GOVERNMENT OF KARNATAKA
KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD
6TH CROSS, MALLESHWARAM, BENGALURU – 560 003
2025 -26 II PU MODEL QUESTION PAPER - 3

SUBJECT: BIOLOGY (36) **MAXIMUM MARKS: 70**

TIME: 03 HOURS **NUMBER OF QUESTIONS: 44**

General Instruction:

- This Question paper consists of four parts A, B, C, D and E
- Part – A consists of I and II and Part D consists of V and VI
- All the parts are compulsory
- The answers for Part – A, written in the first two pages of the answer booklet are only considered for evaluation
- Part – E consists of questions for visually challenged students only

PART – A

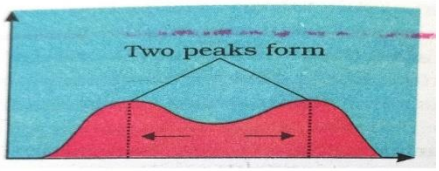
I. Select the correct alternative from the choices given: **15 x 1=15**

1. Even in absence of pollinating agents, seed setting is assured in
   a) Cucurbita b) Papaya c) Commelina d) Maize
2. Which of the following statement is true?
   a) LH surge induces menstruation.
   b) Regression of corpus luteum increases progesterone.
   c) Diploid egg is formed after second meiotic division.
   d) Embryo differentiate from the inner cell mass of blastocyst.
3. Statement I: GIFT is an in-vitro fertilization technique.
   Statement II: In GIFT, gametes are fertilized outside the female body.
   a) Both statement I and statement II are correct.
   b) Both statement I and statement II are incorrect.
   c) Statement I is correct and statement II is incorrect.
   d) Statement I is incorrect and statement II is correct.
4. Gene 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
5. Match the following:

A. Alec Jeffreys	i) Lac operon
B. F.Sanger	ii) Transferring Principle
C. Jacob & Monad	iii) Annotated DNA Sequencing
D. Griffith	iv) DNA finger print

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

6) 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

7) which of the following plants does not possess hallucinogenic properties?

a) *Erythroxylum Coca* b) *Atropa belladonna* c) *Datura* d) *Papaver somniferum*

8) Choose the correct statements?

I. Innate Immunity is accomplished by providing different types of barriers.
II. Acquired immunity is present from birth and is inherited from parents.
III. Acquired immunity can be divided into antibody mediated and cell mediated immunity
IV. Innate immunity is also called specific immunity
V. Acquired immunity consists of specialized cells (T – Cell & B-Cell) and antibodies that Circulate in the blood.

a) I, II and V b) I, II IV, and V c) I, III, and V d) I, II, III, IV, and V

9) During sewage treatment, the gas produced in anaerobic sludge digester includes,

a) Hydrogen sulphide, Nitrogen, Methane.
b) Methane, Oxygen, Hydrogen sulphide.
c) Methane, Hydrogen sulphide, Carbondioxide.
d) Hydrogen Sulphide, Methane, Sulphur oxide.

10) which of the following is not a feature of plasmids?

a) Extra chromosomal b) Circular structure
c) Single Standard d) Independent Replication

11) *Agrobacterium tumifaciens* is used as a vector for cloning genes in

a) Plants b) Animals c) Bacteria d) Viruses

12) Identify incorrect statement

a) The Transgenic Cow Rosie produced milk enriched with α-lactalbumin.
b) Bt. Toxin genes Cry IAc controls corn borer.
c) Human protein α-I antitrypsin is used to tread emphysema.
d) The commercial production of human insulin was made possible by the transgenic of E. coli.

13) The correct order of various levels of biological organization in an ecosystem is

a) Organism → Population → Community → Ecosystem → Biome
b) Organism → Population → Biome → Ecosystem → Community
c) Biome → Ecosystem → Population → Organism → Community
d) Biome → Community → Ecosystem → Population → Organism.

14) The rate of the formation new organic matter by producer is

a) Net primary Productivity b) Primary Productivity
c) Secondary Productivity d) Gross Primary Productivity

15) As per species inventories 70% of species recorded are

a) Plants b) Fungi c) Bryophytes d) Animals

II. Fill in the blanks by choosing the appropriate word/words from those given in the bracket. **5x1=5**

[Neanderthal, decreases, Blastocyst, Primary Lymphoid organ, *clostridium butylicum,* increases]

16) Zygote divides to form _____ which is implanted in the uterus.

17) _____ stage in human evolution used hides to Protect their body and buried their dead.

18) _____ are the site where immature Lymphocytes differentiate into antigen sensitive Lymphocytes.

19) _____ is a producer of butyric acid

20) In general species diversity _____ as we move away from the equator towards the poles.

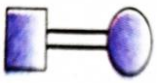
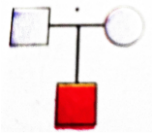
PART – B

III. Answer any FIVE of the following questions in 3-5 sentences each, wherever applicable: **5 x 2 = 10**

21) Give reasons:
   a) Micropyle remains as small pole in the seed coat of a seed.
   b) Apple and cashew are not called true fruits

22) Mention any two events that are inhibited by the intake of oral contraceptive pills to prevent pregnancy in human.

23) Identify symbols used in pedigree analysis

a)  b) 

24) Draw the labelled diagram of Nucleosome.

25) State the evolutionary relationship giving reasons between sweet potato & potato.

26) Discuss the role of fungi as biofertilizer.

27) Write any two advanced techniques used in ex-situ conservation.

PART – C

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

28) Draw a neat labelled diagram of a typical anatropous ovule.

29) Name the Pituitary and testicular hormones involved in spermatogenesis.

30) what is medical termination of pregnancy? Mention any two medical grounds on which pregnancy can be terminated?

31) "Australian marsupials and Australian placental mammals explain convergent evolution and adaptive radiation". Justify the statement.

32) Name the causative organism of the following disease:
   a) Ascariasis b) Ringworm c) Typhoid

33) Mention the uses of following bioactive agents
   a) Streptokinase b) Cyclosporin-A c) Statin

34) 'Ecological Pyramids have limitations'. Justify with three reasons.

PART- D

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

35) Answer the following:
   a) Double fertilisation is a unique event taking place in flowering plant. Briefly explain. (3m)
   b) Arrange the following terms in correct development sequence:
   Pollen grain, Sporogenous tissue, Microspore tetrad, pollen mother cell, male gamete. (2m)

36) Draw a labelled diagrammatic view female reproduction system.

37) Represent schematically the results of one gene interaction between pure tall pea plant and pure dwarf pea plants.

38) Enumerate the characteristics of genetic code.

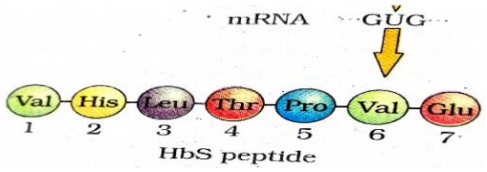
39) a) Name the group of genes that have been identified in normal cells that could lead to Cancer. (1m)
   b) Which techniques are useful in detecting cancers of internal organs? (3m)
   c) Why are cancer patients often given α- interferon as part of the treatment? (1m)

40) Explain the application of biotechnology in the field of medicine.

41) Name the type of interactions seen in each of the following examples:
   a) Clown fish living among the tentacles of sea anemone
   b) Koel and Cuckoo bird during the breeding season.
   c) Barnacles growing on back of a whale.
   d) Marine fish and copepods.
   e) Sexual deceit in Mediterranean orchid *Ophrys*.

VI. Answer any ONE of the following questions in 200-250 words each, wherever applicable: 1x5=5

42) a) Categorize following as either autosomal or sex-linked disorders:
   Haemophilia, Thalassemia, Phenylketonuria, Myotonic dystrophy. (2m)
   a) What conclusion will you arrive after careful observation of the below given diagram. (2m)



   b) Identify the disorder by the following symptoms:
   Individuals with overall masculine development with gynecomastia. (1m)

43) a) State the arrangement of different genes of 'lactose operon' in *E. coli* (3m)
   b) Describe the role of lactose in regulation of lac operon. (2m)

44) Genetic engineering is a core technique of Biotechnology, in the background of this completes the following table:

Gel electrophoresis	A	Visualization of DNA fragments
B	DNA Polymerase	C
Gene gun	D	Transfer of recombinant DNA
Isolation of DNA	E	Precipitation of DNA

PART- E
(FOR VISUALLY CHALLENGED STUDENTS ONLY)

6) Change in frequency of genes and alleles is due to

a) Mutation b) Gene flow c) Both a and b d) Neither a or b

23) Differentiate Male heterogamety from female heterogamety.

42) Explain thalassemia as an example for Mendelian disorder.