2023

FOOD AND NUTRITION (Honours)

Paper Code : FNTH DC-11

(Food Microbiology)

Full Marks : 25 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

1. Answer any *five* questions from the following : 1×5=5

(a) Name the principal microorganism found in yogurt.

(b) Define disinfectant.

(c) What do you understand by 'pathogenic'?

(d) What is optimum temperature for microbial growth?

(e) What is bactericidal agent?

(f) Mention the use of nichrome loop in microbiology laboratory.

(g) What is meant by cryodesiccation?

(h) Write one important source of heat-resistant spore-forming bacteria.

P.T.O.

2. Answer any *two* questions from the following : 5×2=10

(a) Write a brief note on different sources of food contamination.

(b) State the objectives of food preservation. Discuss the role of freezing in food preservation. 2+3=5

(c) Define fermentation. Discuss the role of microorganism in food fermentation. 1+4=5

(d) Briefly discuss the different intrinsic factors that affect bacterial growth.

3. Answer any *one* question from the following : 10×1=10

(a) Briefly describe the types of culture media based on consistency. What do you mean by selective media? Give example. What is sub-culture? 5+3+2=10

(b) What do you mean by intoxication? Briefly describe the mode of transmission, symptoms and prevention of botulism. 2+(2+3+3)=10

UG/5th Sem (H)/23/(CBCS)

2023

FOOD AND NUTRITION (Honours)

Paper Code : FNTH DC-12

(Medical Microbiology)

Full Marks : 25 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

1. Answer any *five* questions from the following : 1×5=5

   (a) Name the bacteria that is commonly found in the human gut.

   (b) What do you mean by vector-borne disease?

   (c) What is nosocomial infection?

   (d) What is the difference between coccus and bacillus bacteria?

   (e) What do you understand by acute tetanus?

   (f) Write the main function of capsid.

   (g) Name one viral disease along with its causative organism.

   (h) What is antibiotic sensitivity test?

P.T.O.

2. Answer any *two* questions from the following : 5×2=10

(a) What is normal microflora? Write a brief note on microflora present in upper respiratory tract. 1+4=5

(b) Briefly describe bacterial cell membrane structure with suitable diagram.

(c) Write down the pathogenesis of tuberculosis. How tuberculosis is transmitted? 2½+2½=5

(d) Briefly explain any two mechanisms of antibiotic resistance. 2½+2½=5

3. Answer any *one* question from the following : 10×1=10

(a) Write down the symptoms of AIDS. Briefly describe the mode of action of HIV as an infectious agent with a diagram. Differentiate between viroids and prions. 2+5+3=10

(b) List the differences between gram-positive and gram-negative bacteria. Briefly describe the structure of bacterial flagella. State the main function of bacterial endospore. 4+4+2=10

UG/5th Sem (H)/23/(CBCS)

2023

FOOD AND NUTRITION (Honours)

Paper Code : FNTH DSE-1

Full Marks : 25 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers
(by selecting ***either*** **DSE-1A : Human Pathology** ***or*** **DSE-1B : Therapeutic Nutrition and Critical Care**)
in their own words as far as practicable.

DSE-1A : Human Pathology

1. Answer any *five* questions from the following : 1×5=5

(a) What is neoplasm?

(b) State the basic feature of healthy RBC.

(c) What does nitrite in urine indicate?

(d) Write the main function of lactate dehydrogenase.

(e) What are the symptoms of thrombosis?

(f) Distinguish between normal cell and cancer cell.

(g) What are the factors that influence necrosis?

(h) Write the main function of bile in human body.

P.T.O.

2. Answer any *two* questions from the following : 5×2=10

(a) What is meant by hyperplasia? How it differs from hypertrophy? 2+3=5

(b) What do you understand by bleeding? Write a comparative note between arterial bleeding and venous bleeding. 2+3=5

(c) How proto-oncogene transformed into oncogene? Explain.

(d) Briefly describe the clinical significance of SGPT and SGOT. 2½+2½=5

3. Answer any *one* question from the following : 10×1=10

(a) What do you mean by apoptosis? Briefly describe the mechanism of apoptosis with a diagram. 2+8=10

(b) What are the different types of cast and crystal occur in the urine? Append a comparative note on benign and malignant tumor. 5+5=10

DSE - 1B : Therapeutic Nutrition and Critical Care

1. Answer any *five* questions from the following : 1×5=5

   (a) Point out any two complications of burn injury.

   (b) Write down the causative agent of diarrhoea.

   (c) Write any two differences between infection and sepsis.

   (d) What is osteoarthritis?

   (e) Mention different stages of trauma.

   (f) Write down any two principles of post-surgery diet.

   (g) What is the protein requirement during febrile condition?

   (h) Name the bacteria that cause typhoid.

2. Answer any *two* questions from the following : 5×2=10

   (a) What are the pathophysiological consequences in chronic diarrhoea? Write down the dietary principle of cholera. 3+2=5

   (b) Discuss about metabolic changes in trauma.

   (c) Write down the dietary management of a patient suffering from cold fever. What are the symptoms of cold fever? 3+2=5

P.T.O.

(d) Briefly describe the stages involved in critical care of burn patient.

3. Answer any *one* question from the following : 10×1=10

(a) Write down the symptoms and pathophysiology of lupus arthritomatosis. Discuss briefly about the dietary management of diarrhoea. 2+3+5=10

(b) Discuss briefly about the dietary management of typhoid fever. Write down the pathophysiology of osteoarthritis. 6+4=10

UG/5th Sem (H)/23/(CBCS)

2023

FOOD AND NUTRITION (Honours)

Paper Code : FNTH DSE-2

Full Marks : 25 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers
(by selecting *either* **DSE-2A : Molecular Biology** *or* **DSE-2B : Biophysics and Bioinstrumentation**)
in their own words as far as practicable.

DSE-2A : Molecular Biology

1. Answer any *five* questions from the following : 1×5=5

   (a) Which nitrogen base is not found in DNA?

   (b) Write down the difference between nucleoside and nucleotide.

   (c) Which form of DNA is described by Watson-Crick Model?

   (d) Name the site where upstream sequences located in transcription.

   (e) What do you understand by thermal denaturation of DNA?

P.T.O.

(f) State the function of plasmid.

(g) How many codons are required for an amino acid?

(h) What is restriction endonuclease?

2. Answer any *two* questions from the following : 5×2=10

(a) Define proteomics. Write its applications in nutrition science research. 2+3=5

(b) Give a short description on recombinant DNA techniques.

(c) What are the different activities shown by Reverse Transcriptase enzyme?

(d) Briefly discuss Griffith's experiment in which it proved that DNA act as a genetic material.

3. Answer any *one* question from the following : 10×1=10

(a) What do you mean by semi-conservative replication of DNA? With suitable diagram, briefly discuss about lagging and leading strands of DNA. Name any two enzymes that are involved in replication process and state their role. 2+4+4=10

(b) Discuss the post-transcriptional modification of the nascent mRNA (pre-mRNA). Write a brief note on the elongation process of translation. 6+4=10

DSE - 2B : Biophysics and Bioinstrumentation

1. Answer any *five* questions from the following : 1×5=5

   (a) What is the formula of electromagnetic wave equation?

   (b) State the principle of fluorescence microscopy.

   (c) What do you mean by transmittance?

   (d) Differentiate between wave number and frequency.

   (e) What is Svedberg constant in biology?

   (f) Write down the full form of HPLC and GLC.

   (g) What is mobile phase in chromatography?

   (h) What do you mean by sedimentation?

2. Answer any *two* questions from the following : 5×2=10

   (a) State Beer-Lambert law. How is the Beer-Lambert law used in spectroscopy? 2+3=5

   (b) Write a comparative note between differential centrifugation and ultracentrifugation.

   (c) How cell sorting is happened in flow cytometry? Explain.

   (d) What are the general properties of electromagnetic radiation? Differentiate between static and dynamic quenching. 2+3=5

P.T.O.

3. Answer any *one* question from the following : 10×1=10

(a) What is fluorescent probe? Briefly describe the role of florescent probe in the study of protein and nucleic acid. 2+4+4=10

(b) Write down the principle of thin-layer chromatography. How do you identify an amino acid by this method? Explain. 2+8=10

UG/5th Sem (H)/23/(CBCS)

2023

FOOD AND NUTRITION (Honours)

Paper Code : FNTH SEC-1

Full Marks : 40 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers
(by selecting *either* **SEC-1A : Environment Management and Public Health** *or* **SEC-1B : Technology of Fruits and Vegetables**) *in their own words as far as practicable.*

SEC-1A : Environment Management and Public Health

1. Answer any *five* questions from the following : 2×5=10

   (a) What is greenhouse gas? Give example.

   (b) Name the vector and causative agent of malaria.

   (c) What is meant by recycling of waste?

   (d) Name any two waterborne diseases.

   (e) What is byssinosis?

   (f) Write any two clinical symptoms of encephalitis.

   (g) Write any two adverse effects of ozone depletion on human health.

   (h) What do you understand by environmental hazard safety?

P.T.O.

2. Answer any *four* questions from the following : 5×4=20

(a) What is meant by bio-insecticide? Explain the role of *Bacillus thuringiensis* as bio-insecticides. 1+4=5

(b) What is biomedical waste? What are the different categories of biomedical waste? Give an example of each category. 1+4=5

(c) Write the cause of asbestosis. How it affects human health? 2+3=5

(d) Write the main sources of greenhouse gases. Briefly discuss the effect of greenhouse gases on human health. 1+4=5

(e) Differentiate between sewage and sullage. Briefly discuss the secondary treatment process of sewage. 1+4=5

(f) Append a short note on physical and chemical methods used for mosquito control. 2½+2½=5

3. Answer any *one* question from the following : 10×1=10

(a) What is dengue fever? What are the symptoms of dengue fever? Why does platelet decrease in dengue? What are characteristics of the Aedes mosquito species that transmit dengue? 2+3+2+3=10

(b) Mention the causes of 'byssinosis'. Append a short note on nuclear waste handling and disposal mechanism. 3+7=10

SEC-1B : Technology of Fruits and Vegetables

1. Answer any *five* questions from the following : 2×5=10

   (a) What is lacquering?

   (b) Write down the common problems occur during jam preparation.

   (c) What are the health benefits of fruit juices?

   (d) What do you mean by tetra-packing?

   (e) What is canning?

   (f) Write down the methods of preserving fruits and vegetables.

   (g) What is the role of salts in fruit preservation?

   (h) Write the differences between drying and dehydration.

2. Answer any *four* questions from the following : 5×4=20

   (a) Write the process of tomato ketchup preparation with flow chart.

   (b) Explain with example, the short and long term methods of fruits preservation.

   (c) Define syrup. How is the syrup pasteurized? 2+3=5

   (d) How do you preserve fruit juices by drying and carbonation processes?

P.T.O.

(e) What are the causes of spoilage in pickles?

(f) Write the names and sources of pigments in fruits and vegetables. What is enzymatic browning?

2+3=5

3. Answer any *one* question from the following : 10×1=10

(a) Explain the pathological changes occur during the storage of fruits and vegetables. Write down the method of mechanical dehydration of fruits. What do you mean by marmalade? 4+4+2=10

(b) Classify fruits. Write the process of vegetable canning with flow chart. Write down the factors that affect the process time of canning.

3+5+2=10