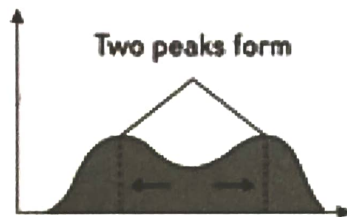
- I Select the correct alternative from the choices given below: 15x1=15**
- 1) Statement I : In Viola, both autogamy & geitonogamy is prevented
Statement II : Geitonogamy is similar to autogamy since pollengrains comes from the same plant
a) Statement I and Statement II both are correct
b) Statement I and Statement II both are incorrect
c) Statement I is correct and Statement II is incorrect
d) Statement I is incorrect and Statement II is correct
 - 2) Even in the absence of pollinating agents, seed setting is assured in
a) Cucurbita b) Papaya c) Commelina d) Maize
 - 3) Non-albuminous seed is produced in
a) Maize b) Castor c) Wheat d) Pea
 - 4) **Match Column I and Column II :**

Column I	Column II
A. Insemination	I. Ampulla
B. Fertilization	II. Lactation
C. Foetal Ejection Reflex	III. Penis
D. Colostrum	IV Parturition

a) A-I, B-II, C-III, D-IV b) A-III, B-I, C-IV, D-II
c) A-II, B-IV, C-I, D-III d) A-IV, B-II, C-I, D-III
 - 5) The vas deferens receives duct from the seminal vesicle and opens into urethra as
a) Epididymis b) Efferent ductule c) Ejaculatory duct d) Ureter
 - 6) Which of the following is not a copper releasing IUD ?
a) LNG 20 b) CuT c) Cu7 d) Multiload 375
 - 7) What is the possible blood group of an offspring when both parents have AB blood group ?
a) AB only b) A, B and AB c) A, B, AB and O d) A and B only
 - 8) Genes located very close to one another on same chromosome tend to be transmitted and are called as
a) Allelomorphs b) Identical genes c) Linked genes d) Recessive genes

(P.T.O)

- 9) Females are heterogametic in
a) Grasshopper b) Drosophila c) Honey bees d) Birds
- 10) An extra 'X' chromosome in human beings causes
a) Turner's Syndrome b) Klinefelter's Syndrome
c) Down's Syndrome d) Colour blindness
- 11) If an mRNA 5'– AUGUUUUUUUUUAA– 3' undergoes translation how many types of amino acids are present ?
a) 4 types b) 3 types c) 2 types d) 1 type
- 12) DNA fingerprinting involves identifying differences in some specific regions in DNA sequences called as
a) Satellite DNA b) Repetitive DNA c) Single Nucleotide d) Polymorphic DNA
- 13) Another chemical name for the nitrogenous base thymine is
a) 2-Methyl Uracil b) 3-Methyl Uracil c) 4-Methyl Uracil d) 5-Methyl Uracil
- 14) Observe the following diagrammatic representation of operation of Natural Selection on different traits, here Natural selection depicts.



- a) Stabilization b) Directional c) Disruptive d) Cannot be depicted.
- 15) Change in allelic frequency is due to
a) Mutation b) Gene flow c) Both (a) and (b) d) Neither (a) nor (b)

II Fill in the blanks by choosing the appropriate word/words from those given below:

5x1=5

(Endosperm, Perisperm, Down's syndrome, Saheli, fossils, Lysine)

- 16) The residual persistent nucellus present in some seed is called _____.
- 17) _____ is an oral contraceptive for females developed by scientists at the CDRI, Lucknow.
- 18) An autosomal chromosomal disorder is _____.
- 19) Histones are rich in basic amino acid residues like _____.
- 20) The paleontological evidence for evolution is obtained from _____.

PART-B

III Answer any FIVE of the following questions in 3-5 sentences each, wherever applicable:

5x2=10

- 21) What is filiform apparatus ? What is its function ?
- 22) List one contraceptive method each in males and females with poor reversibility.
- 23) Differentiate between Homozygous and Heterozygous condition.
- 24) What is Point Mutation ? Give an example.
- 25) DNA is a better genetic material than RNA. Justify.

(P.T.O)

- 26) State the evolutionary relationship giving reasons between sweet potato and potato.
27) Differentiate *Homo habilis* from *Homo erectus* in relation to brain capacity and food habit.

PART-C

IV Answer any FIVE of the following questions in about 40-80 words each, wherever applicable: 5x3=15

- 28) Draw a labelled diagram of the fertilized female gametophyte and mention the ploidy of any one of the products of double fertilization.
29) What is Menstrual Cycle ? Mention one pituitary and one Ovarian hormone that play a role in menstrual cycle.
30) Write the schematic representation of Oogenesis.
31) What are sexually Transmitted Infections ? Mention any four early symptoms of STIs.
32) Identify the ART used in each of the following among infertile couples.
a) Transfer of Ovum collected from a donor into the fallopian tube of another female, who cannot produce functional ova, but can provide suitable environment for fertilization and embryo development.
b) Semen collected from the husband or a healthy donor is artificially introduced into the uterus of a woman
c) An embryo is formed in the laboratory by directly injecting the sperm into ovum.
33) With reference to transcription, define a) Splicing b) Capping c) Tailing
34) Draw a labelled diagram of Miller's experimental set-up.

PART-D

V Answer any FOUR of the following questions in about 200-250 words each, wherever applicable: 4x5=20

- 35) Mention the adaptations shown by flowers pollinated by
a) Wind b) Insects
36) Draw a diagrammatic sectional view of human Male Reproductive System and label.
37) Name the following cells observed in a sectional view of seminiferous tubules of a human.
a) Cells that divide by mitosis to increase their number.
b) Cells that undergo Meiosis-I
c) Cells that undergo Meiosis-II
d) Cells that provide nutrition to developing sperms.
e) Cells that help in the process of Spermiogenesis.
38) Represent schematically the results of two gene interaction by taking seed shape and seed colour in Pea plant.
39) Identify the genetic disorders given below
a) Sex-linked recessive disorder occurring in about 8% of males and only about 0.4% of females leading to defect in cones of eye. (1)
b) Sex-linked recessive disorder affecting a single protein involved in the clotting of blood. (1)
c) Autosomal recessive trait, Inborn error of Metabolism accumulation of phenylalanine. (1)

- d) Autosome linked recessive blood diseases, substitution of amino acid in beta globin chain of haemoglobin. (1)
- e) Autosome linked recessive blood disease, reduced rate of synthesis of globin chains of haemoglobin. (1)
- 40) Enumerate the characteristics of Genetic code.
- 41) Explain Griffith's experiment to explain the transforming principle with schematic representation.
- VI Answer any ONE of the following questions in about 200-250 words each, wherever applicable: 1x5=5**
- 42) Answer the following :
- List the four embryonic parts that are common to both dicot and monocot embryo. (2)
 - Mention the two embryonal parts that are present only in Monocot embryo. (1)
 - Write any two differences between dicot and monocot embryo. (2)
- 43) Study the two pedigree charts carefully.
 Chart -A : Myotonic dystrophy is a family.
 Chart-B : Inheritance of Sickle Cell Anaemia is another family.

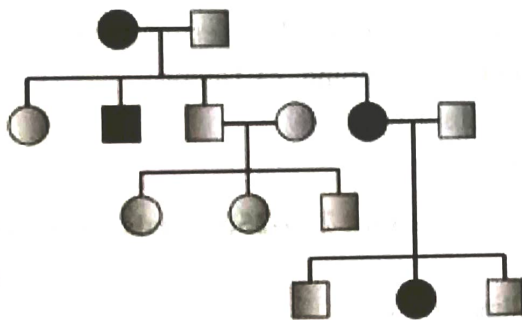


Chart-A

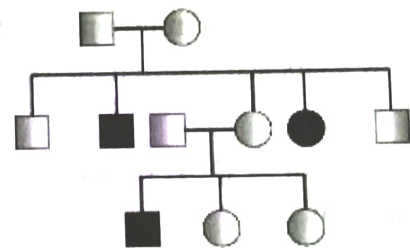


Chart-B

- Answer the following questions based on the charts above.
- Write the genotypes of the affected females and normal males in Chart-A and the affected male and normal females in Chart-B.
 - What is the position of globin chain that shows substitution and write the name of the amino acid with triplet codon.
- 44) a) State the arrangement of different genes of "Lactose Operon" in E.Coli. (2)
- b) Describe the role of Lactose in regulation of Lac-operon. (3)

PART-E

(For Visually Challenged Students only)

- 14) Adaptive radiation in Galapaogas island was observed in
- Cheetaha
 - Darwin's Finches
 - Bougainvilla
 - Eye of Octopus
- 43) Explain Haemophilia and Sickle Cell Anemia with respect to Mendelian Disorders.