

(6 pages)

Reg. No. : .....

**Code No. : 30521 E      Sub. Code : CMBT 11**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Biotechnology – Core

**BASIC OF BIODIVERSITY AND CONSERVATION**

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. “Flowers offered to the god” is an example of
  - (a) Non-consumptive values of biodiversity
  - (b) Consumptive values of biodiversity
  - (c) Social value of biodiversity
  - (d) Ethical values of biodiversity

2. Why biodiversity is of great scientific value?
  - (a) Because many species of plants and animals are the subjects of our research
  - (b) Because biodiversity can be use only in space
  - (c) Because biodiversity can only be useful for scientist
  - (d) Because biodiversity provides only few products that helps for humans
  
3. Microorganisms are
  - (a) Unicellular
  - (b) Multi-cellular
  - (c) Macroscopic
  - (d) Bicellular
  
4. Rhizobium bacteria
  - (a) Help in digestion
  - (b) Help in nitrogen fixation
  - (c) Cause diseases
  - (d) Solubilizing phosphate

5. Cryoprotectants are used in cryopreservation to\_\_\_\_\_
- (a) Prevent damage caused to cells by freezing
  - (b) To preserve cells from pathogens
  - (c) To preserve cells from freezing
  - (d) To preserve cells from aggregation
6. Temperature required for cold storage for germplasm conservation is\_\_\_\_\_
- (a) 1-9°C                      (b) 9-15°C
  - (c) 15-20°C                  (d) 20-30°C
7. Dodo is
- (a) endangered              (b) critically endangered
  - (c) rare                        (d) extinct
8. Ex situ conservation NOT includes
- (a) zoo
  - (b) botanical garden
  - (c) germplasm bank
  - (d) Tissue culture

9. Which one of the following is the way for conservation of biodiversity?
- (a) Increase in the pollution level in the ecosystem
  - (b) Converting forest land into agricultural land in rapid way
  - (c) Removal of exotic species
  - (d) Overexploitation
10. Depletion of which gas in the atmosphere can lead to an increased incidence of skin cancers
- (a) ozone                      (b) ammonia
  - (c) methane                      (d) nitrous oxide

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain about energy flow in an ecosystem.

Or

- (b) List out the values of biodiversity.

12. (a) Explain the significance of *Andrographis*.

Or

- (b) Comment on viruses.

13. (a) Describe endangered species in India.

Or

(b) Illustrate *in situ* conservation.

14. (a) What are the main threats to biodiversity?

Or

(b) List out the examples of overexploitation.

15. (a) Analyze the biofuels and its importance.

Or

(b) Discuss on depletion of ozone layer.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Discuss on various biodiversity acts to protect the environment.

Or

(b) Elaborate the structure and function of an ecosystem.

17. (a) Describe about vertebrates.

Or

(b) Explain cryptogams.

18. (a) Illustrate the cryopreservation technique for conservation of biological resources.

Or

- (b) Enumerate biogeographical zones of India.

19. (a) How can we use biotechnology to conserve biodiversity? Discuss.

Or

- (b) Discuss on role of individuals to conserve the biodiversity.

20. (a) Explain conservation of biological diversity.

Or

- (b) Elaborate the sustainable use of bioresources.
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Reg. No. : .....

**Code No. : 30522 E      Sub. Code : CMBT 21**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Second Semester

Biotechnology — Core

**CELL AND MOLECULAR BIOLOGY**

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Cell wall is product of the
  - (a) Cytoplasm
  - (b) Endoplasm
  - (c) Protoplasm
  - (d) None of these

2. Which of the following is constituent of biological membrane?
  - (a) Phosphoprotein
  - (b) Protein and Phospholipid
  - (c) Phospholipids
  - (d) Cellulose
  
3. The term mitochondria was coined by
  - (a) Carl Benda
  - (b) Richard
  - (c) Watson
  - (d) John Crick
  
4. What is the important function of nucleus?
  - (a) Photosynthesis
  - (b) Cellular reproduction
  - (c) Lipid synthesis
  - (d) Protein synthesis
  
5. Which of the following enzymes separates the two stands of DNA during replication?
  - (a) Gyrase
  - (b) Topoisomerase
  - (c) Helicase
  - (d) DNA polymerase



6. Which enzyme is responsible for removing the RNA primers added during DNA replication?
- (a) Primase
  - (b) DNA ligase
  - (c) DNA polymerase I
  - (d) DNA polymerase III
7. The initiation codon is
- (a) AUG                      (b) UAA
  - (c) UAG                      (d) UGA
8. Which of the following initiation factor when bound to the 30S subunit blocks the A site, so that only the P site is available for the initiator tRNA to bind to?
- (a) IF4                      (b) IF2
  - (c) IF3                      (d) IF1
9. Which of the following is responsible for the switching on and off of the lac operon?
- (a) Lactose                      (b) Ethanol
  - (c) Malate                      (d) Fructose
10. Which of these Ara genes is a mode of feedback auto regulation?
- (a) Ara A                      (b) Ara B
  - (c) Ara C                      (d) Ara D

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Comment on cell wall composition?

Or

- (b) With suitable diagram, discuss the structure of eukaryotic cell?

12. (a) Sketch and label the ultra structure of the chloroplast. What function does it carry out?

Or

- (b) Describe the structure of ER?

13. (a) Explain the messelson and stahl experiment?

Or

- (b) Explain the enzyme involved in DNA replication?

14. (a) Discuss the characteristic features of genetic code?

Or

- (b) List out the post transcriptional modification and explain it.

15. (a) Explain positive and negative control Operon concept?

Or

- (b) Explain the types of transposons?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Highlight the differences between prokaryotic and eukaryotic cells?

Or

- (b) Explain the structural organization of plasma membrane?

17. (a) Explain the structural organization and functions of mitochondria?

Or

- (b) Determine the giant chromosome and its properties.

18. (a) Explain DNA repair mechanism.

Or

- (b) Explain the mechanisms of prokaryotic DNA replication?

19. (a) Distinguish transcription in eukaryotes and prokaryotes.

Or

(b) Discuss the steps in transcription.

20. (a) Explain the regulation of gene expression?

Or

(b) Discuss lactose operon?

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Reg. No. : .....

**Code No. : 30523 E      Sub. Code : CMBT 31**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Biotechnology – Core

**MICROBIOLOGY**

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Prokaryotic cells are more resistant to osmotic shock than eukaryotic cells because
  - (a) their cell wall is composed of peptidoglycan
  - (b) they are selectively permeable
  - (c) they contain osmoregulating porins
  - (d) they block water molecules from entering the cell

2. Which of the following is diagnosed by serologic means?
- (a) Actinomycosis
  - (b) Q-fever
  - (c) Pulmonary tuberculosis
  - (d) Gonorrhoea
3. The coagulase is done to differentiate
- (a) *Staphylococcus aureus* from *staphylococcus epidermidis*
  - (b) *Staphylococcus epidermidis* from *Neisseria meningitidis*
  - (c) *Streptococcus pyogenes* from *Enterococcus faecalis*
  - (d) *Streptococcus pyogenes* from *Staphylococcus aureus*
4. Which phage is used for phage display technique?
- (a) T7
  - (b) M13
  - (c)  $\lambda$  – phage
  - (d)  $\phi$  6
5. Which of these bacterial components is least likely to contain useful antigens?
- (a) Cell wall
  - (b) Flagella
  - (c) Ribosomes
  - (d) capsule

6. Temperature required for pasteurization is  
(a) above 15°C                      (b) below 100°C  
(c) 110°C                              (d) none of these
7. Non-lactose fermenting colonies seen on MacConkey's medium are  
(a) *Salmonella typhi*  
(b) *Escherichia coli*  
(c) *Klebsiella pneumoniae*  
(d) *Shigella shigae*
8. Blood agar medium is  
(a) Enrichment medium  
(b) Enriched medium  
(c) Selective medium  
(d) Differential medium
9. Salt agar is used for  
(a) *Streptococcus*                      (b) *Staphylococcus*  
(c) *Vibrio*                                  (d) *Shigella*
10. Differential staining of bacteria spore is related to  
(a) Albert's staining  
(b) Lugol's staining  
(c) Moller's staining  
(d) Indian ink preparation

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Discuss the history of microbiology.

Or

(b) Justify the importance of microbes in biotechnology.

12. (a) Distinguish the ultra structure of bacteria.

Or

(b) Facilitate the general characters of protozoa.

13. (a) Bring out the preservations of microbes.

Or

(b) Measure the calculation of generation line.

14. (a) Differentiate Gram positive and Gram negative.

Or

(b) Analyse the morphology, culture characters and pathogenicity of *E.coli*.



15. (a) Evaluate the bacterial diseases.

Or

(b) Criticize the microbial interaction with plants.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Illustrate the principles and applications of microbiology.

Or

(b) Analyse the future of microbiology.

17. (a) Evaluate the classification of fungi.

Or

(b) Criticize the classification of algae.

18. (a) Integrate the isolation of *Rhizobium*.

Or

(b) Illustrate the preparation and sterilization of culture medium for viruses.

19. (a) Validate the morphology, culture characters and pathogenicity of *Streptococcus*.

Or

(b) Discriminate the laboratory diagnosis and treatment for *Neisseria*.

20. (a) Appraise the application of probiotics.

Or

(b) Validate the viral diseases.

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(6 pages)

Reg. No. : .....

**Code No. : 30524 E      Sub. Code : CABT 11**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Biotechnology – Allied

**BIOCHEMISTRY – I**

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Carbohydrates are also known as \_\_\_\_\_.
  - (a) Hydrates of carbon
  - (b) Carbonates
  - (c) Glycolipids
  - (d) Polysaccharides

2. Which of the following amino sugar are present in the bacterial cell wall?
- (a) N-acetylmuramic acid
  - (b) Sialic acid
  - (c) Aminoglycoside
  - (d) Azide
3. Which of these is a storehouse of energy in plant tissues?
- (a) Starch
  - (b) Cellulose
  - (c) Glucose
  - (d) Fructose
4. Insulin is a polymer of \_\_\_\_\_.
- (a) glucose and fructose
  - (b) glucose
  - (c) fructose
  - (d) glucose, fructose and galactose
5. In the beta sheet of secondary structure, polypeptide chain proceed in the same direction amino to carboxyl is
- (a) Antiparallel
  - (b) Horizontal
  - (c) Parallel
  - (d) Antihorizontal

6. The protein which are simple and conjugated proteins is
- (a) Ornamental                      (b) Acidic  
(c) Derived                            (d) Basic
7. Which of the following phospholipid is considered as a major constituent of nervous tissue?
- (a) Glycerophospholipid  
(b) Plasmalogen  
(c) Inositol  
(d) Sphingomyelin
8. The melting point of fatty acids depends upon chain length and \_\_\_\_\_
- (a) The shape of the fatty acids  
(b) The position of the double bond  
(c) Charge on the carbon  
(d) Degree of unsaturation
9. Which of the following statements is correct?
- (a) Adenine is a pyrimidine  
(b) DNA is made of amino acids  
(c) Nucleosides do not contain phosphorous  
(d) RNA contains thymine



14. (a) Discuss the properties of fatty acids.

Or

(b) Justify the properties of phospholipids.

15. (a) Difference between Nucleosides and Nucleotides.

Or

(b) Schematically explain the tRNA structure.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Define and classify carbohydrates with examples.

Or

(b) Summarize the properties disaccharide with reference to Lactose.

17. (a) Demonstrate glycolysis pathway.

Or

(b) A cycle is the main source of energy for cells and an important part of aerobic respiration – Explain.

18. (a) Classification of proteins based on structure, composition and function.

Or

- (b) Illustrate the types of protein structure with neat sketch.

19. (a) Classify fatty acids with example.

Or

- (b) Discuss about Cephalin and Sphingomyelin.

20. (a) Exemplify the DNA structure model proposed by Watson and Crick.

Or

- (b) Enumerate the types of RNA and its function.
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Reg. No. : .....

**Code No. : 30525 E      Sub. Code : CABT 21**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Second Semester

Biotechnology – Allied

**BIOCHEMISTRY – II**

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Arrhenius defined an acid as:
  - (a) a species that can donate a proton.
  - (b) a species that can accept a proton.
  - (c) a source of OH<sup>-</sup> ions in water.
  - (d) a source of OH<sup>+</sup> ions in water.

2. A single and fundamental form of load cell which is basically used as a transducer in the operation of a weighing machine undergoes the conversion of \_\_\_\_\_
- (a) Force into an electrical signal
  - (b) Pressure into an electrical signal
  - (c) Acceleration into an electrical signal
  - (d) Velocity into an electrical signal
3. In 500 x g, what does g represent in accordance to centrifugation?
- (a) Gravitational force
  - (b) Centrifugal force is 500 times greater than earthly gravitational force
  - (c) Centrifugal force is 500 times less than earthly gravitational force
  - (d) Centrifugal force is 500 times same as that of earthly gravitational force
4. Which of the following is used as a media for density gradient?
- (a) Agarose
  - (b) Ficoll
  - (c) Luria broth
  - (d) Propylene glycol

5. The process of changing the mobile phase composition either stepwise or continuously as elution proceeds is known as
- (a) Iso-osmotic and Isocratic
  - (b) Gradient and Isocratic
  - (c) Gradient and Adiabatic
  - (d) Iso-osmotic and Adiabatic
6. Which of the following is a macroporous polymer column
- (a) Porous silica columns
  - (b) Pellicular silica columns
  - (c) Styrene-divinyl benzene polymer columns
  - (d) Porous alumina columns
7. Which technique separates charged particles using electric field?
- (a) Hydrolysis
  - (b) Electrophoresis
  - (c) Protein synthesis
  - (d) Protein denaturing

8. A piece of DNA that is to be separated is crushed and soaked into the buffer. The majority of DNA diffuses, how can it be separated?
- (a) Filtration and centrifugation
  - (b) Filtration or centrifugation
  - (c) Allowing to sediment
  - (d) By passing through a silica column
9. Select the wavelength range corresponding to UV-visible region.
- (a) 400-800 nm
  - (b) 200-800 mm
  - (c) 25  $\mu\text{m}$ -2.5  $\mu\text{m}$
  - (d) 2.5  $\mu\text{m}$ - 1mm
10. In the Visible spectrum of light, which of the following colour has the longest wavelength?
- (a) Violet
  - (b) Yellow
  - (c) Orange
  - (d) Black

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Describe Arrhenius theory of acid and base.

Or

- (b) Give a flowchart for the preparation of 100 ml of 1 M potassium phosphate buffer (pH 8). Molecular weight of  $\text{KH}_2\text{PO}_4$  is (136.086 g/L) and  $\text{K}_2\text{HPO}_4$  is (174.2 g/L).

12. (a) List out the types of centrifuges.

Or

- (b) Compare differential centrifugation and density gradient centrifugation.

13. (a) Define the principle of paper chromatography and its process.

Or

- (b) Enlist the various applications of gel filtration chromatography.

14. (a) Categorize the factors influence the electrophoresis process.

Or

- (b) Brief the blotting methodology to identify virus (RNA as genetic material).

15. (a) Tabulate the difference between colorimeter and spectrophotometer.

Or

- (b) Write the applications of absorption and emission spectra.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Derive Henderson Hasselbach equation.

Or

- (b) Explain the methodology of physical and electronic weighing balance.

17. (a) Illustrate the working principle and applications of ultracentrifuge.

Or

- (b) Compare rate zonal sedimentation and isopycnic sedimentation.

18. (a) Discriminate the types of ion exchange chromatography based on its separation principle and discuss in detail.

Or

- (b) Construct the various parts of analytical HPLC instruments and explain elaborately.

19. (a) Compare the principle and methodology of PAGE and SDS-PAGE.

Or

- (b) DNA samples present in gel are transferred to blotting membrane due to capillary force – Justify.

20. (a) Differentiate absorption spectra vs emission spectra.

Or

- (b) Discuss the principle and instrumentation of UV-Visible spectrophotometer.

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(6 pages)

Reg. No. : .....

**Code No. : 30526 E      Sub. Code : CABT 31**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Biotechnology – Allied

GENETICS

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Lethal genes are
  - (a) Dominant homozygous
  - (b) Dominant heterozygous
  - (c) Co-dominant
  - (d) Recessive genes



2. In case of incomplete dominance, F<sub>2</sub> generation has
- (a) Genotypic ratio equal to phenotypic ratio
  - (b) Genotypic ratio is 3: 1
  - (c) Phenotypic ratio is 3: 1
  - (d) None of the above
3. The example of Epistasis gene is shown by
- (a) Comb colour of poult
  - (b) Sweet pea
  - (c) Cucurbitta pepo
  - (d) None of the above
4. If in a filial generation 9 : 3 : 3 : 1 ratio is replaced by 9 : 7 ratio, it is due to
- (a) Complementary gene
  - (b) Epistasis gene
  - (c) Supplementary gene
  - (d) Hypostatic gene
5. Crossing over occurs in the
- (a) Leptotene stage      (b) Pachytene stage
  - (c) Anaphase stage      (d) Diakinesis stage

6. Hutchinson selected some character to study the linkage system in *Maize*, that is
- (a) Coloure daleur one Vs Colour less aleurone
  - (b) Full endosperm Vs Shrunken endosperm
  - (c) Both (a) and (b)
  - (d) None of these
7. \_\_\_\_\_ discovered XY sex chromosomes
- (a) MJD white                      (b) Nettil Stevans
  - (c) R Brown                        (d) Mendel
8. Chromosomes that determine male sex in *Melandrium* plant is
- (a) X Chromosome                (b) Y Chromosome
  - (c) XX Chromosome              (d) None of these
9. Which of the following describes the inheritance controlled by cytoplasmic genes?
- (a) Extra nuclear inheritance
  - (b) Heritability
  - (c) Environmental factors
  - (d) Complex trait

10. Transition type of gene mutation is caused when
- (a) GC is replaced by TA
  - (b) CG is replaced by GC
  - (c) AT is replaced by CG
  - (d) AT is replaced by GC

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Manipulate the Dihybrid cross.

Or

- (b) Discuss the mendelian genetics.

12. (a) Predict Linkage with suitable images.

Or

- (b) Criticize the Rh factor.

13. (a) Distinguish the Sex determination-Chromosome XX-XY.

Or

- (b) Recite the Environment sex determination.

14. (a) Recall and write the Aneuploidy.

Or

(b) Justify the Extra chromosomal Inheritance.

15. (a) Explain the Down syndrome.

Or

(b) Criticize the hypertrichosis.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Elaborate the Epistasis.

Or

(b) Compare the incomplete and complete dominance.

17. (a) Evaluate the Crossing over.

Or

(b) Criticize on Multiple factor.

18. (a) Integrate the Hormonal control of sex determination.

Or

(b) Justify the Genic balance theory of Bridge.

19. (a) Validate the Chromosomal aberration.

Or

(b) Discriminate the Euploidy.

20. (a) Appraise the Mutagenesis.

Or

(b) Illustrate the genetic disorder.

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(6 pages)

Reg. No. : .....

**Code No. : 30527 E      Sub. Code : CSBT 31**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Biotechnology

Skill Based Core — CLINICAL BIOCHEMISTRY

(For those who joined in July 2021 onwards)

Time : Three hours                      Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The normal diastolic blood pressure in a normal healthy adult human is
  - (a) 80 mm Hg                      (b) 60 mm Hg
  - (c) 90 mm Hg                      (d) 110 mm Hg
  
2. Which of the following is the most commonly used body fluid?
  - (a) Blood                              (b) Plasma
  - (c) Lymph                              (d) Serum

3. What is plasma without clotting factors known as?
  - (a) Blood
  - (b) Serum
  - (c) Lymph
  - (d) Fluid
  
4. The presence of ketone bodies is an indication of which of the following diseases?
  - (a) Diabetes mellitus
  - (b) Diabetes insipidus
  - (c) High blood cholesterol
  - (d) Liver cirrhosis
  
5. Which of the following analyte is used for the diagnosis of alkaptonuria?
  - (a) Homogentisate
  - (b) Phenylacetate
  - (c) p-Hydroxyphenylacetate
  - (d) Fumrylacetoacetate
  
6. Which of the following samples is usually taken for the liver function test?
  - (a) Blood sample
  - (b) Urine sample
  - (c) Intestine biopsy sample
  - (d) Sputum sample

7. Drinking too much alcohol over long periods of time results in \_\_\_\_\_
- (a) Fascioliasis
  - (b) Fatty liver disease
  - (c) Alcoholic liver disease
  - (d) Primary sclerosing cholangitis
8. Severe, acute or incurable liver disease results in \_\_\_\_\_
- (a) Blood clotting
  - (b) Production of blood proteins
  - (c) Elimination of water, drugs and toxins from the body
  - (d) All of the above
9. Which of the following are the nonfunctional plasma enzymes increased in alcoholic subjects?
- (a) Alkaline phosphatase
  - (b) Acid phosphatase
  - (c) Lactate dehydrogenase
  - (d) Gamma-glutamyltransferase



10. Which of the following is the function of the human liver?
- (a) Production of bile
  - (b) Metabolization of fats
  - (c) Metabolization of carbohydrates
  - (d) All of the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Comment on different body fluids.

Or

- (b) Write a note on test for kidney disorders.

12. (a) Describe in brief on the glycosuria.

Or

- (b) Write general notes on diabetes mellitus.

13. (a) Write a note on inborn errors of metabolism.

Or

- (b) Explain about salient features of tyrosinemia.

14. (a) Describe fatty liver.

Or

(b) What is renal clearance test?

15. (a) Discuss about plasma enzymes.

Or

(b) Mention enzyme pattern of liver damage.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Outline laboratory diagnosis of liver and kidney disorders.

Or

(b) Detail notes on diagnosis and collection and preservation of biological fluids.

17. (a) Describe the causes, symptoms of diabetes mellitus.

Or

(b) Write an essay about glycogen storage disease.

18. (a) Write a note on phenylketonuria and alkaptonuria.

Or

(b) Describe the albinism and haemophilia.

19. (a) Discuss urea clearance and creatine clearance test.

Or

(b) What is jaundice? Explain about the pathology of different types of jaundice.

20. (a) Discuss the enzyme pattern in myocardial infraction.

Or

(b) Summarize the therapeutic uses of functional and non-functional serum enzymes.

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(6 pages)

Reg. No. : .....

**Code No. : 30528 E      Sub. Code : CSBT 32**

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Biotechnology

Skill Based Core — INDUSTRIAL BIOTECHNOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which are the most primitive group of algae?
  - (a) Blue green algae      (b) Red algae
  - (c) Brown algae          (d) Green algae

2. Which of the following is the benefit of blue-green algae?
- (a) The increase the soil pH
  - (b) The increase the nitrogen content
  - (c) They help in the growth of weeds
  - (d) They help in the growth of pests or inset
3. Techniques in seaweed culture
- (a) Bamboo method
  - (b) Mangrove stakes and net method
  - (c) Tubular net method
  - (d) All the above
4. \_\_\_\_\_ is the world's largest seaweed producer.
- (a) India
  - (b) Japan
  - (c) Indonesia
  - (d) America
5. Micro-encapsulated feed is more advantages because
- (a) they do not pollute water
  - (b) improving the stability of nutrients
  - (c) handling is easy
  - (d) storage is easy

6. What is the best grain feed for poultry?
- (a) rice                      (b) wheat  
(c) sorghum                  (d) barley
7. Andrographolide is widely used in Indian medicine for
- (a) AIDS                      (b) Diabetic  
(c) Snake bite                (d) Cancer
8. Which of the following part of *Ocimum tenuiflorum* is commonly used for medicinal purpose?
- (a) Root                      (b) Flower  
(c) Steam                     (d) Leaves
9. \_\_\_\_\_ is a natural product form *Catharanthus roseus*.
- (a) Andrographolide        (b) Vindoline  
(c) Betulin                    (d) Betulinic acid
10. Which country is the largest exporter of medicinal plant?
- (a) India                      (b) Sri Lanka  
(c) Germany                 (d) Japan

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short notes on blue green algae.

Or

- (b) Discuss the general character of blue green algae.

12. (a) Describe the seaweeds as fertilizer.

Or

- (b) List out the Indian seaweed farms.

13. (a) Comment on fish feeds.

Or

- (b) List out the value of chicken feed and explain it.

14. (a) Restate the medicinal uses of *Andrographis paniculata*.

Or

- (b) Recite the importance of *Catharanthus roseus*.

15. (a) Describe the importance of stability packaging.

Or

- (b) Discuss any two methods of herbal product improvements.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Elaborate the economic importance of blue green algae.

Or

- (b) Plan and write mass cultivation of blue green algae.

17. (a) Discuss the culture techniques of any one seaweed.

Or

- (b) List out the environmental factors affecting in the seaweed culture areas.

18. (a) Discuss the nutritional value of fish feed.

Or

- (b) Describe the effect of processing on the nutritional value of fish feeds.



19. (a) Bring out the economic importance of *Ocimum tenuiflorum*.

Or

(b) Discuss the cultivation and processing of any one economically important medicinal plant.

20. (a) Explain the marketing strategy of herbal products.

Or

(b) List out the herbal products made from tulsi.

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(6 pages)

Reg. No. : .....

**Code No. : 30529 E      Sub. Code : CNBT 31**

U.G. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Biotechnology

Non Major Elective – NUTRITIONAL  
BIOTECHNOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The major functions of carbohydrates include
  - (a) structural framework
  - (b) storage
  - (c) both (a) and (b)
  - (d) none of these

2. Maximum carbohydrates are obtained from
  - (a) whole grain food
  - (b) fatty fish
  - (c) plant oil
  - (d) nuts
  
3. The cholesterol molecule is
  - (a) Straight chain acid
  - (b) Steroid
  - (c) Benzene derivative
  - (d) Quinoline derivative
  
4. Rancidity of lipids of lipid-rich foodstuff is because of
  - (a) Reduction of fatty acids
  - (b) Hydrogenation of unsaturated fatty acids
  - (c) Dehydrogenation of saturated fatty acids
  - (d) Oxidation of fatty acids
  
5. Which of the following food products are high in protein content?
  - (a) Tofu and eggs
  - (b) Grains and legumes
  - (c) Milk and milk products
  - (d) All of the above

6. Which of the following disorders is caused by the deficiency of proteins?
- (a) Weight loss
  - (b) Muscle fatigue
  - (c) Loss in muscle strength
  - (d) All of the above
7. Which of the following nutrient deficiency causes megaloblastic anaemia?
- (a) Folic acid
  - (b) Niacin
  - (c) Pyridoxine
  - (d) Cobalamin
8. Which of the following diseases is caused by the deficiency of Niacin?
- (a) Scurvy
  - (b) Rickets
  - (c) Pellagra
  - (d) Pernicious anaemia
9. The main cause of anemia is
- (a) Deficiency of Ca
  - (b) Deficiency of Fe
  - (c) Deficiency of Na
  - (d) Deficiency of Mg

10. Iodine deficiency causes
- (a) Kwashiorkor
  - (b) Anaemia
  - (c) Marasmus
  - (d) Goitre

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Discuss balance diets.

Or

- (b) Describe the principle of deriving RDA.

12. (a) Define dietary fibres and their role in a biological system.

Or

- (b) Write short notes on dietary deficiency diseases.

13. (a) Define protein and write its classification.

Or

- (b) Write short notes on the factors affecting protein utilization.

14. (a) Comment on Pantothenic acid and its importance.

Or

- (b) List out the disorders of vitamin deficiency.

15. (a) Write notes on the minerals of Na and P.

Or

- (b) Describe the biochemical function of minerals and proteins.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Enumerate the types of factors affecting Recommended Dietary Allowance.

Or

- (b) Illustrate the classification and sources of carbohydrates.

17. (a) Write an essay on the classification of lipids and its significance.

Or

- (b) Describe essential lipids with suitable examples.

18. (a) Recall and Discuss the chemical composition, digestion and absorption of proteins.

Or

- (b) Describe the diseases of protein deficiency.

19. (a) Explain the significance of vitamins in the human system.

Or

- (b) Draw the structure and comment Folic acid and Niacin.

20. (a) Describe the biological importance of K, P, Ca, Se and Fe.

Or

- (b) Discuss and Elaborate the effect of nutritional and mineral deficiencies in the biological system.
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