SH-III/Microbiology-303C-7(T)/19

B.Sc. Semester III (Honours) Examination, 2018-19

MICROBIOLOGY

Course ID : 32203 **Course Code : SHMCB-303C-7(T)**

Course Title: Molecular Biology

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.

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

Answer all *the questions.*

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

(a) What is Z DNA?

(b) Define Replicon.

(c) What is attenuation?

(d) What do you mean by linking number?

(e) State the function of peptidyl transferase enzyme.

(f) What are Oka Zaki fragments?

(g) Define reverse transcription.

(h) What is Kozak sequence?

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

(a) What do you mean by mutation? Write a short note on mismatch repair. 1+4=5

(b) Discuss briefly about the general characteristics of genetic code. Name any one inhibitor of translation with its mode of action. 4+1=5

(c) Differentiate between prokaryotic and eukaryotic transcription. What is an ORF? 4+1=5

(d) Write a short note on mRNA splicing. Define spliceosome. 4+1=5

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

(a) Briefly describe the process of DNA replication in *E. Coli*. What do you mean by semiconservative mode of replication? 8+2=10

(b) Differentiate RNA polymerase of prokaryot and eukaryot. Write in detail about the initiation, elongation and termination of translation process in prokaryotes with suitable diagrams. 3+7=10

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SH-III/Microbiology-305 SEC-1(T)/19

B.Sc. Semester III (Honours) Examination, 2018-19

MICROBIOLOGY

Course ID : 32205 **Course Code : SHMCB-305 SEC-1(T)**

Course Title : Microbiological analysis of air and water

Time: 2 Hours **Full Marks: 40**

The figures in the margin indicate full marks.

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

Answer all *the questions.*

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

(a) What are faecal coliforms?

(b) What is the full form of HEPA? Where is it used?

(c) What do you mean by incineration and desication?

(d) Name one air borne disease and its causetive agent.

(e) What is allergen?

(f) What is the mode of action of UV light on killing microorganisms?

(g) Name one water borne disease and its causetive agent.

(h) Write full form of BCG and DPT.

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

(a) Write down briefly about various sampling method of bioaerosols.

(b) Discuss briefly about membrane filter technique.

(c) Write a note on following air-borne disease 2½×2=5

(i) Influenza

(ii) Diptheria 2½×2=5

(d) Write a short note on following water borne diseases

(i) Cholera

(ii) Typhoid 2½×2=5

(e) What is the full form of MPN. Discuss schematically the procedure of MPN test. 1+4=5

(f) Expand IMViC. State the Principle of Indole and citrate test. 1+4=5

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

(a) Describe briefly about different potability test of water — Presumptive, Confirmatory and completed test.

(b) Discuss different media used in cultivation of bacteria and fungi. What is CFU? Discuss briefly about the mode of action and application of following agent for controlling microorganisms — High temperature, Ethylene dioxide, Phenol and iodine. 5+1+4=10

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SH-III/Microbiology-301C-5(P)/19

B.Sc. Semester III (Honours) Practical Examination, 2018-19

MICROBIOLOGY

Course ID : 32221 **Course Code : SHMCB-301C-5(P)**

Course Title : Microbial Physiology and Metabolism

Time: 2 Hours in 1st day **Full Marks: 15**

1 Hour in 2nd day

The figures in the margin indicate full marks.

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

Answer all *questions.*

1.	Determine the effect of Temperature growth of supplied *E. coli* culture. (Procedure : 3, Result & Interpretation - 4)	7
2.	Write the process of alcohol fermentation in flow chart.	3
3.	Laboratory notebook.	2
4.	Viva-voce.	3

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SH-III/Microbiology-302C-6(P)/19

B.Sc. Semester III (Honours) Practical Examination, 2018-19

MICROBIOLOGY

Course ID : 32222 **Course Code : SHMCB-302C-6(P)**

Course Title : Cell Biology

Time: 2 Hours **Full Marks: 15**

The figures in the margin indicate full marks.

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

Answer all *questions.*

1. Study and identify the supplied plant cell (A or B) by microscopy. 6

(Workout - 4, Observation & result - 1, Comment - 1)

2. Identify the supplied samples C and D mentioning specific characteristics. 2×2=4

(Identification - ½, Characteristics - 1½)

3. Viva-voce. 3

4. Laboratory note book. 3

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B.Sc. Semester III (Honours) Practical Examination, 2018-19

MICROBIOLOGY

Course ID : 32222 **Course Code : SHMCB-302C-6(PI)**

Course Title : Cell Biology

Instructions to the Examiners

1. Examiners are requested to arrange leaf of *Ficus benghalensis* and goat blood sample.

2. For question no. 2, permanent slides of different stages of Meiosis. Election micrograph of cell organelles to be supplied.

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SH-III/Microbiology-303C-7(P)/19

B.Sc. Semester III (Honours) Practical Examination, 2018-19

MICROBIOLOGY

Course ID : 32223 **Course Code : SHMCB-303C-7(P)**

Course Title : Molecular Biology

Time: 3 Hours **Full Marks: 15**

The figures in the margin indicate full marks.

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

Answer all *questions.*

1.	Carry out Agarose Gel Electrophoresis of supplied sample : [A/B] [Principle - 2, Work out - 2, Observation - 1 and Comment - 1]	6
2.	With suitable reason identify the supplied specimens: [X and Y] [Identification - ½, Reasons - 1½]	2×2=4
3.	Laboratory notebook.	2
4.	Viva-voce.	3

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SH-III/Microbiology-301C-5(T)/19

B.Sc. Semester III (Honours) Examination, 2018-19

MICROBIOLOGY

Course ID : 32201 **Course Code : SHMCB-301C-5(T)**

Course Title : Microbial Physiology and Metabolism

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.

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

Answer all *the questions.*

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

(a) Give example of one iron oxidising bacteria.

(b) What is substrate level phosphorylation?

(c) What is plasmolysis?

(d) Name two microbial enzymes which protect the cell from the toxic oxygen.

(e) What do you mean by compatible solutes?

(f) Define synchronous culture.

(g) Name one hyperthermophiles.

(h) Name one bacterium perform ED pathway.

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

(a) Differentiate between chemostat and turbidostat. What is synchronous culture. 3+2=5

(b) Discuss briefly about the microbial photosynthetic apparatus and pigments.

(c) Schematically draw the EMP pathway. What is the full form of EMP. 4+1=5

(d) Classify the micro-organism based on their O_2 (oxygen) requirement. Describe them with suitable example. 2+3=5

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

(a) Write short notes on nitrogenase complex. How aerobic organisms protect nitrogenase from oxygen. What is the role of denitrifying bacteria in nitrogen cycle. 5+3+2=10

(b) Describe briefly about oxygenic photosynthesis, with suitable example and schematic diagram. Mention the difference from anoxygenic photosynthesis. 7+3=10

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SH-III/Microbiology-302C-6(T)/19

B.Sc. Semester III (Honours) Examination, 2018-19

MICROBIOLOGY

Course ID : 32202 **Course Code : SHMCB-302C-6(T)**

Course Title : Cell Biology

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.

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

Answer all *the questions.*

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

(a) What are cisternae?

(b) Define clastogen.

(c) What is passive transport?

(d) State the role of P^{53} protein.

(e) Differentiate between smooth endoplasmic reticulum and rough endoplasmic reticulum.

(f) What is chaperon?

(g) What is nucleosome?

(h) Write down the significance of nuclear pore complex.

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

(a) Write in brief about cytoskeleton. What is the cell wall composition of plant? 3+2=5

(b) What do you mean by glycosylation of protein? Write down the major functions of lysosome. 2+3=5

(c) What is apoptosis? Specify the factors that trigger apoptosis. 2+3=5

(d) State the function of (i) Lysosome (ii) Golgi apparatus 2.5+2.5=5

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

(a) State the salient features of stem cell. Classify stem cell on the basis of potency. Mention some clinical applications of stem cell. 2+6+2=10

(b) Diagrammatically describe the mode of action of G-protein coupled receptors. Discuss the role of cyclin and MPF in regulation of eukaryotic cell cycle. 6+4=10

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