Nov-Dec - 2023

Roll No. | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (Honours) (Microbiology) (Sem–2)

BACTERIOLOGY

Subject Code : BSMB201-19

M.Code : 79872

Date of Examination : 23-11-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Define the following :**

   a) Flagella

   b) Fluoresence Microscope

   c) Archaebacteria

   d) Nucleoid

   e) Chemically defined media

   f) Gram-positive cell walls

   g) Specific growth rate

   h) General characteristics of Non-culturable bacteria

   i) Plating methods

   j) Desiccation.

SECTION-B

2. Explain asexual methods of reproduction in Bacteria.

3. Discuss in brief cultivation of anaerobic bacteria and accessing non-culturable bacteria.

4. Describe morphology, ecological significance and economic importance of Gram Negative Bacteria.

5. Write a brief note on Microscopy Bright Field Microscope, Dark Field Microscope and Phase Contrast Microscope.

6. Explain in detail how cell wall is affected by antibiotics and enzymes activity.

SECTION-C

7. Describe composition and detailed structure of Gram and acid fast staining mechanisms, lipopolysaccharide (LPS), sphaeroplasts, protoplasts and L-forms of bacteria.

8. Discuss Morphology, metabolism, ecological significance and economic importance of Gram Negative and Gram Positive Bacteria.

9. Write a note on :

   a) Nutritional requirements in bacteria and nutritional categories.

   b) Culture media: components of media, natural and synthetic media, complex media, selective, indicator.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No. | | | | | | | | | | |

Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. Honours (Microbiology) (Sem–2)

MICROBIAL PHYSIOLOGY AND METABOLISM

Subject Code : BSMB207-19

M.Code : 79878

Date of Examination : 21-11-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Attempt the following :**

a) What do you mean by sulphur bacteria?

b) Define denitrification.

c) Define passive diffusion.

d) Give a brief idea about diauxic growth curve.

e) Enlist various organs and their functions involved in microbial mobility.

f) What is the significance of TCA cycle in microbes?

g) Define antiport.

h) Write the significance of pentose phosphate pathway.

i) What is Pasteur effect?

j) Define continuous cultures.

SECTION-B

2. Describe how microbial growth is affected by energy and nutrition?

3. Write a brief note on LPS synthesis.

4. Describe how mitochondrial electron transport chain is different from bacterial electron transport chain?

5. Describe the metabolism of glycogen by bacteria.

6. Differentiate between anoxygenic and oxygenic photosynthesis.

SECTION-C

7. Explain the complete process of glycolysis in microbes including its location, significance and energetics.

8. Describe the complete mechanism of photosynthesis in detail.

9. Describe the structure of microbial cell with the help of a neat and clean well-labelled diagram.

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Roll No. | | | | | | | | | | | | Total No. of Pages : 02

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B.Sc. Honours (Microbiology) (Sem–2)

FUNDAMENTALS OF BIOCHEMISTRY

Subject Code : BSMB-203-19

M.Code : 79874

Date of Examination : 17-11-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Answer Briefly :**

   a. Anomers

   b. Lipid micelles

   c. Identification test for proteins

   d. Biotins as coenzyme

   e. Oligopeptides

   f. Monomer units of fructose.

   g. Steroids

   h. Haworth projection formula

   i. Peptide bond

   j. Homo and hetero polysaccharides.

SECTION-B

2. What are lipids, explain the types and functions of lipids?

3. Write a short note on UV absorption by nucleic acids.

4. Enlist the difference between nucleotides and nucleosides.

5. Write a short note on prostaglandins.

6. Give the structural features and classification of amino acids.

SECTION-C

7. Define chemical bond. Classify chemical bond with suitable chemical reactions.

8. Write a detailed note on carbohydrates, its types and functions of carbohydrates in human body.

9. Explain in detail about the DNA and RNA.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. Honours (Microbiology) (Sem–2)

FUNDAMENTALS OF BIOCHEMISTRY

Subject Code : BSMB-203-19

M.Code : 79874

Date of Examination : 17-11-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Answer Briefly :**

   a. Anomers

   b. Lipid micelles

   c. Identification test for proteins

   d. Biotins as coenzyme

   e. Oligopeptides

   f. Monomer units of fructose.

   g. Steroids

   h. Haworth projection formula

   i. Peptide bond

   j. Homo and hetero polysaccharides.

SECTION-B

2. What are lipids, explain the types and functions of lipids?

3. Write a short note on UV absorption by nucleic acids.

4. Enlist the difference between nucleotides and nucleosides.

5. Write a short note on prostaglandins.

6. Give the structural features and classification of amino acids.

SECTION-C

7. Define chemical bond. Classify chemical bond with suitable chemical reactions.

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Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. - Honours (Microbiology) (Sem.–3)

BIOSTATISTICS

Subject Code : BSMB308-19

M.Code : 90374

Date of Examination : 18-12-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) Define degrees of freedom

   b) Define confidence limits

   c) What is the probability that a leap year selected at random will contain 53 Sundays?

   d) Define hypothesis

   e) Calculate mean for the data 5,10,15,24,36,78

   f) Define standard deviation

   g) Give two examples for non parametric tests

   h) Define covariance

   i) What is intercept?

   j) Give the formula for chi square test and explain terms.

SECTION-B

2. Give a brief account on probability basic laws.

3. In an anti malarial campaign particular city, quinine was given to some people. Discuss the usefulness of quinine checking malaria by using chi square test

Observed:	20	220	792	2216
Expected:	60	180	752	2256

(For chi square 1 the table value is 3.84).

4. The number of defects per unit in sample of 330 units of manufactured product was found as follows :

No. of Defects	0	1	2	3	4
No. of Units	214	92	20	3	1

Fit a poisson distribution to the data (Given $e^{-0.439} = 0.6447$)

5. Write a short note on regression.

6. Find spearman's rank coefficient of correlation for the following data :

X	50	66	34	21	15	79	42
Y	31	64	53	41	17	73	29

SECTION-C

7. Two types of drugs were used on 5 and 7 patients for reducing their weight. Drug A was imported and Drug B is indigenous. The decrease in weight after using 6 months as follows :

Drug A	10	12	13	11	14		
Drug B	8	9	12	14	15	10	9

Is there a significant difference in the efficacy of the two drugs (For v=10 $t_{0.05}$ is 2.223; For v = 9 $t_{0.05}$ is 2.262; For v=12 $t_{0.05}$ is 2.179; For v=11 $t_{0.05}$ is 2.201). Take the appropriate *t* value from the above and interpret your result.

8. Discuss in detail Mann-Whitney U test and its importance.

9. Describe statistical hypothesis testing. Discuss importance of normal distribution.

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Total No. of Pages : 02

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B.Sc. - Honours (Microbiology) (Sem.–3)

BIOSTATISTICS

Subject Code : BSMB308-19

M.Code : 90374

Date of Examination : 18-12-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

a) Define degrees of freedom

b) Define confidence limits

c) What is the probability that a leap year selected at random will contain 53 Sundays?

d) Define hypothesis

e) Calculate mean for the data 5,10,15,24,36,78

f) Define standard deviation

g) Give two examples for non parametric tests

h) Define covariance

i) What is intercept?

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SECTION-C

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Is there a significant difference in the efficacy of the two drugs (For v=10 $t_{0.05}$ is 2.223; For v = 9 $t_{0.05}$ is 2.262; For v=12 $t_{0.05}$ is 2.179; For v=11 $t_{0.05}$ is 2.201). Take the appropriate *t* value from the above and interpret your result.

8. Discuss in detail Mann-Whitney U test and its importance.

9. Describe statistical hypothesis testing. Discuss importance of normal distribution.

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Total No. of Pages : 02

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B.Sc. Honours (MB) (Sem.–3)

MICROBIAL GENETICS

Subject Code : BSMB303-19

M.Code : 90369

Date of Examination : 11-12-2023

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

a) What is transformation?

b) Define mutation and its types.

c) What is Ames test?

d) Explain two uses of mutations.

e) What is the difference between deletion and duplication?

f) Explain portioning of the plasmid.

g) Define HFT lysates.

h) Define conjugation.

i) Define phase genetics.

j) Write the uses of transposons.

SECTION-B

2. What are plasmids? Explain their types.
3. Explain reversion and suppression in brief.
4. Difference between translation and transduction.
5. Discuss the basic genetics of T4 phage.
6. Discuss lytic and lysogenic switching of phage lambda.

SECTION-C

7. Define Intra and Inter-genetic suppressions.
8. Write a brief note on Eukaryotic transposable elements.
9. Discuss replication and partitioning of plasmids in brief.

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Total No. of Pages : 02

Total No. of Questions : 09

Bachelor of Science - Honours (Microbiology) (Sem.–3)

MICROBIOLOGICAL ANALYSIS IN AIR AND WATER

Subject Code : BSMB307-19

M.Code : 90373

Date of Examination : 15-12-2023

Time : 3 Hrs.

Max. Marks : 30

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE marks each.
2. SECTION-B contains FIVE questions carrying TWO AND HALF marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying FIVE marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write a brief note on the following :**

   a) Examples of airborne bacteria.

   b) Write examples of culture media used for fungi.

   c) How air sampling is done?

   d) Full form of MPN test.

   e) Size of membrane filter.

   f) Define viruses.

   g) Define culture media.

   h) Define water microbiology.

   i) Define microbiology

   j) Define coliforms.

SECTION-B

2. Write the significance of bioaerosols in operation theatres.
3. Write methods to detect the probability of the water sample.
4. Give a detailed procedure for air sampling.
5. Illustrate identification characteristics of bacteria.
6. Write a brief note on Aeromicrobiology.

SECTION-C

7. Write a detailed note on MPN tests.
8. What is the impact of airborne microbes on human health and the environment?
9. Discuss the treatment and safety of drinking water.

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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. Hons. (Microbiology) (Sem.–3)

VIROLOGY

Subject Code : BSMB301-19

M.Code : 90367

Date of Examination : 08-12-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) What are the properties of a virus?

   b) Draw the structure of a virus.

   c) What is bacteriophase?

   d) How does SARS-CoV-2 bind to ACE2?

   e) What is the difference between enveloped and non-enveloped viruses?

   f) What is transduction?

   g) Write a note on poliovirus.

   h) What is capsid?

   i) What is the rhabdo virus?

   j) Write a note on lambda regulon.

SECTION-B

2. What is a lytic and lysogenic cycle in the virus?
3. Write a note on the classification and taxonomy of virus.
4. Discuss about the replication pattern of plant virus.
5. Define interferon with its suitable example.
6. Write a note on the discovery and origin of the virus.

SECTION-C

7. Define virus. Explain the isolation, purification and cultivation of the virus in detail.
8. What is viral vaccination? Write a detail about general principle of viral vaccination.
9. What are antiviral compounds? Explain the mode of action of interferon in detail.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. Hons. (Microbiology) (Sem.–3)

VIROLOGY

Subject Code : BSMB301-19

M.Code : 90367

Date of Examination : 08-12-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
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3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) What are the properties of a virus?

   b) Draw the structure of a virus.

   c) What is bacteriophase?

   d) How does SARS-CoV-2 bind to ACE2?

   e) What is the difference between enveloped and non-enveloped viruses?

   f) What is transduction?

   g) Write a note on poliovirus.

   h) What is capsid?

   i) What is the rhabdo virus?

   j) Write a note on lambda regulon.

SECTION-B

2. What is a lytic and lysogenic cycle in the virus?

3. Write a note on the classification and taxonomy of virus.

4. Discuss about the replication pattern of plant virus.

5. Define interferon with its suitable example.

6. Write a note on the discovery and origin of the virus.

SECTION-C

7. Define virus. Explain the isolation, purification and cultivation of the virus in detail.

8. What is viral vaccination? Write a detail about general principle of viral vaccination.

9. What are antiviral compounds? Explain the mode of action of interferon in detail.

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Total No. of Questions : 09

B.Sc. (MB) (Sem.–3)

MIRCROBES IN ENVIRONMENT

Subject Code : BSMB-305-19

M.Code : 90371

Date of Examination : 13-12-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) What are functions of ecosystem?

   b) Define osmotic pressure.

   c) What are ruminants?

   d) What is symbiosis? Give example.

   e) Define BOD and COD.

   f) Discuss the effect of pH on microbial growth.

   g) What is trickling filter?

   h) What is the composition of liquid waste management?

   i) Define extremophiles.

   j) What do you understand by parasitism?

SECTION-B

2. Write a detailed note on microbiomics.
3. Describe microbes thriving at high and low temperature.
4. What is microbe plant interaction? Discuss in detail about symbiotic and non-symbiotic interactions.
5. What is ecosystem? Discuss the structure and functions of ecosystem.
6. Discuss various methods of soil waste disposal.

SECTION-C

7. Discuss in detail about negative microbial interactions.
8. Describe terrestrial environment related to soil profile and soil microflora.
9. Discuss in detail about primary and secondary sewage treatments.

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Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. Hons. (Microbiology) (Sem.–4)

ANALYTICAL TECHNIQUES IN MICROBIOLOGY

Subject Code : BSMB407-20

M.Code : 92105

Date of Examination : 20-11-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) Define sedimentation velocity.

   b) What is the basic principle of UV-vis spectroscopy?

   c) Define the term molecular polarizability.

   d) What do mean by ion exchange chromatography?

   e) Discuss about gel chromatography with suitable examples.

   f) Discuss about isoelectric focussing of proteins and its importance.

   g) What information do we get from X-Ray crystallography?

   h) Give the significance of Lambert Beer law.

   i) Discuss the basic principle of TLC.

   j) What does the term metastable ion mean?

SECTION-B

2. Explain in detail the chemical shift and shielding and deshielding.
3. Write a detailed note on fragmentation rule in mass spectrometry.
4. Enlist the factors affecting absorption of a chromophore.
5. Write a brief note on autoradiography and identification of materials.
6. Explain Raman spectra of simple linear molecule with example.

SECTION-C

7. Explain the principle and working of HPLC and pumps used in HPLC.
8. Describe the instrumentation of ultracentrifuge in detail.
9. Explain the theory of electrophoresis and factors affecting migration of substances.

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Roll No. | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc - Honours (Microbiology) (Sem.–5)

ENZYME TECHNOLOGY

Subject Code : BSMB509-20

M.Code : 92515

Date of Examination : 30-11-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Answer briefly :**

a) What are the general characteristics of enzymes?

b) Define apoenzyme.

c) What is the unit of enzymes?

d) Give any four examples of reversible inhibition.

e) Define Km.

f) What is isoenzymes?

g) Write the application of substrate in the microbiology field.

h) Give an example of competitive inhibition.

i) What are the four properties of enzymes?

j) What are cofactors? Explain their role in humans.

SECTION-B

2. Define enzyme. Explain the classification of enzymes in detail.

3. Write about enzyme therapy for disease treatment.

4. Discuss the irreversible inhibition.

5. Explain the line weaver-Burk polt.

6. Write the application of microbial enzymes in the environment process.

SECTION-C

7. Describe the immobilized enzymes and their industrial applications.

8. Explain in detail about the factors affecting enzyme activity.

9. What is feedback inhibition? Describe the operon model in detail.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. Honours (Microbiology) (Sem.–5)

COMPUTER SCIENCE AND BIOINFORMATICS

Subject Code : BSMB507-20

M.Code : 92513

Date of Examination : 28-11-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

a) What is the full form of BLAST and FASTA?

b) What do you mean by virtual memory?

c) Write down the various file formats used in bioinformatics.

d) What are the advantages of hard disk?

e) What are output devices?

f) Enlist types of BLAST.

g) What is system software?

h) What are the 4 steps of FASTA?

i) Advantages of mainframe computers.

j) What is pixel for image?

SECTION-B

2. Explain biological database with types.

3. Differentiate between memory and storage.

4. Write a short note on Protein sequence database.

5. Explain Phylogenetic trees constitution for microbial diversity.

6. What are the uses of computer applications in healthcare?

SECTION-C

7. What is the architecture of a computer system?

8. Describe the role of Bioinformatics in microbial diagnostic with their applications.

9. Describe the different database used in DNA and Protein sequencing.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc- Honours (Microbiology) (Sem–5)

IMMUNOLOGY

Subject Code : BSMB-501-20

M.Code : 92507

Date of Examination : 10-06-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) Discuss mononuclear phagocytes.

   b) Define MALT.

   c) Define haptens.

   d) What do you mean by avidity?

   e) What are the symptoms of antigen-antibody interactions?

   f) Discuss the tonsils.

   g) What do you mean by antigens?

   h) What is adaptive immunity?

   i) Define transplantation.

   j) Mention the role of cytokines,.

SECTION-B

2. Discuss in detail the antigen processing and presentation.
3. Elaborate in detail about major Histocompatibility complexes.
4. Describe in detail about autoimmunity -organ specific and systemic.
5. Define epitopes. Give a detailed comment.
6. Give a overview of graft rejection.

SECTION-C

7. **Discuss the following :**

   a) Granulocytic cells

   b) Spleen

   c) Antigen binding sites

8. Discuss in detail about ELISA with their applications.
9. **Comment on :**

   a) Cytokines: receptors

   b) Immunodeficiency

   c) Thymus and lymph node.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. Honours (Microbiology) (Sem.–5)

COMPUTER SCIENCE AND BIOINFORMATICS

Subject Code : BSMB507-20

M.Code : 92513

Date of Examination : 28-11-2023

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**

   a) What is the full form of BLAST and FASTA?

   b) What do you mean by virtual memory?

   c) Write down the various file formats used in bioinformatics.

   d) What are the advantages of hard disk?

   e) What are output devices?

   f) Enlist types of BLAST.

   g) What is system software?

   h) What are the 4 steps of FASTA?

   i) Advantages of mainframe computers.

   j) What is pixel for image?

SECTION-B

2. Explain biological database with types.
3. Differentiate between memory and storage.
4. Write a short note on Protein sequence database.
5. Explain Phylogenetic trees constitution for microbial diversity.
6. What are the uses of computer applications in healthcare?

SECTION-C

7. What is the architecture of a computer system?
8. Describe the role of Bioinformatics in microbial diagnostic with their applications.
9. Describe the different database used in DNA and Protein sequencing.

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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. Honours (Microbiology) (Sem.–5)

BIOSAFETY AND INTELLECTUAL PROPERTY RIGHT

Subject Code : BSMB-505-20

M.Code : 92511

Date of Examination : 23-11-2023

Time : 3 Hrs.

Max. Marks : 30

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying TWO AND A HALF marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying FIVE marks each and students have to attempt any TWO questions.

SECTION-A

1. **Answer briefly :**

a) What do you mean by Biosafety?

b) What do you understand by heat sterilization?

c) Define the term ISO.

d) What is the need of quality management system in pharmaceutical industries?

e) What do you understand by geographical indications in IP?

f) What are animal biosafety levels?

g) Expand the term NABL.

h) What is the difference between copyright and trademark?

i) What is the role of GLP in pharmaceutical industries?

j) Describe the terms toxicology and allergenicity.

SECTION-B

2. Write a note on regulatory aspects of quality control.

3. Discuss in detail about design and layout of sterile product manufacturing.

4. What do you understand by institutional ethics committee and its role?

5. Write a short note on protection of GMOa IP as a factor in R & D.

6. Write a short note on patents and trademarks.

SECTION-C

7. Write a descriptive note on role of NABL and ISO.

8. Give a descriptive account on design and safety of microbiology laboratory.

9. Write a detailed note on need for the introduction of Intellectual Property Rights with its historical perspectives.

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B.Sc- Honours (Microbiology) (Sem.–5)

IMMUNOLOGY

Subject Code : BSMB-501-20

M.Code : 92507

Date of Examination : 17-11-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Answer briefly :**

   a) Innate immunity

   b) GALT

   c) Antibody affinity

   d) Heptane

   e) MHC complex

   f) Cytosolic pathway

   g) T-cell maturation

   h) Cytokines

   i) Transplantation

   j) Function of granulocytic cells.

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SECTION-B

2. Explain the structure of antibody and its function.

3. Write a note on primary and secondary lymphoid organs.

4. What do you mean by overview of graft rejection?

5. Write various types of hypersensitivity reactions.

6. What is ELISA and its application?

SECTION-C

7. What are antigens? What are the characteristics of T-dependent and T-independent antigens?

8. Explain about the organization and inheritance of MHC locus.

9. Discuss the compliment system by taking examples of classical, alternative and lectin pathway.

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Total No. of Questions : 09

B.Sc. Honours (Microbiology) (Sem.–5)

MEDICAL MICROBIOLOGY

Subject Code : BSMB-503-20

M.Code : 92509

Date of Examination : 21-11-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write in brief about :**

   a) Pathogenicity

   b) Nosocomial infection

   c) Septic shock

   d) *Mycobacterium tuberculosis*

   e) How sample collection is done?

   f) Viral disease

   g) Herpes virus

   h) Characteristics of antimicrobial agents

   i) Mode of action of anti-fungal agents

   j) Antibiotic resistance.

SECTION-B

2. Explain about toxigenicity and virulence.

3. Exemplify one bacterial disease with reference to its symptom, pathogenesis and control.

4. What are respiratory diseases and explain about *Streptococcus pyogenes.*

5. Write about protozoan infection with its prophylaxis and control.

6. Write a note on inhibitor of the cell wall synthesis.

SECTION-C

7. What are antibacterial agents with their mode of action?

8. Explain about the viral disease like Covid-19 and Monkey pox.

9. Discuss the sample collection, transport and culturing of clinical sample.

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