23. Many seeds are high in lipids and low in carbohydrates. How is the energy for the growing embryo derived from the lipid ? What is the major pathway involved and how does it work ?

24. What is the significance of PPP ?

25. Explain chemiosmotic theory as it pertains to oxidative phosphorylation.

26. What is the role of ATP in plant metabolism ? Explain the mechanism that justifies its name as the energy currency of the cell. **(6×2=12)**

SECTION – E

Essay questions. Answer **any one** of the following. Weightage of **4**.

27. Enumerate the factors that influence enzyme action and illustrate the various ways in which it is inhibited.

28. Describe the steps involved in the complete oxidation of a molecule of glucose to carbon dioxide and water. Bring out the overall energy relationship of the pathway.

29. Write an account on the secondary metabolites in plants and discuss their role.

(1×4=4)

GOVT. BRENNEN COLLEGE CENTRAL LIBRARY THALASSERY

Reg. No. : .....

Name : .....

V Semester B.Sc. Degree (CCSS – Reg./Supple./Imp.) Examination, November 2015
CORE COURSE IN BOTANY/PLANT SCIENCE
5B08 BOT/PLS : Biochemistry and Intermediary Metabolism
(2012 Admn. Onwards)

Time : 3 Hours Total Weightage : 30

SECTION – A

1. Choose the correct answer.

1) i) Reaction that is common to aerobic and anaerobic respiration
   a) Kreb's cycle
   b) Photophosphorylation
   c) Terminal oxidation
   d) Pyruvic acid formation

ii) Glyoxalate cycle is completed in
   a) Peroxisome, mitochondrion, chloroplast
   b) Mitochondrion, oleosome, peroxisome
   c) Chloroplast, glyoxysome, mitochondrion
   d) Oleosome, glyoxysome and mitochondrion

iii) Cytochrome capable of utilizing molecular oxygen during respiration
   a) Cyt. b b) Cyt. C c) Cyt. a d) Cyt. a_3

iv) Link between respiration and N metabolism
   a) α -ketoglutaric acid b) Acetyl Co A
   c) Citric acid d) Malic acid

2. State **true** or **false**.
   i) Maltose is polysaccharide
   ii) Enzymes are amphoteric compounds
   iii) Glycolysis is light dependent
   iv) Invertase breaks down proteins.

3. Fill in the blanks.
   i) _____ is the product of glycolysis.
   ii) In RNA, Adenine pairs with _____
   iii) _____ is a lipid that serves as a deterrent to feeding insects.
   iv) Enzymes can act only in a medium of _____

4. Answer in **one** word or **one** sentence.
   i) Name the co-enzymes involved in the conversion of Pyruvic acid to Acetyl Co A.
   ii) Organism involved in alcoholic fermentation.
   iii) Define active site.
   iv) What are cytochromes ?

5. Rearrange column B and C to match column A.

A	B	C
B-oxidation	Fatty acid	Acetyl Co A
Amylase	Kreb's cycle	Triglyceride
α -keto glutaric acid	Polysaccharide	Monosaccharide
Glycerol	Fats	Glutamic acid

(5×1=5)

SECTION – B

Differentiate the following :

Answer **any four** of the following. **Each** carries a weightage of **1**.

6. Saturated fatty acid and unsaturated fatty acid.
7. Activation energy and free energy.

8. Reducing and non-reducing sugars.
9. Symbiotic and asymbiotic N fixation.
10. Peptide and glycosidic bonds.
11. Glycolipids and phospholipids. **(4×1=4)**

SECTION – C

Short answer questions. Answer **any five** of the following. **Each** carries a weightage of **1**.

12. How does ATP store abundant energy ?
13. Write the reactions involved in the conversion of Pyruvic acid to Acetyl Co A.
14. Write a note on lactic fermentation.
15. What is GS/GOGAT pathway ?
16. Write what you known about sucrose.
17. List out the functions of lipids.
18. Explain Km value. **(5×1=5)**

SECTION – D

Short answer questions. Answer **any six** of the following. **Each** carries a weightage of **2**.

19. Explain the structure of proteins.
20. How are nitrate and ammonium ions assimilated by plants ?
21. Explain the biosynthesis of amino acids.
22. Explain substrate level phosphorylation.