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2B6M21644 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Degree Examination, March/April 2021

BZOL6B12 – Molecular Biology & Bioinformatics

(2018 Admission onwards)

Time: 3 hours Max. Marks:80

I. Answer all the questions each question carries 1 mark

1. Who discovered Jumping genes
2. EcoCye belongs to which type of database
3. Who proposed reverse transcription
4. Give an example for molecular chaperons
5. Major enzyme involved in transcription
6. Give the name of enzyme used for activation of amino acid
7. Who proposed one gene one polypeptide hypothesis
8. Give the name of bacteria used by Griffith for his transformation experiments
9. Which tRNA arm binds on ribosomes
10. Example for protein sequence data base

(10 x1=10 Marks)

II. Answer any ten questions. Each question carries 2 mark

11. Define bioinformatics
12. What is a triplet codon
13. Comment on Harshey and Chase experiments
14. Briefly explain PIR
15. C value paradox
16. What are housekeeping genes
17. What are spliceosomes
18. Write notes on PRINTS
19. What is satellite DNA
20. Define cistron and muton
21. Comment on the significance of Harshey and Chase experiment
22. What are primary data bases

(10 x 2= 20 Marks)

III. Answer any five questions. Each question carries 6 mark

23. Give an account of NCBI
24. Explain overlapping genes and pseudo genes
25. Explain CLUSTAL X and CLUSTAL W
26. Describe post transcriptional modification
27. Explain Lac operon
28. Comment on SiRNA and RNAi
29. Describe features of codon
30. Explain mRNA processing

(5 x 6= 30 Marks)

IV. Answer any two questions. Each question carries 10 mark

31. Explain protein synthesis
32. Write an essay on lytic and lysogenic cycles
33. Explain Bioinformatics and its applications
34. Write an essay on DNA Sequencing and its significance

(2 x10= 20 Marks)

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2B6M21645 (Pages :2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Degree Examination, March/April 2021

BZOL6B13 – Reproductive Biology, Developmental Biology & Teratology

(2018 Admission onwards)

Time: 3 hours Max. Marks:80

I. Answer all questions. Each question carries one mark

1. Expansion of PNDT act.
2. Give an example for r-selected species.
3. Name the gland adjacent to the vaginal opening.
4. Which hormone is essential for maintaining pregnancy?
5. Name the first successful test tube baby.
6. Write an example for environmental estrogen.
7. Who proposed Biogenetic low?
8. Which type of egg is seen in Amphibia?
9. The cleavage furrow bisects both the poles of egg is called.
10. In chick, primitive ridges terminates anteriorly in a thickening is called.

(10 x 1 =10 Marks)

II. Answer all ten questions. Each question carries two marks.

11. What are the secondary sexual characteristics in human females?
12. Describe oestrous cycle in non-primates.
13. Explain milk ejection reflex.
14. What is artificial insemination?
15. Explain cryopreservation.
16. What is AFP?
17. Describe germ layers and its derivatives.
18. Explain different types of cleavage based on the amount of yolk.
19. Illustrate fate map in frog?
20. Sketch and label the structure of egg of chick.

(10 x 2=20 Marks)

III. Answer any five questions. (Short essay). Each question carries six marks

21. What are stem cells? Comment on its applications.
22. Explain cell lineage with a suitable example?
23. Explain the process of gastrulation in Amphioxus.
24. What are egg membranes? Explain with examples.
25. Write short essay on different types of placenta.
26. Write a short essay on Amphibian metamorphosis.
27. Explain double gradient theory with experimental support.
28. Write short essay on assisted reproductive techniques.

(5 x 6=30 Mark

IV. Answer any two essay questions. Each question carries ten marks.

29. Write an essay on gametogenesis and its hormonal control.
30. Explain environmental disruption of animal development.
31. Write an essay on parthenogenesis and its significance.
32. What are the Salient features of 24hrs and 33hrs of chick embryo?

(2x10=20 Mark

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Degree Examination, March/April 2021

BZOL6B14 – Biotechnology, Microbiology & Immunology

(2018 Admission onwards)

me: 3 hours Max. Marks:80

I. Answer *all* questions. Each carries 1 mark:

1. Enzyme that catalyzes the synthesis of DNA on a template of RNA.....
2. The first antibody secreted during immune response is.....
3. Protein coat of virus is called.....
4. Inactivated toxins are called.....
5. The technique for amplifying DNA sequences *in vitro* using purified enzymes is called.....
6. The study of factors and mechanisms in the spread of diseases in a population is known as.....
7. The microorganisms found in or on the body that do not cause disease are called.....
8. Partial antigens are called .....
9. Diseases that can be naturally transmitted from animals to humans are called.....
10. Sleeping sickness is caused by.....

(10x1=10 Marks)

II. Answer *all* questions. Each carries 2 marks:

11. Explain Gram staining?
12. Distinguish between viroids and prions?
13. Define cell lines.
14. Comment on plasmids.
15. What are gene knockout mice?
16. What are interferons?
17. Comment on VNTRs.
18. What are tumor antigens?
19. What is Biofiltration?
20. What are Adjuvants?

(10x2=20 Marks)

III. **Answer *any five* questions. Each carries 6 marks:**

21. Enumerate the salient features of viruses.
22. Explain DNA finger printing.
23. Comment on hybridoma technology.
24. Outline the major steps involved in PCR.
25. Explain bacterial growth curve and its importance.
26. Give an account on various types of vaccines.
27. Briefly explain the different molecular markers and their uses.
28. List any five immunological cells and their distinct features.

(5x6=30 Marks)

IV. **Answer *any two* essay questions. Each carries 10 marks:**

29. Discuss the role of vectors and enzymes in gene cloning.
30. Describe the various types of antigen-antibody interactions.
31. Give an account on basic methods used in microbiology.
32. Write an essay on the applications of biotechnology in human welfare.

(2x10=20 Marks)

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Degree Examination, March/April 2021

BZOL6B10 – Biochemistry

(2018 Admission onwards)

Time: 3 hours Max. Marks:80

I. Answer *all* questions. Each Question carries 1 mark.

1. The CO_2carrier in β – oxidation of odd number of fatty acids.
2. Name the final electron acceptor in the ETC.
3. Name the storage form of carbohydrates in mammals.
4. What is the separation technique used to resolve DNA molecules.
5. Name a rate limiting enzyme in glycolysis.
6. Name an enzyme which is not a protein.
7. How many peptide bonds are formed when three amino acids join together?
8. Name an electron carrier which link complex I and III in Electron Transport Chain.
9. What kind of a polysaccharide cannot be digested by humans?
10. Which arm of the t RNA can act as a structural recognition feature?

(10 x 1 = 10 Marks)

II. Short answer questions. Answer *any ten* questions

11. Write the principle and procedure of biuret test?
12. Draw the structure of any one purine base.
13. What is enzyme inhibition?
14. Define Isoelectric point?
15. Explain the stabilizing forces in biomolecules?
16. What is denaturation of proteins?
17. Give the structure of ATP.
18. Differentiate between glucose and fructose.
19. Write notes on SDS-PAGE.
20. What is redox reaction?
21. What is the principle of calorimetry?
22. What are isozymes?

(10 x 2 = 20 Marks)

III. Short essay questions. Answer *any five* questions

23. Describe the formation of glucose from noncarbohydrate precursors.
24. Draw the linear structure of any four Monosaccharides.
25. Explain chemiosmotic theory and synthesis of ATP.
26. Explain the properties and mechanism of enzyme action.
27. What are the applications of spectrophotometer? What is meant by absorption spectrum?
28. Write short account on molecular structure of B-DNA.
29. What are prostaglandins?
30. What is chromatography and how does it work?

(5 x 6 = 30 Mark

IV. Essay questions. Answer *any two* questions

31. Give an account of citric acid cycle and the yield of ATP on complete oxidation of one molecule of glucose.
32. Explain the principle and clinical significance of quantitative and qualitative tests used for carbohydrate analysis.
33. Briefly explain about β-oxidation of fatty acids.
34. Explain the different levels of organization found in proteins.

(2 x 10 = 20 Mark

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Degree Examination, March/April 2021

BZOL6B11 – Physiology & Endocrinology

(2018 Admission onwards)

Time: 3 hours Max. Marks:80

I. Answer all questions. Each question carries I mark each

1. What is carbaminohemoglobin
2. What is myogenic heart?
3. Mention the function of FSH
4. What is aphaeresis?
5. What is rigor mortis?
6. What is meant by symbiotic bioluminescence?
7. What are catecholamines?
8. Name the respiratory pigment found in both vertebrates and invertebrates?
9. What is hemolytic jaundice?
10. What are glia cells?

(1 x 10=10 marks)

II. Short answer questions. Answer any ten questions

11. What is the significance of breast feeding?
12. What is cutaneous respiration? Give one example
13. Explain the significance of fasting
14. Classify hormones based on their chemical nature
15. What is albuminuria? Give the common causes of albuminuria
16. Distinguish between endemic and exophthalmic goitre
17. Explain the differences between sensory and motor neuron
18. List the major age related respiratory problems in man
19. What is oxygen dissociation curve?
20. Mention the major abnormal constituents of urine
21. What is ESR? List any 4 pathological conditions which lead to abnormal variations in ESR
22. What is counter current mechanism?

(10x2=20marks)

III. Short answer questions. Answer any Five

23. With help of an example describe osmo regulation in aquatic animals?
24. List the hormones produced by adrenal gland. Briefly explain the function for each
25. Explain the various steps involved in the process of blood coagulation
26. What are respiratory pigments? Write a note on the molecular organization of hemoglobin?
27. Describe the ultra structure of striated muscle fibre
28. What is diabetes mellitus? How is it different form diabetes insipidus
29. Describe the process of urine formation in kidney
30. What are neurotransmitters? Explain the various types of neurotransmitters?

(5x6=30marks

IV. Answer any Two

31. Explain the various physiochemical changes during muscle contraction
32. Explain the various stages in the transport of respiratory gases between lungs and tissues
33. What is nerve impulse? Explain how nerve impulse is transmitted through nerve fibre
34. Explain the various cardiovascular diseases in man. Add a note on ECG.

(2x10=20marks