



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY
Question Paper

B.Sc. Honours Examinations 2022

(Under CBCS Pattern)

Semester - VI

Subject : PHYSIOLOGY

Paper : DSE-3T

Medical Biochemistry

Full Marks : 40

Time : 2 Hours

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group-A

Answer any *four* of the following questions :

5×4=20

1. What do you know about the pathophysiological significance of ketone bodies?
What is ketons? 3+2
2. What is glycosylated Hb? Why glycosylated Hb is measured in the laboratory? 2+3
3. What are isozymes? Mention the clinical significance of measuring SGOT & SGPT. 2+3
4. Discuss briefly the roles of leptin and ghrelin in the regulation of body mass of a subject. 3+2

5. Write the role of COX1 and COX2 in the synthesis of prostaglandins. Write any one function of prostaglandin. 2+2+1
6. What do you know about LFT? Discuss the clinical significance of LFT in diagnosis of liver diseases. 2+3

Group-B

Answer any *two* of the following questions : 10×2=20

1. What is renal function test? Write the significances of various clearance tests. Mention the composition of urine. 2+4+4
 2. What are lipoproteins? Classify lipoproteins and state the functions of each of them. 2+4+4
 3. Name three inhibitors of electron transport chain and write their site of action. Give an account on uncouplers and ionophores of electron transport chain.(3+2)+(3+2)
 4. 'Sugars are information molecules'—Explain. Write the pathophysiology of vitamin A and vitamin K deficiency. 4+3+3
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Or

Microbiology and Biotechnology

Group-A

Answer any *four* of the following questions : 5×4=20

1. Describe the dynamics of growth phases of bacterial cells. 5
2. Distinguish between pili and fimbriae. State the function of capsule. 3+2
3. Write brief about ethical issues in biotechnology. 5
4. What is PCR? Describe its steps. 1+4
5. Write short note about genetic 'bar coding'. 5
6. Distinguish between therapeutic and reproductive cloning. Mention the futuristic value of Human genome projects. 3+2

Group-B

Answer any *two* of the following questions : 10×2=20

1. Describe the cause and mechanisms of antibiotic resistance among bacteria. 3+7
 2. Write the procedure for development of monoclonal antibody in laboratory. State the process of Western blot technique. 5+5
 3. Define probiotics and prebiotics. Discuss the principle and procedure of acid-fast stain. 2+2+(2+4)
 4. Discuss brief about role of microbes in food spoilage. Write short note on penicillin. 7+3
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Or

Medical Microbiology and Immunology

Group-A

Answer any *four* of the following questions : 5×4=20

1. Briefly discuss about different types of hypersensitivity reactions. 5
2. Write down the role of early and late proteins in viral function. 5
3. Write a short note on host pathogen interaction. 5
4. Discuss the type of gut microflora in relation to their contribution to human host. 5
5. Discuss the life cycle of *Candida albicans* in human host. 5
6. Differentiate between sterilization and disinfection. 5

Group-B

Answer any *two* of the following questions : 10×2=20

1. Write the three forms of horizontal gene transfer. Discuss the role of RecA in transformation. 3+7
 2. Define infection. What is meant by nosocomial infection? Discuss briefly on the modes of transmission of infection. 2+3+5
 3. What is major histocompatibility complex? Discuss the mechanism of processing and presentation of endogenous and exogenous antigens. 2+8
 4. What are bacteriostatic and bactericidal antibiotics? Name one antibiotic causing inhibition to cell wall biosynthesis depicting its mode of action on different microbial species. (2+2)+6
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Or

Genetics, Molecular Biology & Bioinformatics

Group-A

Answer any *four* of the following questions : 5×4=20

1. What is BLAST? Write the importance of PDB as protein database. 2+3
2. Explain the goals, scope and application of bioinformatics. 1+1+3
3. Describe different types of mutations. 5
4. Write a note on DNA fingerprinting. 5
5. Write notes on, (i) Epistasis, (ii) Gene Knockout 2¹/₂+2¹/₂
6. What is FISH? Write the principle of Southern blotting. 2+3

Group-B

Answer any *two* of the following questions : 10×2=20

1. Write short notes on (a) Gene therapy & (b) Phylogenetic tree. 5+5
 2. Outline the general structure of the nucleosome. Describe the rolling circle mode of replication. What are mutagens? 2+6+2
 3. What is satellite DNA? What is meant by extrachromosomal inheritance? Write briefly on Linkage and Crossing over. 2+3+2+3
 4. Briefly describe & explain the experiment that proves the semi conservative mode of DNA replication. Write in brief the mechanism of Polymerase Chain Reaction (PCR). 6+4
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