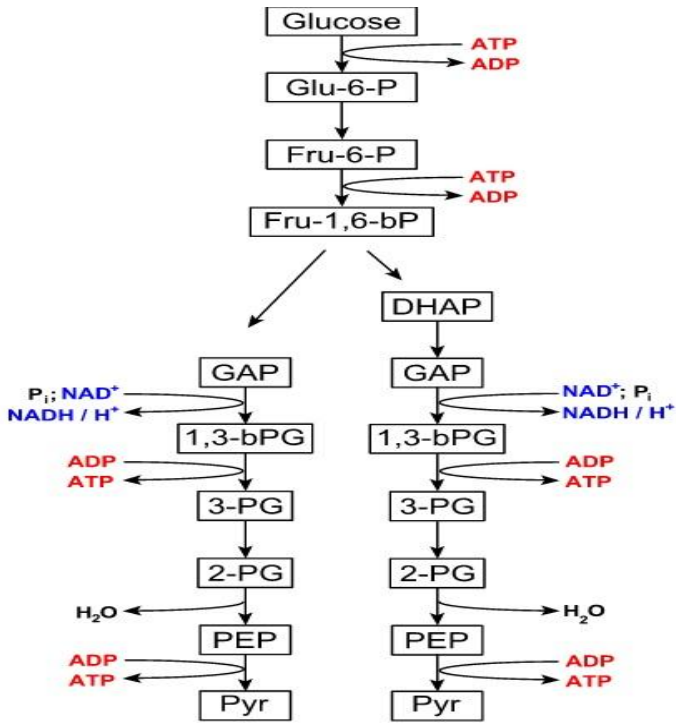
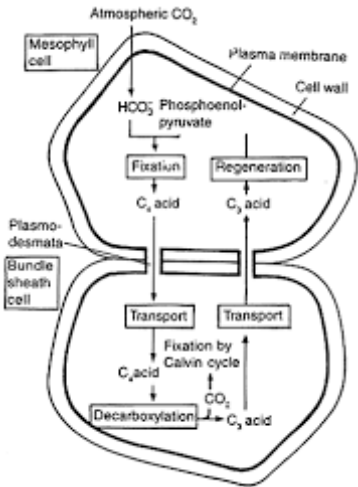


CLASS:XI	INDIAN SCHOOL MUSCAT SECOND PERIODIC TEST	SUBJECT: BIOLOGY
	SET - C	
QP.NO.	VALUE POINTS	SPLIT UP MARKS
1.	2 NADH ₂ and 4 ATPs	1
2.	In the mitochondrial matrix	1
3.	In PS I it is P700 and PS II it is P680	1
4.	It shows Kranz anatomy , there are layers of bundle sheath cells around the vascular bundles that undergo the C ₃ cycle.	1
5.	The electrons from NADH and FADH ₂ are oxidized by complexes and pass through carriers in the inner mitochondrial membrane. The final electrons are accepted by oxygen , to form water that helps to remove the hydrogen from the system. This process is phosphorylation in presence of oxygen, so called oxidative phosphorylation.	2
6.	Acetyl Co A + OxaloAcetic acid Citric Acid α ketoglutaric acid Succinic Acid Malic Acid Oxalo Acetic acid	Citric Acid (½) α ketoglutaric acid(½) Succinic Acid (1/2) Malic Acid (½)
7.	C3 plants - Phosphoglyceric Acid the first stable compound C4 plants- Oxaloacetic acid C3 Plants require 18 ATP and C4 plants – 18+12= 30 ATP	1+1
8.	Chemiosmotic Hypothesis requires a membrane,a proton pump, a proton gradient and ATP ase. The proton gradient is broken down as protons move from stroma through the F ₀ and F ₁ channel providing enough energy to cause change in F1 and synthesise ATP molecules with ATP synthase.	1+1
9.	The scheme of transfer of electrons starting from PSII uphill to the electron acceptor , down the electron transport chain to PSI then excitation of electrons, transfer to another acceptor and finally downhill to NADP causing it to reduce to NADPH ₂ is the Z scheme as it forms a Z shape.	½ ½ ½ ½

<p>10.</p>	 <p>The diagram illustrates the glycolysis pathway, starting with Glucose being converted to Glu-6-P (Glucose-6-phosphate) with the consumption of ATP and release of ADP. Glu-6-P is then converted to Fru-6-P (Fructose-6-phosphate). Fru-6-P is further converted to Fru-1,6-bP (Fructose-1,6-bisphosphate), a step that also consumes ATP and releases ADP. Fru-1,6-bP is then cleaved into two three-carbon molecules: GAP (Glyceraldehyde-3-phosphate) and DHAP (Dihydroxyacetone phosphate). Each of these molecules follows a similar sequence of reactions: DHAP is first converted to GAP, then GAP is converted to 1,3-bPG (1,3-bisphosphoglycerate) with the input of P_i and NAD^+ and output of $NADH/H^+$. 1,3-bPG is then converted to 3-PG (3-phosphoglycerate) with the input of ADP and output of ATP. 3-PG is converted to 2-PG (2-phosphoglycerate), which then leads to PEP (Phosphoenolpyruvate) with the release of H_2O. Finally, PEP is converted to Pyr (Pyruvate) with the input of ADP and output of ATP. The entire pathway is shown for both the GAP and DHAP branches, which are symmetrical.</p>	<p>3</p>
<p>11.</p>	<p>The primary CO_2 acceptor is Phosphoenol Pyruvate that is present in mesophyll cells of C_4 plants. Phosphoenol Pyruvate carboxylase helps to convert it into a 4C molecule Oxalo acetic acid. It then forms malic or aspartic acid in mesophyll cells and it is then transported to bundle sheath cells. In these bundle sheath cells these acids are broken to a 3C molecule and CO_2 is released. The CO_2 released enters the C_3 cycle as bundle sheath cells have RuBisCO. This 3 C molecule is transported back to mesophyll cells and converted to PEP again.</p>  <p>The diagram shows the C_4 pathway across two cell types: a Mesophyll cell and a Bundle sheath cell, connected by Plasmodesmata. In the Mesophyll cell, Atmospheric CO_2 enters and is converted to HCO_3^-. This reacts with Phosphoenolpyruvate (PEP) in a reaction catalyzed by PEP carboxylase to form a 4-carbon molecule, C_4 acid. The C_4 acid undergoes Fixation to form a 4-carbon intermediate, which then undergoes Regeneration to reform PEP. The C_4 acid is then Transported to the Bundle sheath cell. In the Bundle sheath cell, the C_4 acid undergoes Decarboxylation, releasing CO_2 and a 3-carbon molecule. The CO_2 enters the Calvin cycle (Fixation by RuBisCO) to produce a 3-carbon molecule. This 3-carbon molecule is then Transported back to the Mesophyll cell, where it is converted back to PEP, completing the cycle.</p>	<p>3</p>