



**HAVRACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
Program/s: M.Sc. LS
Year: 2nd **Semester:** 3rd
Examination: End Semester Examination
Examination year: December - 2021

Course Code: LS245 **Course Name:** Microbial Biochemistry
Date: 02/12/2021
Time: 8.30 am to 10.30 am

Total Marks: 40
Total Pages:

Instructions:

- Write each answer on a new page.
- Use of a calculator is permitted/not permitted.
- *COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.	Details	Marks	COs*	BTL#
Q.1	<p>Choose the correct answer.</p> <ol style="list-style-type: none"> 1. The role of dolichol in the synthesis of cell wall carbohydrates is <ol style="list-style-type: none"> A. site for transpeptidation reaction B. site for phosphorylation of UDP-GlcNAc C. the site where the Mur2Ac pentapeptide moiety is transferred D. site for attachment of a uridine nucleotide 2. Which of the following is true about photosynthesis in Cyanobacteria? <ol style="list-style-type: none"> A. In the PSI, electrons are excited by light for a second time before reducing NADP⁺ B. Electrons from PS2 contribute to the production of more ATP C. Electrons from the first step are transferred from cyt b6f complex to plastoquinone D. There is no splitting of water 3. Which of the following fermentation processes is used in the production of penicillin? <ol style="list-style-type: none"> A. Aerobic fermentation followed by anaerobic fermentation B. Anaerobic fermentation C. Aerobic fermentation D. Anaerobic fermentation followed by aerobic fermentation 4. Select odd one out from the following; <ol style="list-style-type: none"> A. Amino Acid B. Alkaloids C. Carbohydrates D. Nucleotide 	4	CO1, CO2, CO3, CO4, CO5	BT1, BT2, BT3, BT4

<p>Q.2</p>	<p>Do as directed.</p> <ol style="list-style-type: none"> similar to chlorophylls in containing four pyrrol rings but different as they lack Mg and the phytol chain. Purple and green bacteria cannot use water (H₂O) as an electron donor in noncyclic photophosphorylation as they lack _____ _____ interrupt biosynthesis of isoprene by inhibiting FPPS. _____ is the the first β-lactam antibiotic was synthesized by Staudinger in 1907. _____ is the substrate for lysine biosynthesis. The chemical process in which transfer of the amine group take place is known as _____. In green bacteria, _____ serves directly as electron donor for dark reaction _____ autotrophs oxidize reduced inorganic compounds such as iron, nitrogen or sulfur molecules to derive both energy and electrons for biosynthesis. “Antibiotics can distinguish between beneficial and harmful bacteria” – True/False – Justify. “Bacteria can only synthesize isoprene units by the mevalonate pathway” – True/False – Justify. 	<p>12</p>	<p>CO1, CO2, CO3, CO4. CO5</p>	<p>BT1, BT2, BT3, BT4</p>
<p>Q.3</p>	<p>Answer <i>any four</i> from the following in brief.</p> <ol style="list-style-type: none"> How does chlorophyll a differ from chlorophyll b? How do lithotrophs differ from organotrophs? Write down principle of Acetylene Reduction assay along with its significance. Define secondary metabolites and its roles along with its examples. Classify the antibiotics with examples and its role. 	<p>12</p>	<p>CO1, CO2, CO3, CO4. CO5</p>	<p>BT1, BT2, BT3, BT4</p>
<p>Q.4</p>	<p>Answer <i>any three</i> from the following in detail.</p> <ol style="list-style-type: none"> How is the acetyl-CoA generated from fatty acid breakdown converted to four carbon compounds in plants and microbes? Define fermentation. Explain in detail ethanolic fermentation process. Write down the detail note on Streptomycin: Structure, Biosynthesis, Process and Uses of Streptomycin. Explain Mavalonic acid pathway (MVA) in detail. 	<p>12</p>	<p>CO1, CO2, CO3, CO4. CO5</p>	<p>BT1, BT2, BT3, BT4</p>

*****End of Question Paper*****