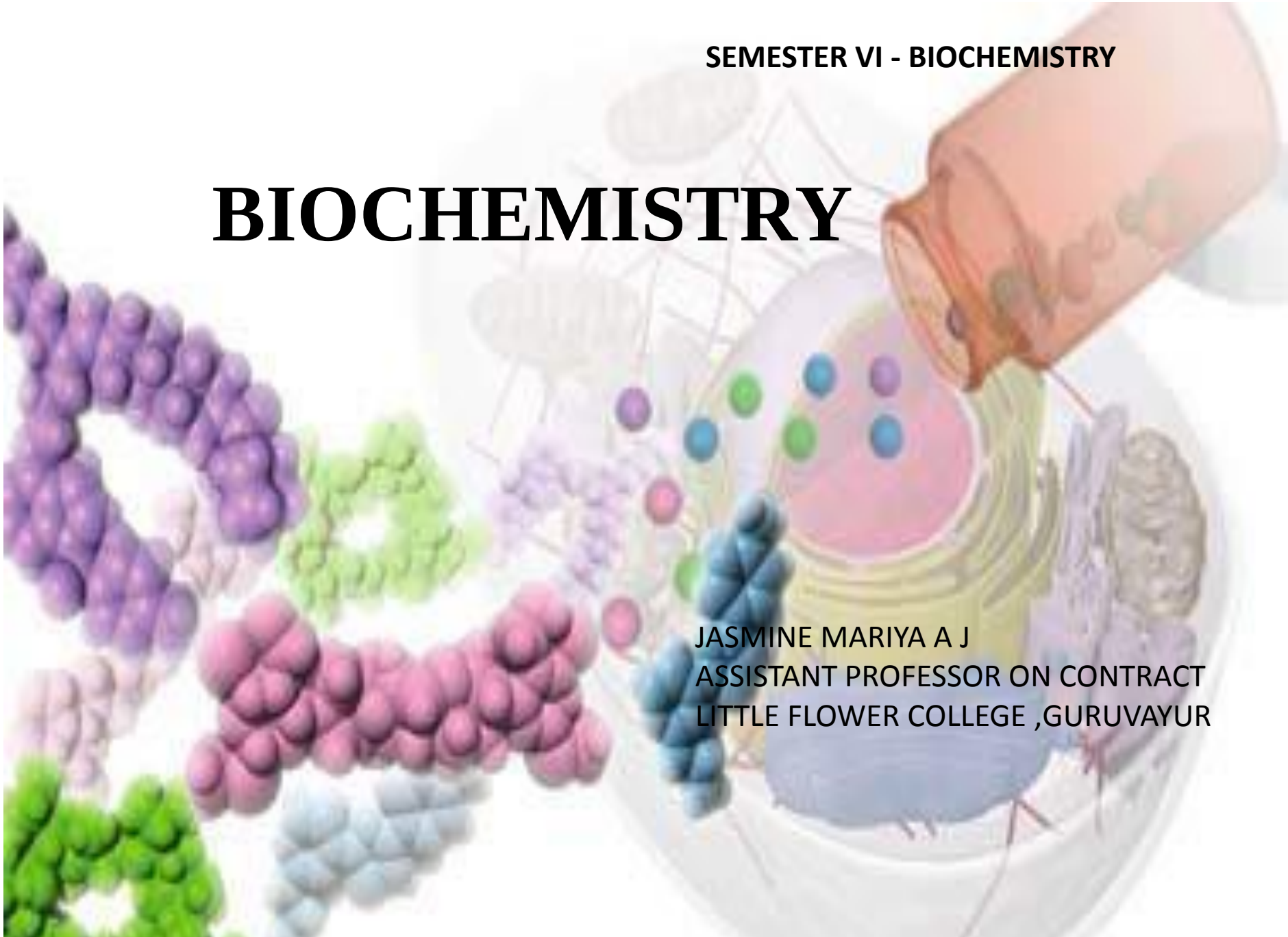
SEMESTER VI - BIOCHEMISTRY

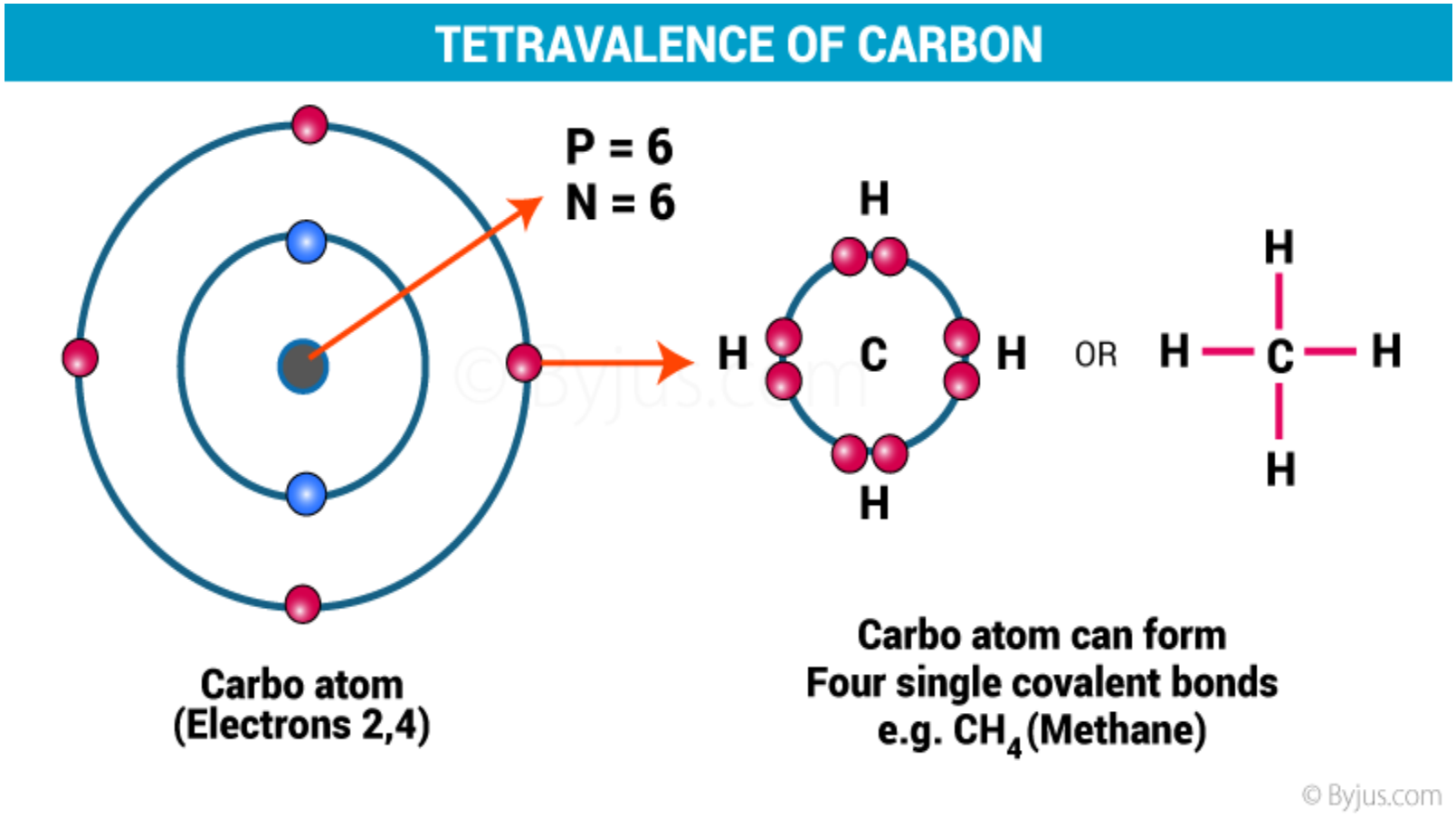
BIOCHEMISTRY



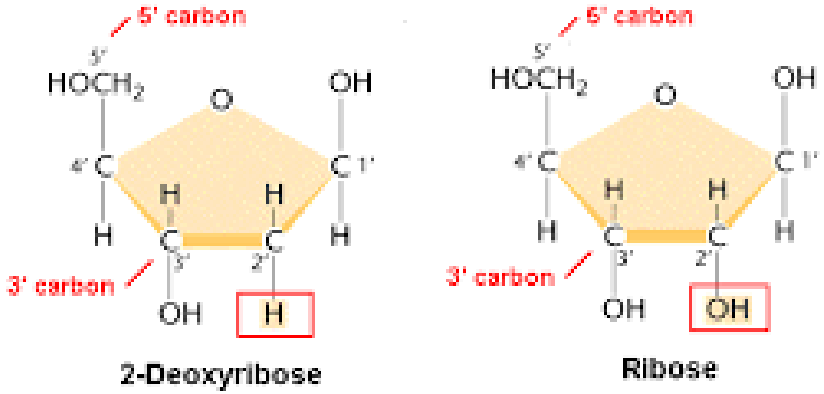
JASMINE MARIYA A J
ASSISTANT PROFESSOR ON CONTRACT
LITTLE FLOWER COLLEGE ,GURUVAYUR

- Living matter is composed of various elements and thosemolecules are known as biomolecules
- H,O,N and C are the most important biological molecules
- Na,K,Ca,Mg,P,S,Cl,and Fe are the other major elements

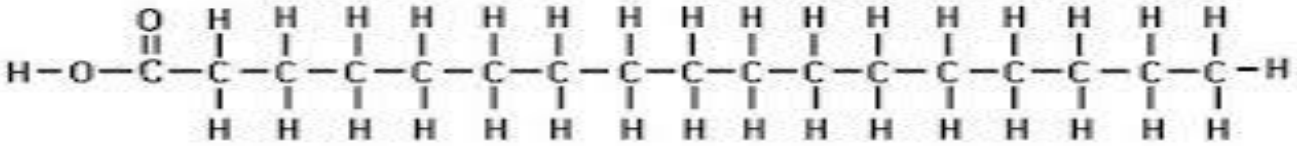
Fitness of C for life



- The compounds of carbon found in living organism are highly reduced
- They are energy rich(eg. glucose)
- Its a light element with atomic mass 6
- It possess slow reactivity and infinate structural versatility
- They can form chains and rings

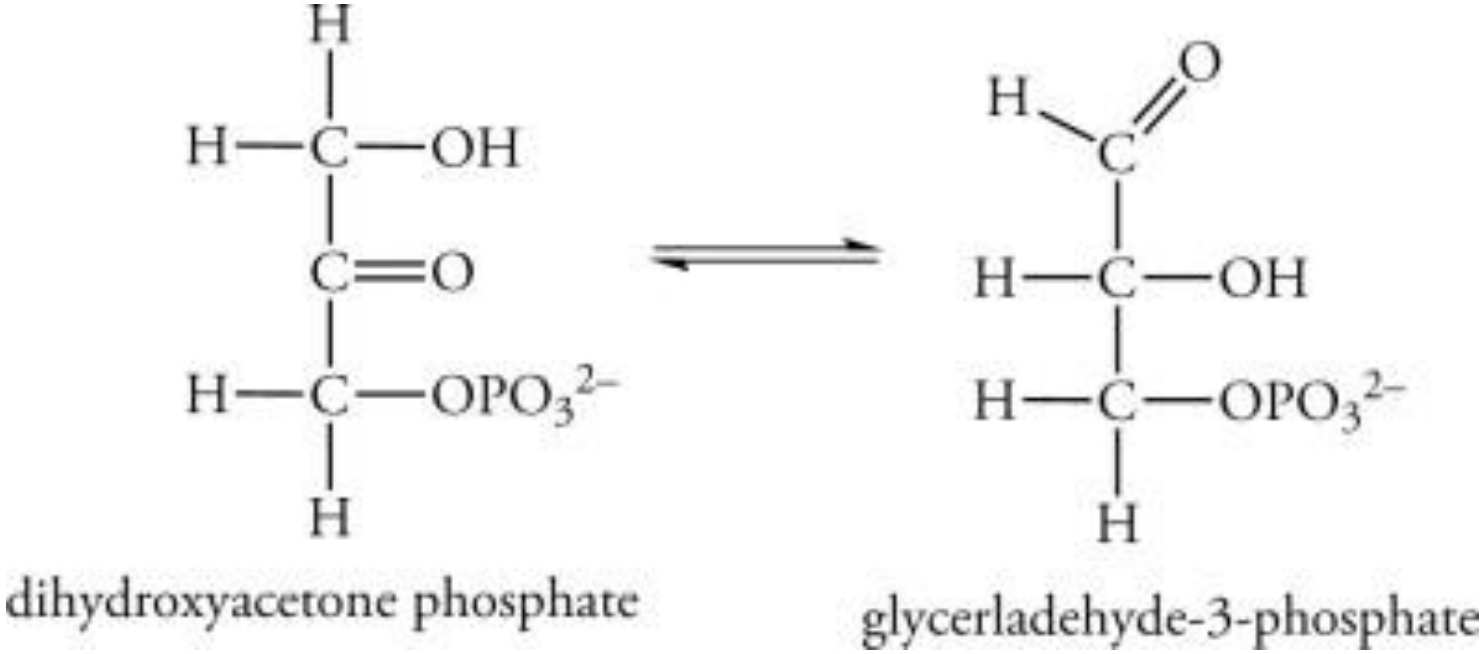


(Klug & Cummings 1997)



Plamitic acid

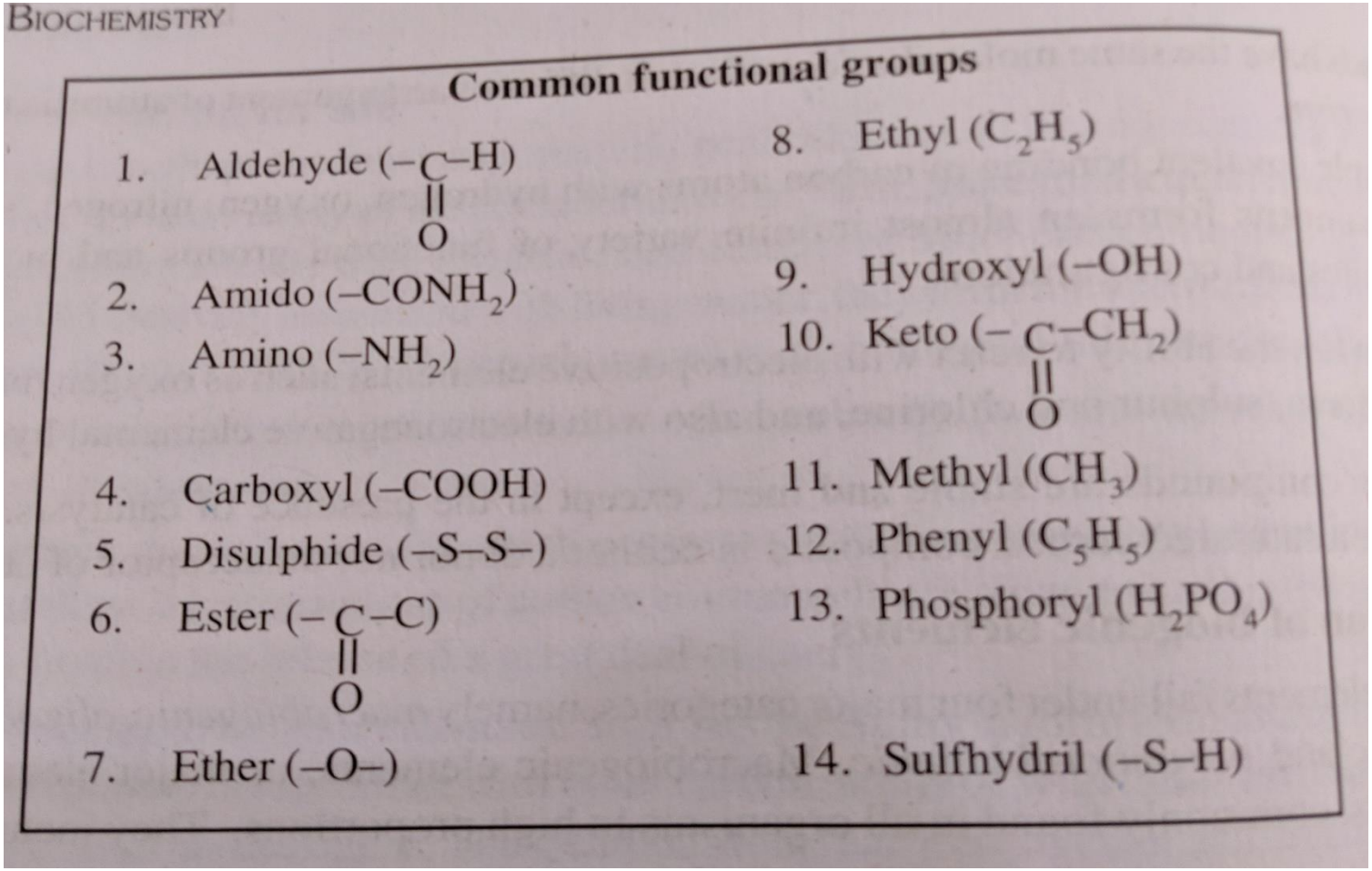
- Attached to these carbon skeletons are groups of other atoms called functional groups which confer special properties to the molecules
- In organic molecules carbon atoms can be bonded in more than one arrangement which give rise to different compounds with different structures. This phenomenon is called **isomerism**



dihydroxyacetone phosphate

glycerladehyde-3-phosphate

- Multiple covalent bonding of carbon atom with H,O,N,S and halogens forms infinite variety of functional groups



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Common functional groups

1. Aldehyde (–C(=O)–H)
2. Amido (–$CONH_2$)
3. Amino (–NH_2)
4. Carboxyl (–COOH)
5. Disulphide (–S–S–)
6. Ester (–C(=O)–C)
7. Ether (–O–)
8. Ethyl (C_2H_5)
9. Hydroxyl (–OH)
10. Keto (–C(=O)–CH_2)
11. Methyl (CH_3)
12. Phenyl (C_5H_5)
13. Phosphoryl (H_2PO_4)
14. Sulfhydril (–S–H)

- They have the capability to react with both electropositive atoms and electronegative atom
- Carbon compounds are inert and stable ,except in the presence of catalyst because , saturated carbon compound is neither a donor or an accepter