Bajaj College of Science, Wardha

B.Sc. Sem II

Subject: Biotechnology

Practice Sheet During Lockdown

(Microbiology, Cell Biology and Enzymology)

Unit I (Microbial Growth)

A] 7 marks questions:

Q1 What is growth curve?Explain in detail various phases of growth curve .

Q2 Discuss in detail classification of the organism on the basis of temperature and pH requirement.

Q3 Explain in detail chemostat.

Q4 Discuss the techniques used for isolation of pure culture.

Q5 Write a detail note on synchronous culture.

Q6 Explain in detail temperature as a factor required for microbial growth

Q7 explain in detail techniques used for maintenance of pure culture.

Q8 Explain in detail turbidostat.

Q9 Describe in detail techniques used employed for measurement of bacterial growth.

Q10 Draw a well labeled growth curve and discuss its various phases.

B] 2 marks questions:

Q1 Define generation time.

Q2 What is axenic culture?

Q3 What is turbidostat?

Q4 What is chemostat?

Q5 What is Synchronous culture?

Q6 Enlist various phases of Growth curve.

Q7 Give any two example of pscychrophills.

Q8 what is mean by mesophilic organisms?

Q9 what is mean by osmophilic organisms?

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Q10 Define thermopiles.

Unit II (Microbial Control)

A] 7 marks questions:

Q1 What is microbial growth control? Explain the concept of biological control.

Q2 Explain in detail mechanism of cell injury

Q3 Explain in detail mechanism of damage to bacterial cell wall and cell membrane.

Q4 Discuss in detail mode of action of halogen as a microbial control agent.

Q5 Discuss in detail temperature to control microbial growth.

Q6 Write in detail physical and chemical methods used to control microbial growth.

Q7 Explain in detail disinfectants and antiseptics.

Q8 Give a detail note on biocontrol agents.

Q9 Explain different techniques by dry heat sterilization to control microbial growth .

Q10 Discuss in detail mode of action of radiations on microbial cell.

B] 2 marks questions:

Q1 Give any two example of gaseous chemosterlizers.

Q2 Define preservatives.Give any two examples.

Q3 What is incineration?

Q4 Give the name of any ionizing radiation.

Q5 Define sterilization and pasteurization.

Q6 What are antimicrobial agents?

Q7 Define antiseptics and give any to examples of it.

Q8 What is the effect of UVrays on DNA?

Q9 What is germicide and fungicide?

Q10 What is mean by microbiostasis.

Unit III (Eukaryoyic Cells)

A] 7 marks questions:

Q1 Explain in detail typical structure of animal cell. Give a brief note on organelles.

Q2 Give the differences between plant and animal cells.

Q3 Describe in detail structure and functions of nucleus.

Q4 Describe in detail structure and functions of Mitochondria.

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Q5 Describe in detail structure and functions of ribosomes and endoplasmic reticulum.

Q6 Describe in detail structure and function of plastids and golgi complex.

Q7 Describe in detail structure and function of peroxisomes, glyoxisomes and vacuoles.

Q8 Describe in detail structure of plant cells.

Q9 Write a detail note on cytoskeleton.

Q10 Discuss in detail process of mitosis.

Q11 Discuss in detail process of meiosis.

B] 2 marks questions:

Q1 Give any two functions of lysosome.

Q2 Give any two functions of peroxisome.

Q3 Name the layer which covers the nerve cells.

Q4 Define telophase and anaphase.

Q5 Give the difference between meiosis and mitosis.

Q6 What is function of nuclear membrane.

Q7 What are the functions of glyoxisomes?

Q8 Define meiosis.Who discovered the process of meiosis?

Q9 Name any one neurotransmitter used in synaptic transmission.

Q10 Name the cells responsible for formation of myelin sheath.

Unit IV (Carbohydrate and Lipids)

A] 7 marks questions:

Q1 Give in detail classification of carbohydrates.

Q2 What is homopolysaccharide? Give structure with suitable example.

Q3 Discuss the structure of disaccharides and disaccharides with suitable example.

Q4 What is Polysaccharide? Explain in detail strurure of starch and glycogen .

Q5 Elaborate heteropolysaccharides with suitable example.

Q6 Give in detail classification of Lipids.

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Q7 Discuss in detail structures of saturated and unsaturated fatty acids

Q8 Describe in detail structure and classification of triglycerides.

Q9 Discuss in detail acid value, saponification value and iodine value.
Q10 Discuss in detail structure and types of Cholesterol.

B] 2 marks questions:

Q1 What is saponification value?

Q2 Define cholesterol.

Q3 What are the sources of raffinose?

Q4 What is rancidity?

Q5 Give two examples of reducing sugar.

Q6 Define iodine value.

Q7 What is the difference between fat and oil?

Q8 Draw the structure of lactose and maltose.

Q9 Give the Difference between fat and oil?

Q10 Give any two examples of saturated fatty acids.

Q11 Define acid value.

Unit V (Introduction to Enzymes)

A] 7 marks questions:

Q1 Describe in detail the nomenclature and Classification (IUBMB) of enzyme.

Q2 What are Isoenzymes? Explain with respect to Lactate Dehydrogenase.

Q3 What are multienzymes? Explain the concept with Pyruvate Dehydrogenase as an example.

Q4 Explain: Enzymes are substrate specific.

Q5. Discuss in detail lock and key and induced fit models.

Q6 Discuss the Mechanisms of acid-base catalysis,.

Q7 Discuss the Mechanisms of covalent catalysis

Q8 Define Allosterism. Explain ATCase as an example of allosteric enzymes.

Q9 Discuss the Mechanisms of metal ion catalysis in detail.

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Q10 Write detail note on:

a) bond specificity
b) group specificity
c) absolute specificity
d) stereo-specificity

B] 2 marks questions:

Q1 Define Isoenzymes.

Q2 Define Holoenzymes.

Q3 Who discovered induced fit model?

Q4 What is allosteric site?

Q5 What is modulator?Give its types.

Q6 Define cofactors with suitable example.

Q7 What is active site?

Q8. Define inhibitor and activator.

Q9 What is EC number?

Q10 Who discovered Lock and Key model?

Q11 Define coenzyme with suitable example.

Unit VI (Enzymes Kinetic)

A] 7 marks questions:

Q1 Describe in detail Michaelis - Menten equation and its modification.

Q2 Explain in detail Industrial applications of enzymes.

Q3 Describe in detail various techniques of enzyme immobilization.

Q4 Describe in detail type of enzyme inhibition.

Q5 Describe in detail the spectrophotometric method for assay of enzyme.

Q6 Discuss in detail factors affecting enzyme activity.

Q7 Explain in detail competitive, uncompetitive and noncompetitive Inhibition .

Q8 Describe the effect of PH and temperature on enzyme catalyzed reaction.

Q9 Explain in detail Lineweaver-Burke plots.

Q10 Describe in detail kinetics of allosteric enzymes.

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B] 2 marks questions:

Q1 Define specific activity of enzyme.

Q2 What is Km and Vmax?

Q3 What is Katal?

Q4 What is immobilization?

Q5 What is turnover number?

Q6 Give the role of Amylase enzyme.

Q7 Give the example of irreversible enzyme inhibition.

Q8 What is catalytic efficiency?

Q9 Define activation energy.

Q10 What is temperature quotient?

Q11 Give the significance of Km value.

For any queries, feel free to contact us on priya.anchalpriya@gmail.com

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