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Note:-

- All Questions are compulsory.
- Numbers on the right indicate full marks.

Section A

Q.1 Select and write the correct answer.

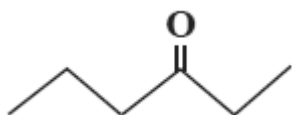
(4)

- Which of the following elements in an organic compound can be detected by Lassaigne's test?
A) S B) N
C) Cl D) All
- Which of the following statements is wrong?
A) Using Lassaigne's test, nitrogen and sulphur present in an organic compound can be tested. B) Using Beilstein's test, the presence of halogens can be tested.
C) In Lassaigne's filtrate, the nitrogen in an organic compound is converted to NaCN. D) In the estimation of carbon, an organic compound is heated with CaO in the combustion tube.
- The correct IUPAC name of the compound  is
A) hept-3-ene B) 2-ethylpent-2-ene
C) hex-3-ene D) 3-methylpent-3-ene
- The empirical formula of an acid is CH_2O_2 , the probable molecular formula of the simplest acid may be
A) CH_2O B) CH_2O_2
C) $\text{C}_2\text{H}_4\text{O}_2$ D) $\text{C}_3\text{H}_6\text{O}_4$

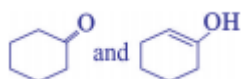
Q.2 Answer the following.

(3)

- Write dash formulae for the following bond line formulae



- Find out the type of isomerism exhibited by the following pairs :



- Which is the essential element in all organic compounds?

Section B
Attempt any Four

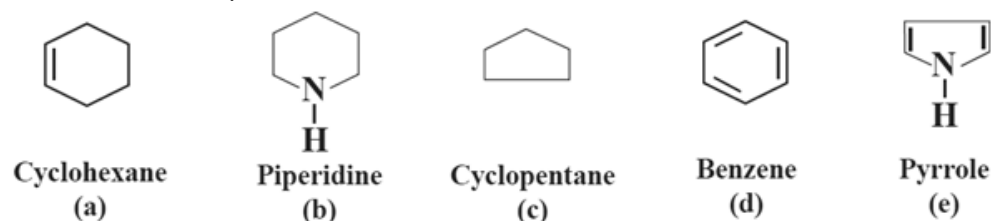
- Q.3 Explain Wedge formula of representation.

(2)

Q.4 Distinguish between Carbocation and Carbanion. (2)

Q.5 What is the unique property of carbon that makes organic chemistry a separate branch of chemistry? (2)

Q.6 Observe the compounds (a) to (e) (2)



(1) Identify the compounds those contain a ring of carbon atoms only.

(2) Identify the compounds in which ring contains at least one atom other than carbon.

Q.7 Draw resonance structure of the following : Phenol (2)

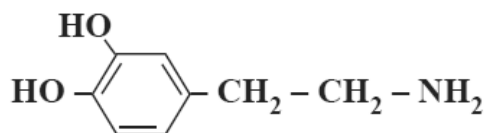
Q.8 Draw two Newman projection formulae and two sawhorse formulae for propane molecule. (2)

Section C Attempt any Two

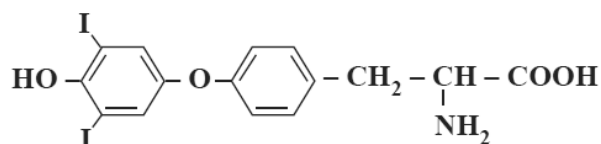
Q.9 Phytane is naturally occurring alkane produced by the alga *Spirogyra* and is a constituent of petroleum. The IUPAC name for phytane is 2, 6, 10, 14 – tetramethylhexadecane. Write zig-zag formula for phytane. How many primary, secondary, tertiary and quaternary carbons are present in this molecule? (3)

Q.10 State the rules to be followed while writing resonating structures? (3)

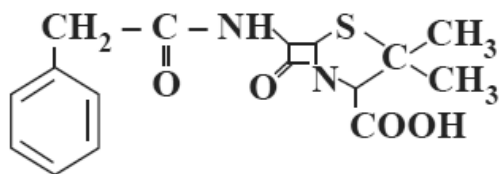
Q.11 Find out all the functional groups present in the following polyfunctional compounds. (3)
(1) Dopamine, a neurotransmitter that is deficient in Parkinson's disease.



(2) Thyroxine, the principal thyroid hormone.



(3) Penicillin G, a naturally occurring antibiotic.



Section D Attempt any One

Q.12 Identify the functional group in the following compounds : (4)

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|----------------------|--------------------|----------------|-------------------|
| (1) n-Propyl alcohol | (2) Acetone | (3) Acetylene | (4) Ethyl alcohol |
| (5) Acetaldehyde | (6) Ethylethanoate | (7) Ethanamine | |

Q.13 Write three resonance structures for $\text{CH}_3 - \text{CH} = \text{CH} - \text{CHO}$. Indicate their relative stabilities and explain. (4)