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FOR KARNATAKA CLASS 12 PREPARATION

Karnataka 2nd PUC Model Question Paper 2027 for Biology (Paper 3)

EXAM	YEAR	TYPE	SUBJECT
Karnataka Class 12	2027	Sample Paper	Biology

GOVERNMENT OF KARNATAKA
KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD
6TH CROSS, MALLESHWARAM, BENGALURU – 560 003
2026 -27 II PU MODEL QUESTION PAPER - 3

SUBJECT: BIOLOGY (36) **MAXIMUM MARKS: 70**
TIME: 03 HOURS **NUMBER OF QUESTIONS: 44**

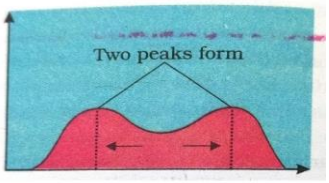
PART – A

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 statements 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 differentiates 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 Jeffrey's	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-ii 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 do not possess hallucinogenic properties?
   a) *Erythroxylum coca* b) *Atropa belladonna*

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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 and 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, Carbon dioxide.
   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 species 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 formation of 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. 5 x 1 = 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

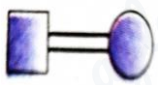
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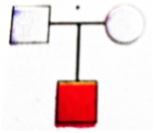
20. In general species diversity _____ as we move away from the equator towards the poles.

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 a diagram of replication fork and label two parts
25. State the evolutionary relationship giving reasons between sweet potato and potato
26. Discuss the role of fungi as biofertilizers
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: 5 x 3 = 15

28. Draw a diagram of a typical anatropous ovule and label three parts.
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) Amoebiasis b) Ringworm c) Typhoid
33. Mention the bioactive agents produced by the following microbes:
    a) *Streptococcus* b) *Trichoderma polysporum* c) *Monascus purpureus*
34. Ecological Pyramids have limitations. Justify giving three reasons.

PART- D

V. Answer any FOUR of the following questions in 200-250 words each, wherever applicable: 4 x 5 = 20

35. Answer the following:
    a) Explain the double fertilization event in flowering plants with the ploidy of fertilized products. 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 diagrammatic sectional view female reproduction system and label five parts.
37. Represent schematically the results of one gene interaction between pure tall pea plant and pure dwarf pea plant.
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 2M

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b) Which techniques are useful in detecting cancers of internal organs? 2M

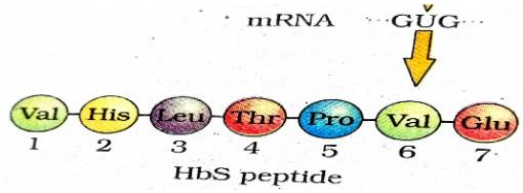
c) Why are cancer patients often given α- interferon as part of the treatment? 1M

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) Sparrow eating a seed.
    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: 1x 5 = 5

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



    c) Identify the disorder by the following symptoms individuals with overall masculine development with gynecomastia.

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

44. Genetic engineering is a core technique of Biotechnology, in the background of this completes the following table with respect to technique, chemical used and its effect.

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

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