FACULTY OF SCIENCE B.Sc. (CBCS) I - Semester Examination, December 2024

Subject : Computer Science Paper – I : Programming in C

Time: 3 Hours

PART – A

(8x4=32 Marks)

Max. Marks: 80

- 1. Define operating system. Mention different operating systems used for computers.
- 2. Explain the steps for creating, compiling and executing a C program.
- 3. What is a constant? Explain with syntax.
- 4. Write about escape sequences.
- 5. Explain about conditional operator.

Note : Answer any Eight guestions.

- 6. What is character array? Explain.
- 7. Write a C program to demonstrate function declaration and function call.
- 8. Explain about inline functions.
- 9. Demonstrate pointer to pointer concept with a C program.
- 10. Write the differences between structure and union.
- 11. Explain about enumeration data type with an example.
- 12. What is a record? Explain.

Note : Answer all the questions.

PART – B

(4x12=48 Marks)

- 13.a) Describe various types of programming languages with examples for each.
 - OR Inc. conversions w
- b) What is type conversion? Explain type conversions with the help of C program.
- 14.a) What is switch-case statement? Demonstrate with syntax and C program.

OR

- b) Explain the process to find length of a string and combine two strings with C programs.
- 15.a) Explain about storage classes with examples for each.

OR

- b) Demonstrate malloc() and calloc() functions with C programs.
- 16.a) Write a C program to demonstrate array of structures.

OR

b) Explain all file handling functions with examples.

FACULTY OF SCIENCE

B.Sc. (CBCS) I - Semester Examination, December 2024

Subject : Biotechnology Paper – I : Cell Biology and Genetics

Part-A

Time: 3 Hours

Note: Answer any eight questions.

- 1. Explain the structure and functions of the cell wall in plants.
- 2. What are the main features of the sandwich model of the cell membrane?
- 3. What is the structure and significance of lampbrush chromosomes?
- 4. How do checkpoints regulate the eukaryotic cell cycle?
- 5. Discuss briefly about bacterial cell division.
- 6. What is the difference between meiosis and mitosis?
- 7. How does the law of segregation apply during gamete formation?
- 8. What is incomplete dominance?
- 9. What is expressivity, and how does it differ from penetrance?
- 10. How does the inheritance of leaf color in Mirabilis differ from Mendelian inheritance patterns?
- 11. What is the "poky" mutation in Neurospora crassa?
- 12. How does mitochondrial inheritance differ from Mendelian inheritance?

Part-B

Note: Answer all questions.

13. (a) How is the chloroplast structured, and what are its role in photosynthesis and energy conversion?

(OR)

- (b) Explain the structural and functional roles of the endoplasmic reticulum in cellular metabolism.
- 14. (a) Discuss the processes of necrosis, senescence, and apoptosis, and explain how each response contributes to tissue homeostasis or disease progression?
 - (b) Explain the process of mitosis, and discuss how they contribute to the equal distribution of genetic material?

(OR)

15. (a) Discuss the process of X-inactivation and its consequences on the phenotype of females.

(OR)

- (b) Explain how X-linked recessive and dominant traits are inherited in humans, providing examples?
- 16. (a) Explain the concept of linkage mapping and its role in identifying the relative positions of genes on a chromosome.

(OR)

(b) Analyze the mechanism of chloroplast inheritance in *Chlamydomonas*.

(4x12 = 48 Marks)

Max. Marks: 80

(8x4 = 32 Marks)

Max. Marks: 80

FACULTY OF SCIENCE

B.Sc. (CBCS) I - Semester Examination, December 2024

Subject : Clinical Nutrition and Dietetics Paper – I : Introductory Nutrition

Time: 3 Hours

Part-A	
Note: Answer any eight questions.	(8x4 = 32 Marks)
1. Define nutrition and nutrients.	
2. What is balanced diet?	
3. List out the steps in meal planning.	
4. Write a short notes on sources of lipids.	
5. What are the sources of proteins?	
6. Explain the sources of carbohydrates.	
7. Discuss the chemical classification of amino acids.	, ,
8. Write short notes on the properties of enzymes.	
9. Explain the composition of proteins.	
10. What are the requirements of water?	
11. Write short notes on any one hormones of pancreas.	
12. What are the sources of water?	
Part-B	
Note: Answer all questions.	(4x12 = 48 Marks)
13. (a) Briefly explain the inter relationship of nutrition and health.	
(b) Give a brief account on meal management.	
14. (a) Give a detailed account on glycolysis.	
(OR) (b) Explain the process of digestion and absorption of carbohydrates.	
15.(a) Discuss in detail urea cycle.	
(OR)	
(b) Explain the factors effecting enzyme action.	
(b) Explain the factors effecting enzyme action.16. (a) Give a detailed account on pituitary hormones. (OR)	
 (b) Explain the factors effecting enzyme action. 16. (a) Give a detailed account on pituitary hormones. (OR) (b) Discuss in detail the adrenocortical hormones and their functions. 	

FACULTY OF SCIENCE B.Sc. (CBCS) I - Semester Examination, December 2024

Subject: Applied Nutrition and Public Health

PART – A

Paper – I : Basics of Biochemistry

Time: 3 Hours

Max. Marks: 80

(8x4=32 Marks)

Note: Answer any Eight questions.

- 1. Give an account on five food group system.
- 2. Write the steps involved in glycolysis.
- 3. Give the sources and nutritional significance of carbohydrates.
- 4. What is the composition of purine and pyrimidine bases.
- 5. Enlist the nutritional significance of sulphur containing and branched chain amino acids.
- 6. How is PEM classified?

Note: Answer all the questions.

- 7. Give the normal limits of cholesterol in the blood and its functions.
- 8. What are omega 3 and omega 6 fatty acids? Give their functions.
- 9. Write the sources of fats and add a note on their chemical properties.
- 10. Give an account on energy yielding factors.
- 11.Define the principles of direct and indirect calorimeter and give units for energy.
- 12.Differentiate between calorific value of food and PFV

PART – B

OR

(4 x 12 = 48 Marks)

- 13. a) Define the proximate principles of food and give the specific role of nutrients. Add a note on classification of foods.
 - b) Discuss the steps in TCA cycle.
- 14.a) Describe the general properties of proteins and their metabolic changes with examples **OR**
 - b) Explain the structure and functions of nucleic acids.
- 15.a) Write the classification of lipids, their digestion and functions.

OR

- b) Give an account on chemical properties of lipids, and add a note on rancidity and ketosis.
- 16.a) What is BMR and SDA. Discuss the factors affecting them.

OR

b) Describe the digestion and absorption of lipids in the gut.

Code No: G-9021

FACULTY OF SCIENCE

B.Sc. (CBCS) I - Semester Examination, December 2024

Subject : Nutrition and Dietetics Paper – I : Introduction to Foods and Nutrition

Time: 3 Hours

Max. Marks: 80

(8x4=32 Marks)

PART – A

Note : Answer any Eight questions.

- 1. Define Food and Nutrition
- 2. Write a note on breakfast cereals.
- 3. What are the different types of sugars?
- 4. Explain rancidity and prevention.
- 5. What is malting of pulses?
- 6. Write the differences between fats and oils.
- 7. Write a note on the nutrients lost during cooking of vegetables.
- 8. What are the advantages of dehydration as a method of preservation?
- 9. How are vegetables classified? Give examples.
- 10. What are the advantages of fermented milk products?
- 11. Explain the nutritional advantages of poultry.
- 12. What is incidental food adulteration?

Note : Answer all the questions.

PART – B

(4x12=48 Marks)

13.a) Describe the nutrient composition of cereals and millets.

OR

- b) Explain in detail the manufacturing of jaggery.
- 14. a) What are the anti-nutritional factors present in pulses? Add a note on their effects.

b) Describe the physical and chemical properties of fats.

15.a) How are fruits classified? Write a note on ripening of fruits.

OR

- b) Explain in detail the process of Canning.
- 16.a) Describe the structure and nutrient composition of egg.

ÓR

b) Explain the nutritive value of meat. Write a note on changes in meat during cooking.

FACULTY OF SCIENCE

B.Sc. (CBCS) I - Semester Examination, December 2024

Subject : Genetics

Paper – I : Transmission Genetics

Time: 3 Hours

Part-A

Max. Marks: 80

Note: Answer any eight questions.

- 1. What is pleiotropism?
- 2. Explain poky mutants in Neurospora.
- 3. Describe penetrance and expressivity.
- 4. What is tetrad analysis?
- 5. Explain mitotic recombination in Drosophila.
- 6. Describe coincidence and interference in gene mapping.
- 7. What is senescence?
- 8. Give a note on phases of cell cycle.
- 9. Explain the significance of apoptosis.
- 10. Differentiate euchromatin and heterochromatin.
- 11. Explain inversion and translocation with an example.
- 12. Explain allopolyploidy.

Note: Answer all questions.

- 13. (a) Discuss Mendel's law of independent assortment with an example.
 - (b) Describe sex limited and sex influenced traits with examples.
- 14. (a) How does three point test cross helps to detect linkage? Discuss with suitable example.

(OR)

Part-B

- (b) Discuss Curt Stern and McClintock experiments as evidence for crossing over.
- 15. (a) Discuss mechanism of regulation of cell cycle in eukaryotes.

(OR)

- (b) Elaborate on meiosis stages, formation of synaptonemal complex and chiasma.
- 16. (a) Discuss on specialized chromosomes.

(OR)

(b) Describe the types of structural chromosomal aberrations.

(4x12 = 48 Marks)

(8x4 = 32 Marks)