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FOR KARNATAKA 2ND PUC EXAM PREPARATION

Karnataka 2nd PUC 2027 Sample Paper · Biology

EXAM	YEAR	TYPE	SUBJECT
Karnataka 2nd PUC	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 –1

SUBJECT: BIOLOGY (36) **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**

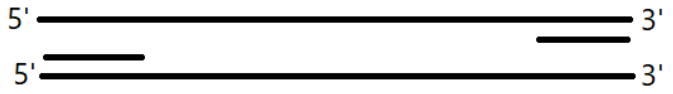
1. Statement I: Pollination does not guarantee the transfer of right type of pollen
   Statement II: Compatible pollen – pistil interaction guarantees double fertilization
   a) Both statements I and statement II are correct
   b) Both statement I and statement II are incorrect
   c) Statement I is correct but statement II is incorrect
   d) Statement I is incorrect but statement II is correct
2. The secondary oocyte formation from primary oocyte occurs in which of the follicle?
   a) Primary b) Secondary
   c) Tertiary d) Graafian
3. Progenies with AB and O blood groups are not possible from which of the following mating parents?
   a) O x AB b) AB x B c) AB x AB d) AB x A
4. 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
5. Select the correct match:

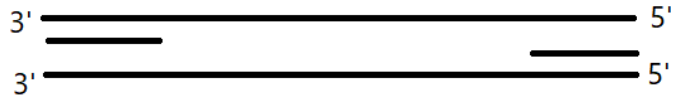
Australian marsupials	Placental mammals
a) Spotted cuscus	Flying squirrel
b) Spotted cuscus	Bobcat
c) Spotted cuscus	Anteater
d) Spotted cuscus	Lemur

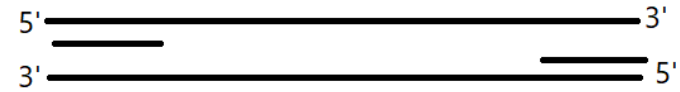
6. Which of these ancient men protected their body with hide and buried their dead?
   a) *Homo habilis* b) Neanderthal
   c) *Dryopithecus* d) *Homo erectus*
7. Human Immuno Deficiency virus replicates in
   a) B - cells b) NK– cells
   c) Helper T - cells d) PMNL

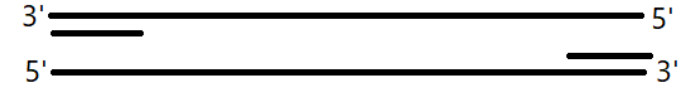
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8. The drug which is depressant and slowdown body function is
   a) Smack b) Crack
   c) Hashish d) Charas
9. *Saccharomyces cerevisiae* commonly called brewer's yeast is used for fermenting malted
   a) Pulses b) Cereals c) Fruits d) Vegetables
10. In the year 1963, the two enzymes responsible for restricting the growth of bacteriophage in *E. coli* were isolated. One of them cut DNA and the other added the group
    a) Methyl b) Ethyl c) Phosphate d) Hydroxyl
11. Which of the following is the correct representation of primer annealing step in PCR?

a)


b)


c)


d)


12. Given below are steps in the gene therapy of a patient with Adenosine deaminase (ADA) deficiency
    I. Lymphocytes are grown in a culture outside the human body
    II. Lymphocytes are altered with a functional ADA gene
    III. Lymphocytes are collected from the blood of the patients
    IV. The genetically modified lymphocytes are infused back into the patient
    Which of the following show the correct order that those steps must occur?
    a) II – I – III – IV b) III – IV – II – I
    c) III – I – II – IV d) IV – III – I – II
13. The organisms that reproduce only once in their lifetime
    a) Oysters b) Pelagic fish
    c) Salmon fish d) Hippocampus
14. The decomposers especially abundant in the bottom of the pond are
    a) Only fungi b) Only bacteria
    c) Only fungi and bacteria d) Flagellates, fungi, bacteria
15. The IUCN Red list (2004) documented the extinction of species in the last 500 years include
    a) 847 b) 784 c) 874 d) 478

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

(Amoebiasis, richness, Nostoc, ovulation, colostrum, diversity)

16. The initial few days of milk produced after parturition is ----------
17. Oral pills as contraceptive effectively function by inhibiting ---------- .
18. Symptoms of constipation, abdominal pain and cramps associated with disease ----------.

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19. Cyanobacteria is an autotrophic microbe widely distributed in aquatic and terrestrial habitats can fix atmospheric nitrogen is ----------.
20. Alexander Van Humboldt observed that within a region, species ---------- increased with increasing explored area but up to certain limit.

PART - B

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

21. Draw a labeled diagram of mature 2 celled pollen grain
22. Mention any four assisted reproductive technique that can be advised to couples with infertility problems.
23. Recombinants obtained in both Mendelian and Morgan experiment. Yet, the processes involved are different. Comment.
24. Name the methodologies used in Human genome sequencing.
25. Name the evolution of any two plant forms through geological periods from tracheophyte ancestors.
26. Describe briefly the primary treatment of sewage
27. Differentiate between ex-situ and in-situ conservation.

PART - C

IV. Answer any FIVE of the following questions in 40 – 80 words each wherever applicable: 5 x 3 = 15

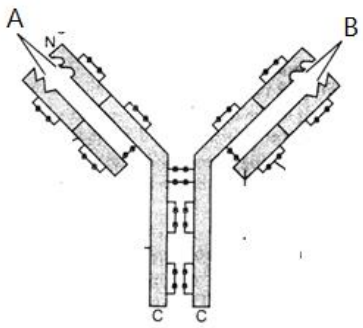
28. Draw a diagram of monocot embryo and label three parts.
29. What is menstrual cycle? Mention one pituitary and one ovarian hormone that play a role in menstrual cycle.
30. Write any three principles to be followed by people to be free from sexually transmitted infections.
31. List the three connotations of theory of special creation.
32. Name the disease caused by the following pathogens;
    a) Wuchereria b) Microsporum c) Plasmodium
33. Mention the uses of following bioactive agents;
    a) Streptokinase b) Cyclosporin-A c) Statins
34. Describe the steps of decomposition that operate simultaneously on the detritus.

PART – D

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

35. Draw a diagrammatic sectional view of the human male reproductive system and label five parts.
36. Represent schematically the results of two gene interaction by taking seed shape and seed colour in pea plant.
37. DNA is genetic material in both prokaryotes and eukaryotes, yet the packaging process in their cells is not same. Explain.
38. a) Differentiate innate immunity and acquired immunity 2
    b) Mention the cells involved in accomplishing the acquired immunity? 1
    c) Refer to the below given diagram and answer the questions;

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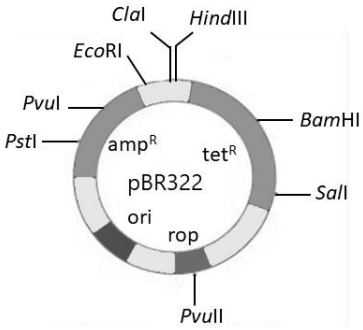


i) Name the molecules trapped in the lymph nodes responsible for the activation of lymphocytes that bind to the 'A' and 'B' site 1

ii) What does $H_2 L_2$, in an antibody represent? 1

39. a) Explain the process of preparation of competent host for transformation with recombinant DNA.

b) Refer to the given diagram of pBR322 and answer the question that follows



a) Mention the restriction enzymes that can be used for insertional inactivation of antibiotic-resistant genes 2

b) How many cloning sites are present in the given pBR322? 1

40. Genetically modified plants have been developed through core techniques of biotechnology. How are these genetically modified plants useful to humans

41. a) Write an equation to calculate the population density at the time 't'. 1

b) Population density fluctuates due to change in four basic processes. Mention and define these four basic processes. 4

VI. Answer any ONE of the following questions in about 200–250 words each wherever applicable:

1x 5 = 5

42. a) Complete the given tabular column with respect to male and female gametophyte of angiosperms for the mentioned character 4

Character	Mature Male gametophyte	Mature Female gametophyte
i) Number of cells present in ii) Number of gametes present in iii) Type of cell division involved in the development of iv) Ploidy of the cells of		

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b) Which advantage offered by seeds help angiosperms to adapt to changing environmental conditions? 1

43. Mendelian disorders may be autosomal or sex-linked, dominant or recessive, homozygous or heterozygous. Pedigree symbols are used to analyze these disorders in human population. Mention the genotypes for the following pedigree symbols.

a) Autosomal dominant – 

b) Autosomal recessive – 

c) Sex – linked dominant – 

d) Sex – linked recessive – 

44. Justify the below given statement:

a) "RNA polymerase cannot transcribe a gene by itself". 2

b) "Transcription and translation are separated by site and not coupled in eukaryotes". 2

c) Which RNA polymerase enzyme involved in the transcription of 5s rRNA. 1

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