



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours Part-III Examination, 2020

**FOOD AND NUTRITION**

**PAPER-FNTA-V**

Time Allotted: 2 Hours

Full Marks: 50

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.  
All parts of a question should preferably be answered together*

**UNIT-I**

**[Full Marks: 25]**

**(Nutritional Biochemistry)**

1. Answer any *two* questions from the following: 2×2 = 4
- (a) What do you mean by symport and antiport?
- (b) Write down the full form of:  
FMN, NADH+H<sup>+</sup>, cAMP, UDPG
- (c) What do you mean by V<sub>max</sub>?
- (d) What is 'codon'?
- (e) What is Q<sub>10</sub>?
- (f) Define isoelectric pH.
- (g) What is the significance of 'Castles intrinsic factor'?
- (h) What do you mean by central dogma?
- (i) What do you mean by anaplerotic reaction?
- (j) What is globular protein?
2. Answer any *two* questions from the following: 4×2 = 8
- (a) Discuss in brief the significance of citric acid cycle. 4
- (b) Discuss the role of RNA polymerase in transcription. 4
- (c) Describe briefly the process of transamination. 4
- (d) Write a short note on "Effect of temperature on enzyme activity". 4

- (e) Write down the biochemical functions of vitamin K. 4
- (f) Classify lipoprotein. 4
- (g) Discuss the role of calcitriol in calcium metabolism. 4
3. Answer any **one** question from the following: 13×1 = 13
- (a) (i) What do you mean by conservative and semiconservative replication? (2+2)+2+7  
(ii) What is okazaki fragment?  
(iii) Describe briefly the process of transcription.
- (b) (i) Discuss the role of riboflavin as co-enzyme. 4+(1+1+7)  
(ii) Name the antixerophthalmic vitamin and the provitamin.  
(iii) Explain its role in “Visual cycle”.
- (c) (i) What do you mean by glycogenolysis? 2+2+4+5  
(ii) What is Calmodulin?  
(iii) Explain the process of conversion of pyruvate to acetyl CoA.  
(iv) Write down the role of Carnitine in transport of fatty acid.
- (d) (i) Explain Urea cycle elaborately mentioning its significance. 8+5  
(ii) Name the bases present in RNA.

## UNIT-II

[Full Marks: 25]

(Microbiology)

4. Answer any **two** questions from the following: 2×2 = 4
- (a) What is polychrome methylene blue?
- (b) What do you mean by IMViC Test?
- (c) What is pure culture?
- (d) What are mesophiles?
- (e) What are the streak culture and stroke culture?
- (f) What do you mean by salmonellosis?
- (g) What is resazurin test?
- (h) What is differential staining?
- (i) Name 3 irradiation processes.
- (j) What is FSSAI?
5. Answer any **two** questions from the following: 4×2 = 8
- (a) Discuss briefly the method of Gram staining. 4

- (b) What do you mean by differential media and selective media? Explain with example. 2+2
- (c) Discuss briefly the pathogenesis of *C. botulinum*. 4
- (d) Write down the functions of pili and fimbriae. 2+2
- (e) Write in brief about the structure of endospore. 4
- (f) Compare between disinfection and sterilization. 4
6. Answer any **one** question from the following: 13×1 = 13
- (a) (i) Distinguish between log phase and stationary phase. 4+2+7  
(ii) What is pour plate method?  
(iii) Write short note on food poisoning by *C. perfringens*.
- (b) (i) Distinguish between pasteurization and sterilization. 3+3+(2+2)+3  
(ii) What is phosphatase test?  
(iii) What is canning? How is it done?  
(iv) Differentiate between faecal and non faecal coliform.
- (c) Write short note on “Pathogenesis of enterotoxigenic and enteroinvasive *E coli*.” 6+2+2+3  
What is methylene blue reduction test?  
What is the significance of the test?  
Explain the principle of chlorination in water disinfection.
- (d) (i) Explain the terms: 5+(2+2+2)+2  
LTLT, HTST, UHT, MPN  
(ii) Differentiate between:  
• Chilling and freezing  
• Antiseptic and disinfectant  
• Flagella and pili structure.  
(iii) Name two gram positive and two gram negative bacteria each.

—×—