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FOR KARNATAKA CLASS 12 PREPARATION

Karnataka 2nd PUC Model Question Paper 2027 for Biology (Paper 5)

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 PUC MODEL QUESTION PAPER – 5

SUBJECT: BIOLOGY **MAXIMUM MARKS: 70**

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

General Instructions:

1. This question paper consists of four parts A, B, C, D and E.
2. Part A consists of I and II and Part D consists of 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.
5. Part E consists of questions for visually challenged students only.

PART -A

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

1. In a typical angiosperm ovule, which combination correctly identifies the ploidy of the nucellus, functional megaspore, and egg cell at the time of fertilization?
   a) Nucellus: diploid, functional megaspore: diploid, egg cell: diploid
   b) Nucellus: Haploid, functional megaspore: Haploid, egg cell: Haploid
   c) Nucellus: Haploid, functional megaspore: diploid, egg cell: diploid
   d) Nucellus: diploid, functional megaspore: Haploid, egg cell: Haploid
2. Match the items given in column I with there in column II and select the correct option given below:

Column I	Column II
A. Proliferative phase	i) Breakdown of endometrial living
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)

3. Which of the following does not give the defined action of a contraceptive?
   a) Hormonal method prevents or retards the entry of sperms, prevent ovulation and fertilization.
   b) Vasectomy prevents spermatogenesis
   c) Barrier method prevents fertilization
   d) Intra uterine devices increases phagocytosis of sperms, suppress sperm motility & fertilizing capacity of sperms

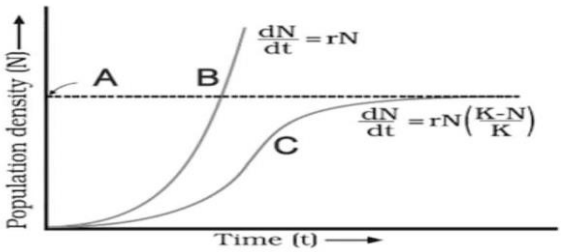
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4. Statement I: Morgan coined the term linkage to describe the physical association of genes on chromosome
   Statement II: Linkage shows more non-parental type of combination of genes.
   a) Both statement I and statement II are correct
   b) Statement I is correct & statement II is incorrect
   c) Statement I is incorrect & statement II is correct
   d) Both statement I and statement II are incorrect
5. 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
6. Change in allelic frequency is due to
   a) Mutation b) Gene flow c) Both a & b d) Neither a nor b
7. Smack is a drug obtained from the
   a) Latex of *Papaver somniferum* b) Leaves of *cannabis sativa*
   c) Flowers of *Datura* d) Fruits of *Erythroxylum coca*
8. Except skin, other physical barriers which also help to prevent the entry of microorganisms are mucus coating of the epithelium lining of
   I. The respiratory tract
   II. The gastrointestinal tract
   III. The urogenital tract
   Choose the correct option.
   a) I and II b) I and III c) II and III d) I, II and III
9. Which of the following statements regarding flocs is incorrect?
   a) they are the masses of bacteria associated with fungal filaments
   b) Produced in aeration tank
   c) they consume major parts of organic matter
   d) formed by useful anaerobic microbes
10. Which of the following is the correct order of processing of PCR?
    a) Annealing → Denaturation → Extension
    b) Denaturation →Extension → Annealing
    c) Denaturation → Annealing → Extension
    d) Extension → Annealing → Denaturation
11. The purpose of stirred tank bioreactor is
    a) Providing anaerobic conditions in the culture vessel
    b) Purification of the product
    c) Addition and proper mixing of the preservation
    d) Availability of oxygen throughout the process
12. A nematode that infects the roots of tobacco plants causing a reduction in yield is
    a) *Trichinella spiralis* b) *Meloidogyne incognitia*

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c) *Caenorhabditis elegans* d) *Nippostrongylus brasilensis*

13. Which is correctly labelled with respect to the given diagram?



a) B: Logistic curve b) C: Carrying capacity

c) C: Exponential curve d) A: Carrying capacity

14. The rate of decomposition is slower if detritus is rich in

a) Chitin b) Nitrogen c) Water soluble sugars d) water insoluble sugars

15. Which of the most important causes for animals & plants being driven to extinction?

a) Drought & floods b) Habitat loss & Fragmentation

c) Economic exploitation d) Alien species invasion

II. Fill in the blanks by choosing the appropriate word/words from those given below: 5 x 1 = 5

[Amino acid, *Rhizobium*, Antrum, *In-situ*, α- interferon, Mycorrhizae]

16. Tertiary follicle is characterized by a fluid filled cavity called _____.
17. In S.L Miller's electric discharge experiment, he observed formation of _____.
18. Cancer patients are given substances called biological responses modifiers such as _____ which activates their immune system and helps in destroying the tumor.
19. Root nodules in leguminous plants are formed by symbiotic association of _____.
20. The protection of the entire forest to save the tiger is an example for _____ conservation.

PART – B

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

21. Mention any two significances of seed to angiosperms.
22. What are emergency contraceptives? Write their hormonal combination.
23. Haemophilia, Sickle cell anemia and Phenylketonuria are Mendelian disorders
    a) What do you mean by Mendelian disorder?
    b) Which one of the above is an inborn error of metabolism?
24. There are no tRNA for stop codons. Substantiate.
25. List any four areas which provide evidence for evolution.
26. Draw a diagram of Biogas Plant and label; a) Digester b) Floating tank
27. "Alien species invasion leads to extinction of indigenous species". Justify the statement by giving two appropriate examples.

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PART-C

IV. Answer five of the following in 40-80 words each wherever applicable: 5 x 2 =10

28. Draw a diagram of enlarged view of one microsporangium and label three parts.
29. Briefly explain the process of fertilization in humans.
30. Suggest any three ARTs that can help the couple to have a child where the problem is with the male partner.
31. Classify the following examples as Homologous organs and Analogous organs
    (i) Eyes of octopus & mammals.
    (ii) Forelimb of cheetah & Bat.
    (iii) Flippers of penguins & Dolphins.
32. Mention the causative organism of the following diseases.
    a) Common cold b) Pneumonia c) Amoebiasis
33. Write the scientific names of microbes from which following products are obtained.
    a) Citric acid b) Butyric acid c) Ethanol
34. Construct the pyramid of number in a grassland ecosystem.

PART -D

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

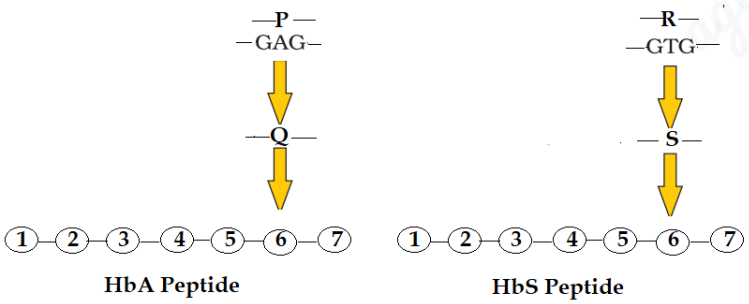
4 x 5 = 20

35. Mention the adaptations shown by flowers pollinated by
    a) Wind 2M
    b) Insects. 3M
36. Draw a diagram of the sectional view of mammary gland and label five parts.
37. Represent schematically the results of cross in the Snapdragon plant, where one allele is incompletely dominant over the other.
38. Enumerate salient features of Human genome.
39. Answer the following:
    a) Write the cause, mode of transmission and diagnostic test for AIDS. 3M
    b) Why AIDS is considered a deficiency of the immune system? 2M
40. Answer the question given:
    a) How was Insulin produced before its production through genetically modified *E. coli*? 1M
    b) Write a note on production of human insulin by genetic engineering. 4M
41. Define competition. Explain interference competition and competitive release with suitable examples.

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

42. Refer to the given diagram and answer the question that follows.

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a) Write the bases with polarity for P, Q, R and S. 4M

b) Which amino acid is present at 7th position of the HbA peptide and HbS peptide? 1M

43. During transcription, only one DNA strand acts as the template strand.

a) Differentiate template strand from a coding strand in DNA 2M

b) what would happen it both strands were transcribed simultaneously? 3M

44. What is insertional inactivation? Explain with respect to β-galactosidase enzyme? How are recombinants and non-recombinants identified?

PART- E

(FOR VISUALLY CHALLENGED STUDENTS ONLY)

13. Carrying capacity is denoted as

a) r b) N c) K d) I

42. Write a note on Haemophilia.

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