MODEL QUESTION PAPER -1
FOR REDUCED SYLLABUS 2020-21
2ND YEAR P U C BIOLOGY (36)

TIME: 3hours 15minutes **MaxMarks:70**

GENERAL INSTRUCTIONS;

i) This question paper consists of four parts A, B, C and D. Part D consist of two parts, section-I and section-II
ii) All the parts are compulsory.
iii) Draw diagrams wherever necessary. Unlabelled diagrams or illustrations do not attract any marks.

PART-A

Answer the following questions in *one* word or in *one* sentence each: 10x1=10

1. What is the function of tapetum?
2. Define spermiation.
3. MTPs are legally restricted in our country. Justify by giving reason.
4. Name any one autosomal recessive disorder.
5. Which RNA is also called adapter molecule?
6. Cancer patients are treated with α-interferon. Give reason.
7. Name the pathogenic virus which is used as biocontrol agent.
8. What is *RNAi* (RNA interference)?
9. Write the equation for representing logistic growth.
10. State the result of David Tilman's long term ecosystem experiment.

PART-B

Answer any five of the following questions in 3 to 5 sentences each, wherever applicable 5x2=10

11. Differentiate perisperm and pericarp.
12. List the hormones produced in women only during pregnancy.
13. What is hibernation? Give an example.
14. Write one advantage and one disadvantage of external fertilization.
15. Write a note on the pollination mechanism in *Vallisneria.*
16. Write the scientific name of organisms causing
    i) Pneumonia ii) Ring worm
17. Name any two bacteria used as Biofertilizers.
18. Mention the reasons for infertility.

PART-C

Answer any *five* of the following questions in about 40 to 80 words each, wherever applicable: 5x3=15

19. Answer the following:
    i) Compare Geitonogamy with Xenogamy. (2)
    ii) What are Chasmogamous flowers? (1)
20. Mention the different blood groups in humans and their possible genotypes having "i" allele.
21. List the accessory glands associated with male reproductive system.
22. "To a user, the contraceptives must be ideal in all aspects". Justify the statement by mentioning the qualities of an ideal contraceptive.
23. Differentiate active immunity from passive immunity.
24. Answer the following:
    i) Differentiate between Microinjection and Biolistics. (2)
    ii) Give an example for disarmed pathogen vector. (1)
25. What is biodiversity? Mention the types of biodiversity.
26. Mention the three regions of transcription unit in DNA.

PART-D

SECTION-I

Answer any *four* of the following questions in about 200 to 250 words each, wherever applicable: 4x5=20

27. Describe the structure of an anatropous ovule with the help of a neat labelled diagram.
28. Sketch and label a sectional view of female reproductive system.
29. Describe Hershey-Chase experiment.
30. "For hereditary diseases, gene therapy is considered as the corrective therapy". Justify by explaining gene therapy for Adenosine deaminase (ADA) deficiency.
31. Mention the cause and features of Down's syndrome.

32. Name the population interactions involved in the following examples:
i) Animals eating on plants
ii) Visiting flamingoes and resident fishes of a lake
iii) Human liverfluke and snail
vi) Orchid growing on a mango tree
v) Flower and its pollinating insect

SECTION-II

Answer any *three* of the following questions in about 200 to 250 words each, wherever applicable: 3x5=15

33. Explain incomplete dominance with suitable example.
34. "In rDNA technology, unless the desired DNA is separated and isolated, it cannot be introduced into a vector". How separation is achieved using gel electrophoresis?
35. Explain the stages of life cycle of *Plasmodium*.
36. Describe the structure of Nucleosome with the help of neat labelled diagram.
37. Mention the source and function each for the following:
    i) Penicillin
    ii) Streptokinase
    iii) Cyclosporin A
    iv) Statins
    v) Lactic acid

MODEL QUESTION PAPER - 2
FOR REDUCED SYLLABUS 2020-21
2ND YEAR P U C: BIOLOGY (36)

TIME: 3hours 15minutes MaxMarks:70

GENERAL INSTRUCTIONS:
i) This question paper consists of four parts A, B, C and D. Part D consist of two parts, section-I and section-II
ii) All the parts are compulsory.
iii) Draw diagrams wherever necessary. Unlabelled diagrams or illustrations do not attract any marks.

PART-A

Answer the following questions in *one* word or in *one* sentence each: 10x1=10

1. Define ovulation.
2. What is polyembryony?
3. What is emasculation?
4. Why the amniocentesis is banned?
5. Define polygenic inheritance.
6. What is linkage?
7. Which chromosome of humans has the most number of genes?
8. Name the type of antibody produced during allergy.
9. What are genetically modified organisms?
10. Mammals from colder climate have shorter ears and limbs. Why?

PART-B

Answer any FIVE of the following questions in 3to 5 sentences each, wherever applicable: 5x2=10

11. Differentiate between staminate flowers and pistillate flowers.
12. Mention the accessory ducts of male reproductive system.
13. List any two principles to be followed to prevent sexually transmitted infections.
14. Write the karyotype of Down's syndrome and Klinefelter's syndrome.
15. How anaerobic bacteria are beneficial in secondary sewage treatment?
16. Which are the four basic processes that can fluctuate the density of population in a given habitat?
17. What is sacred groove? Give an example.
18. "Alien species invasion leads to extinction of indigenous species". Justify the statement with two examples.

PART-C

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

19. Draw a neat labelled diagram of monocot embryo.
20. Write the characteristic features of insect pollinated flowers.
21. What is parturition? Briefly explain the process of parturition.
22. How can conception be prevented without the usage of contraceptives?
23. "DNA polymorphism is a very useful identification tool in forensic applications". Mention the steps involved in identification of polymorphism using DNA fingerprinting technique.
24. With reference to malaria answer the following: i) Name of the pathogen and vector ii) symptoms.
25. List out any three types of innate barriers of defence with an example for each.
26. Draw a neat labelled diagram of simple stirred tank bioreactor.

PART-D

SECTION-I

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

27. Draw a neat labelled diagram of mature embryo sac of angiosperms.
28. Explain Mendel's experiment of 'Inheritance of one gene' with reference to height in pea plants.
29. Draw a neat labelled diagram of sectional view of mammary gland.
30. List the salient features of Human genome.
31. Explain the regulation of Lac-operon in the absence and presence of Lactose in the medium.
32. i) What are the methods to introduce alien DNA into host cells? (3)
    ii) Write any three tools used in recombinant DNA technology. (2)

SECTION-II

Answer any THREE of the following questions in about 200 to 250 words each, wherever applicable: 3x5=15

33. i) Where are the Opioid receptors located in Human body? (2)
    ii) Mention the techniques involved in cancer detection and diagnosis. (3)
34. Explain briefly the uses of transgenic animals.
35. i) Mention the possible genotypes of Blood groups A and B. (2)
    ii) Explain briefly the sex-determination in Honey bees. (3)
36. Discuss the role of Microbes as biofertilizers.
37. What is commensalism? Mention any four interactions of organisms that represent commensalism.

MODEL QUESTION PAPER – 3
FOR REDUCED SYLLABUS 2020-21
2ND YEAR P U C: BIOLOGY (36)
2020-21

TIME: 3hours 15minutes MaxMarks:70

GENERAL INSTRUCTIONS:

i) This question paper consists of four parts A, B, C and D. Part D consist of two parts, section-I and section-II
ii) All the parts are compulsory.
iii) Draw diagrams wherever necessary. Unlabelled diagrams or illustrations do not attract any marks.

PART-A

Answer the following questions in *one* word or in *one* sentence each: 10x1=10

1. 'Wind pollinated flowers have to produce enormous amount of pollen'. Why?
2. What is apomixis?
3. Name the hormone secreted by corpus luteum.
4. What is colostrum?
5. Name any one hormone producing IUD.
6. Write the karyotype of Turner's syndrome.
7. Define transcription.
8. What are multiple alleles?
9. What is elution?
10. Define endemism.

PART-B

Answer any five of the following questions in 3to 5 sentences each, wherever applicable: 5x2=10

11. Differentiate between menstrual cycle and oestrus cycle.
12. Mention the two layers of human blastocyst.
13. Name the four types of cells found in the embryo sac of angiosperms.
14. What is incomplete dominance? Give an example.
15. Distinguish between Benign tumour and Malignant tumour.
16. What is innate immunity? Mention any one type of innate immunity barriers.
17. Name the bioactive molecules used as i) Clot buster ii) Blood cholesterol lowering agent.
18. Draw a neat labelled diagram of plasmid pBR322.

PART-C

Answer any *five* of the following questions in about 40 to 80 words each, wherever applicable: 5x3=15

19. i) Name the cells that secrete androgens. (1)
    ii) List out the hormones secreted by placenta. (2)
20. Draw a neat labelled diagram of T.S. of young anther.
21. "RNA polymerase in eukaryotes shows division of labour". Substantiate the statement.
22. What is allergy? Name two chemicals released by mast cells during allergic reactions.
23. What is biopiracy? Explain it with reference to basmati rice.
24. Which are the different genes encoding for insecticidal protein that controls cotton bollworm and corn borer?
25. How endoparasites are successfully adapted for parasitic mode of life?
26. "Tropical region has greater biodiversity than temperate region". Justify the statement with three reasons.

PART-D

SECTION-I

Answer any *four* of the following questions in about 200 to 250 words each, wherever applicable: 4x5=20

27. Explain outbreeding devices that prevent self-pollination.
28. Write the schematic representation of two gene inheritance by considering seed colour and seed shape in pea plants.
29. Draw a neat labelled diagram of sectional view of male reproductive system.
30. i) Why T. H. Morgan selected Drosophila for his genetic experiments? 3
    ii) What is pleiotropism? Give an example. 2
31. List out the salient features of double helix model of DNA.
32. Explain the role of microbes in household products.

SECTION-II

Answer any *three* of the following questions in about 200 to 250 words each, wherever applicable: 3x5=15

33. i) What is infertility? 1
    ii) Explain two barrier methods and two surgical methods that prevent conception. 4
34. Diagrammatically represent the replication of retrovirus.
35. Enumerate any five salient features of genetic code.
36. i) List out the steps of PCR. 3
    ii) Classify the restriction enzymes. Differentiate them on the basis of their action on DNA. 2
37. What is mutualism? Describe with any two suitable examples.