



CSIR-UGC-NET/JRF | GATE CHEMISTRY

TEST : NATURAL PRODUCTS , PHOTOCHEMISTRY & IUPAC NOMENCLATURE

Time : 01: 00 Hour

Date : 13-03-2018

M.M. : 80

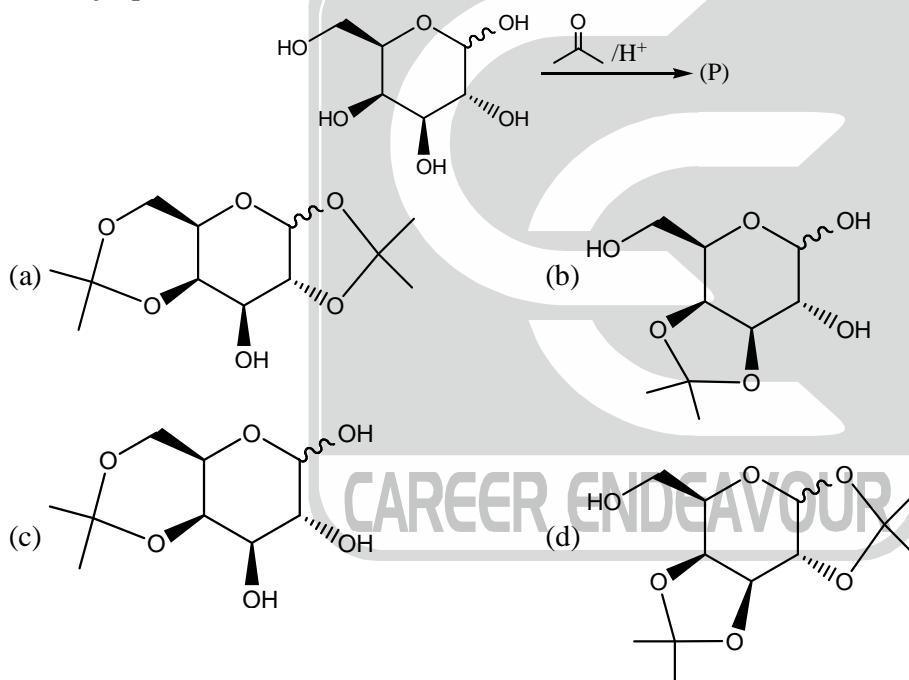
**INSTRUCTION :**

- There are Two Parts. Part-A contains 10 objective type questions, each question carry 2 marks and Part-B contains 15 objective type questions, each question carry 4 marks.
- There is negative marking, @ 25% will be deducted for each wrong answer.
- Attempt all the questions, use of calculator is not allowed.

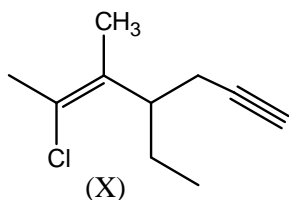
**PART - A**

- Which among the following pyrimidine base is present, both in DNA and RNA  
(a) Thymine                      (b) Uracil                      (c) Cytosine                      (d) Guanine

- The major product (P) is



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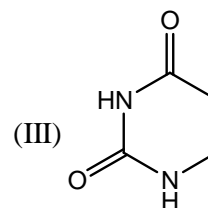
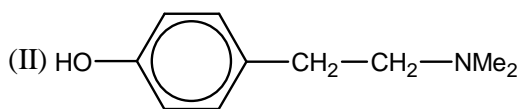
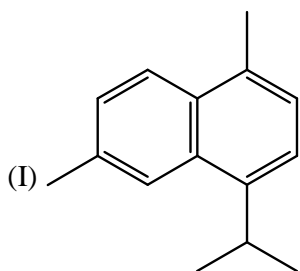


The IUPAC name of the compound (X) is

- 6-Chloro-4-ethyl-5-methylhept-5-en-1-yne
- 6-Chloro-4-ethyl-5-methylhept-1-yn-5-ene
- 2-Chloro-4-ethyl-3-methylhept-2-en-6-yne
- 2-Chloro-4-ethyl-3-methylhept-6-yn-2-ene



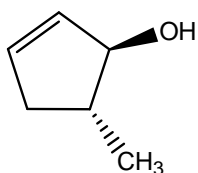
4. Match the following structures with their respective classes



(a) I-terpene, II-Alkaloid, III-DNA Base  
(c) I-steroids, II-DNA base, III-alkaloid

(b) I-terpene, II-Alkaloid, III-RNA Base  
(d) I-steroids, II-Alkaloid, III-RNA Base

5. The IUPAC name of the compound

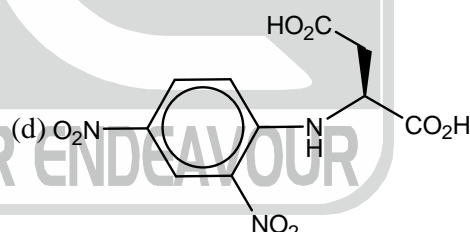
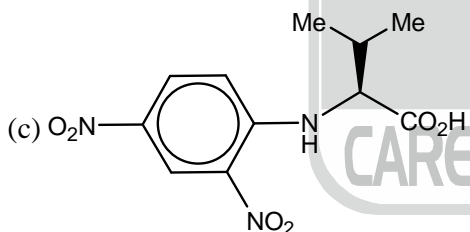
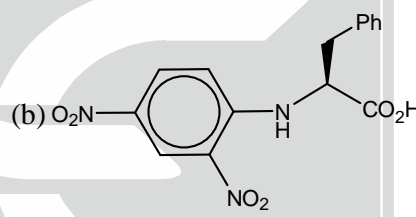
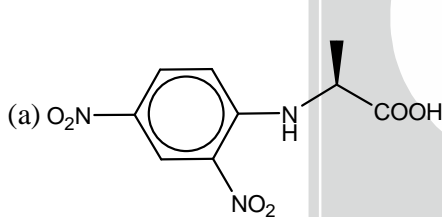


is

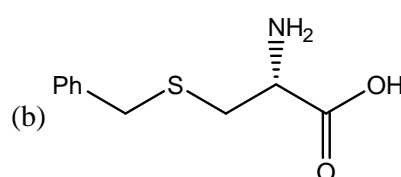
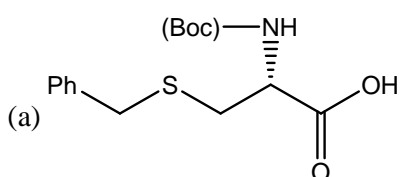
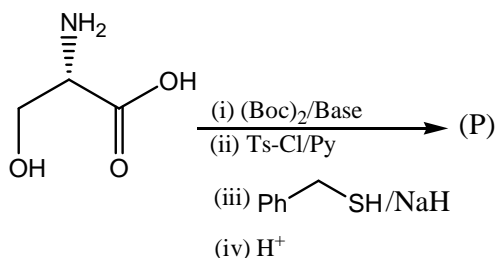
(a) (4R)-Methylcyclopent-1-en-2R-ol  
(c) (5R)-Methylcyclopent-2-en-1S-ol

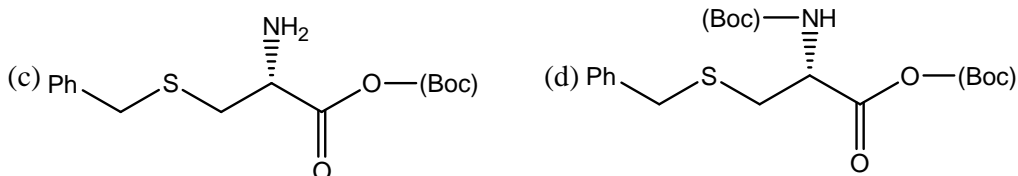
(b) (2S)-Methylcyclopent-4-en-1R-ol  
(d) (5S)-Methylcyclopent-2-en-1R-ol

6. A pentapeptide Ala-Phe-Val-Phe-Asp is treated with Edmann reagent to give a product (A) and tetrapeptide, (B). Tetrapeptide (B) on reaction with Sanger's reagent followed by hydrolysis give product (C). The product (C) is

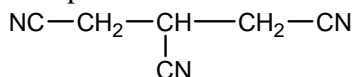


7. The product (P) in the following reaction is





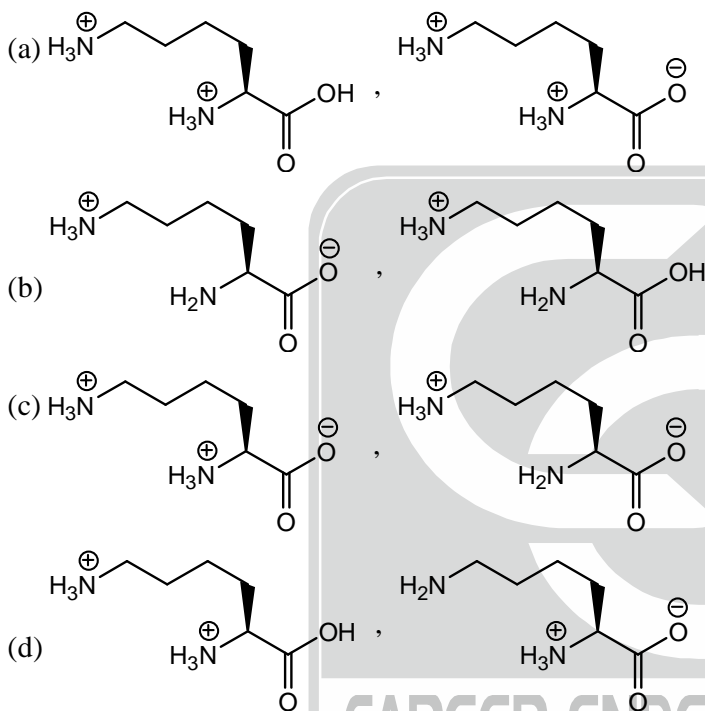
8. The IUPAC name of the compound



is

- (a) 1, 2, 3-propanetrinitrile (b) 1, 2, 3-tricyanopropane  
(c) 3-cyano-1, 5-dinitrilepentane (d) propane-1, 2, 3-tricarbonitrile

9. Which among the following structures of Lys will exist at pH = 5 and pH = 10 respectively

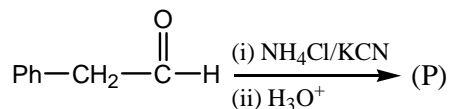


10. Which among the following is a non-radiative spin-allowed process

- (a) ISC (b) fluorescence (c) phosphorescence (d) IC

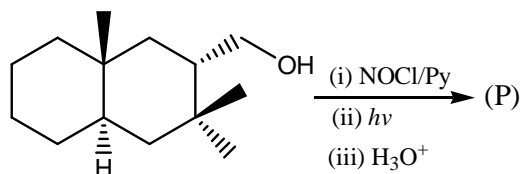
### PART - B

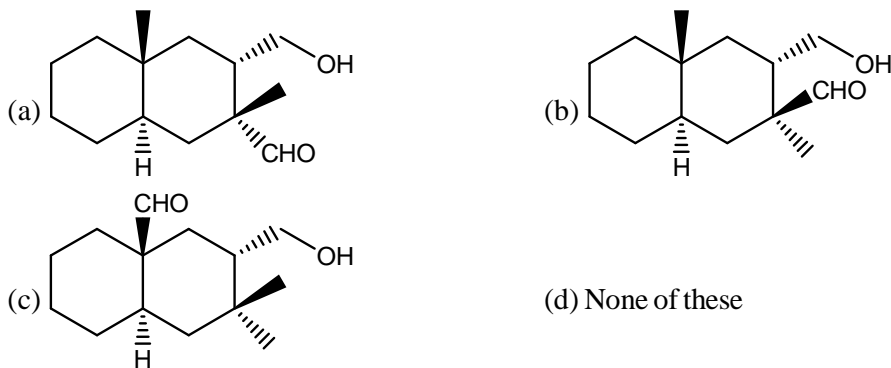
11. The product (P) is



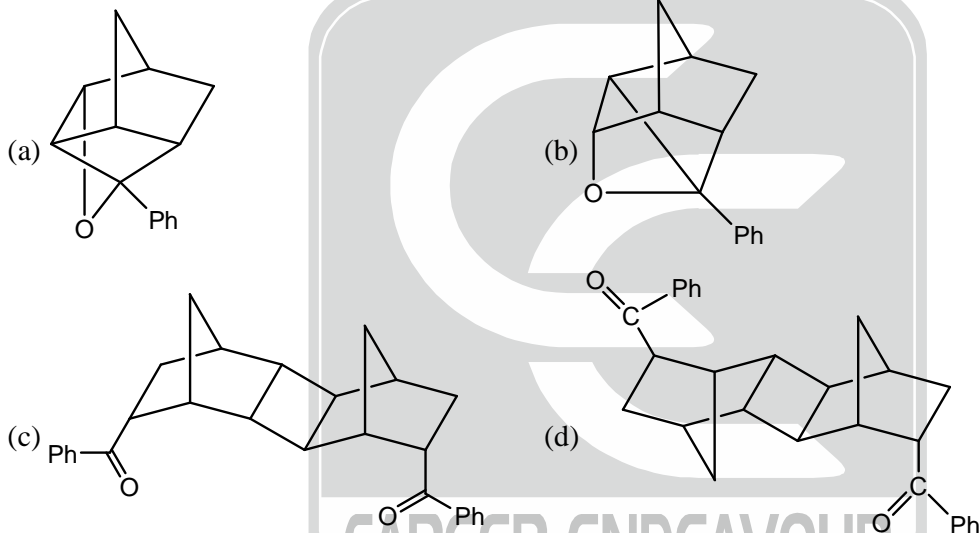
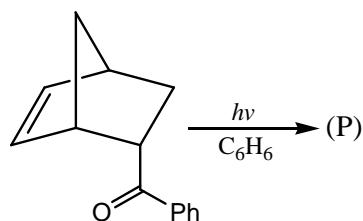
- (a) Ala (b) Val (c) Tyr (d) Phe

12. The major product (P) is

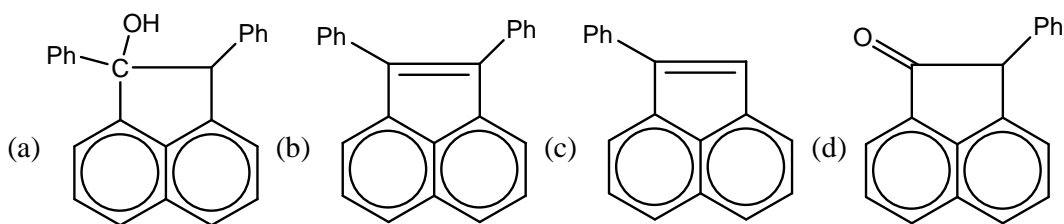
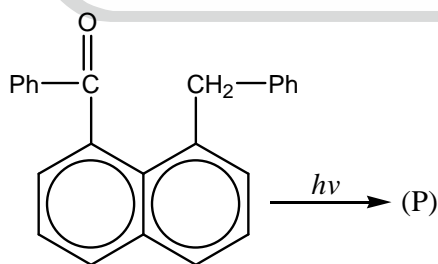




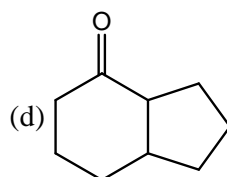
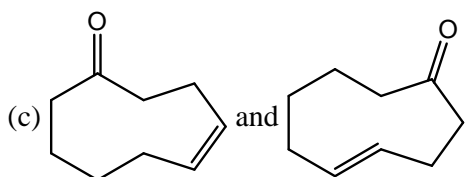
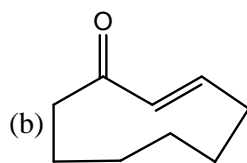
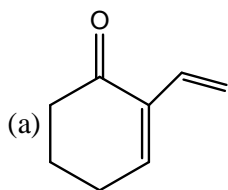
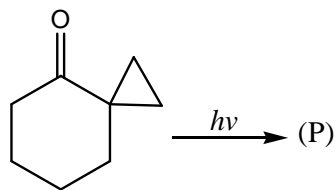
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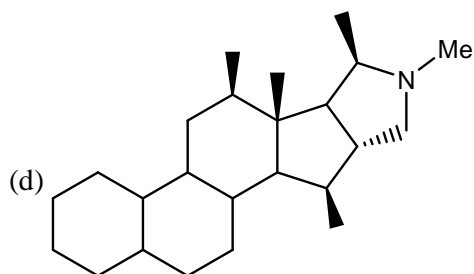
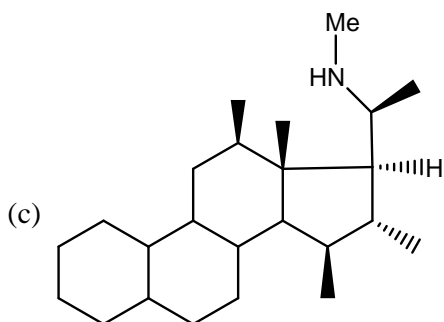
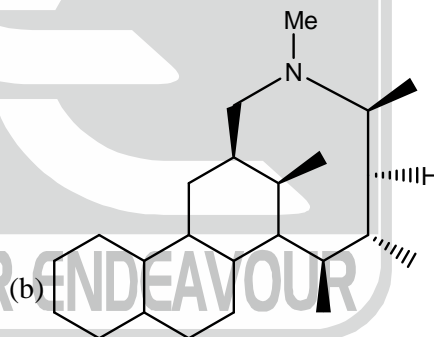
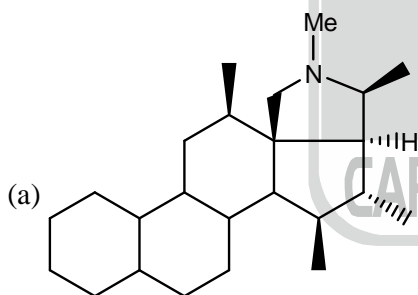
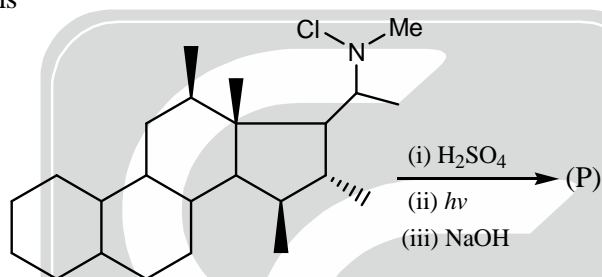
14. The major product (P) is



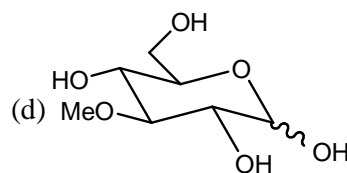
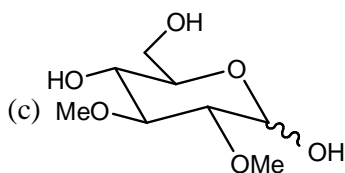
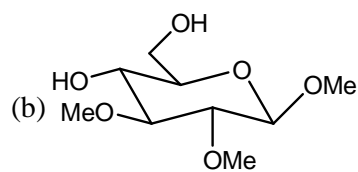
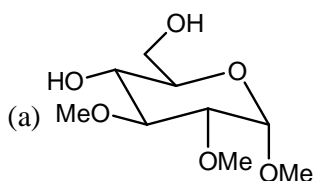
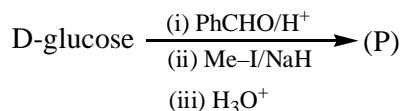
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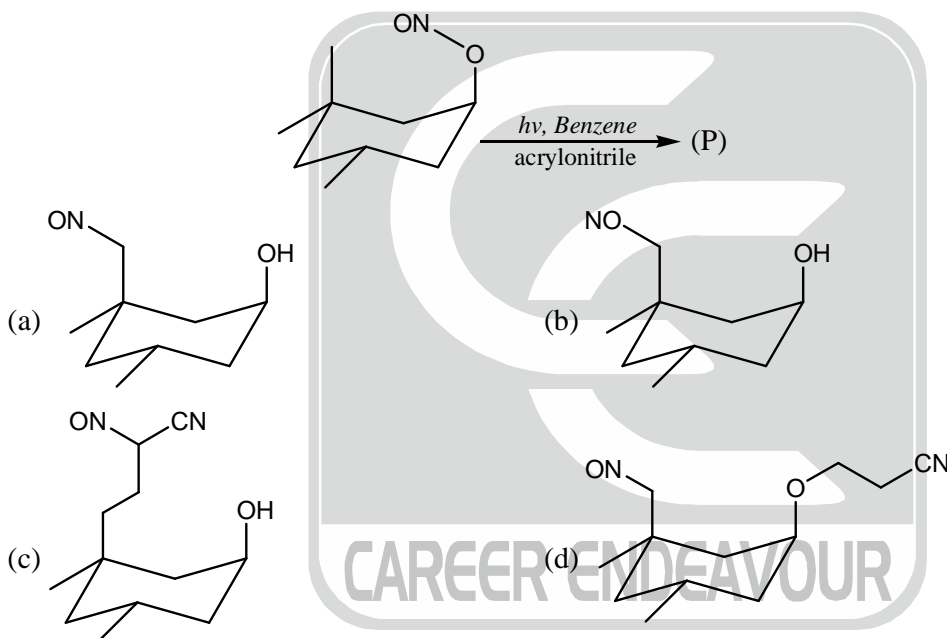
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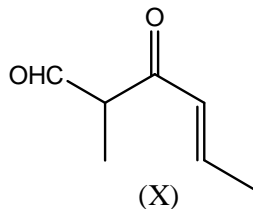
18. In a carboxymethyl cellulose column at pH = 5.0, Ala, Asp, Arg will elute in the order

- (a) Ala, Asp, Arg      (b) Asp, Arg, Ala      (c) Arg, Asp, Ala      (d) Asp, Ala, Arg

19. The major product (P) is

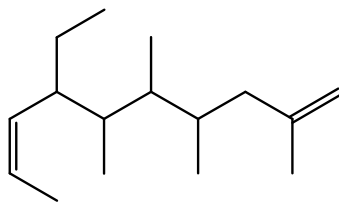


20. The IUPAC name of the compound (X) is



- (a) 3-keto-2-methylhex-4-enal      (b) 5-formylhex-2-en-3-one  
(c) 5-methyl-4-oxohex-2-en-5-al      (d) 3-keto-2-methylhex-5-enal

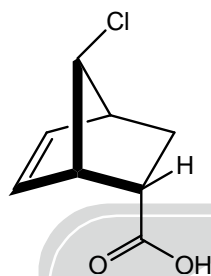
21. The IUPAC name of



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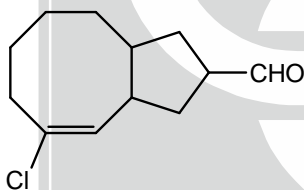
- (a) 2, 4, 5, 6-Tetramethyl-7-ethyldeca-1, 7-diene
- (b) 7-Ethyl-2, 4, 5, 6-tetramethyldeca-1, 8-diene
- (c) 4-Ethyl-5, 6, 7, 9-tetramethyldeca-2, 9-diene
- (d) none of these

22. The correct IUPAC name of the below compound is



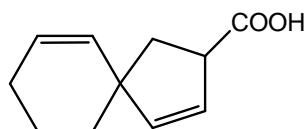
- (a) 7-chlorobicyclo [2. 2.1] hept-5-ene-2R-carboxylic acid
- (b) 7-chlorobicyclo [2. 2.1] hept-5-ene-2S-oic acid
- (c) 7-chlorobicyclo [2.2.1] hept-5-ene-2S-carboxylic acid
- (d) 7-chlorobicyclo [2.2. 1] hept-3-ene-1S-carboxylic acid

23. The correct IUPAC nomenclature for the compound (X) is



- (a) 3-Chlorobicyclo [0. 3. 6] undec-2-ene-10-carbaldehyde
- (b) 3-Chlorobicyclo [6. 3. 0] undec-2-en-10-carbaldehyde
- (c) 3-Chlorobicyclo [6. 3. 0] undec-2-en-10-al
- (d) 3-Chlorobicyclo [6. 3. 0] undec-2-ene-10-carbaldehyde

24. The correct IUPAC nomenclature is



- (a) Spiro [4. 5]dec-3, 6-diene-2-carboxylic acid
- (b) Spiro[4.5] deca-3, 6-diene-2-carboxylic acid
- (c) Spiro [5. 4] deca-3, 6-dien-2-oic acid
- (d) Spiro [5. 4]deca-2, 5-diene carboxylic acid

25. Among the following statements about the comphor, which one is correct

- (a) it is an alkaloid
- (b) it is a monoterpene with two isoprene units
- (c) it is a sesquiterpene with three isoprene units
- (d) it is a diterpene with four isoprene units





# CAREER ENDEAVOUR

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3. Attempt all the questions, use of calculator is not allowed.

**[ANSWERS]**

**PART-A**

1. (c)	2. (d)	3. (a)	4. (b)	5. (c)	6. (b)	7. (b)
8. (d)	9. (c)	10. (d)				

**PART-B**

11. (d)	12. (a)	13. (b)	14. (a)	15. (c)	16. (a)	17. (c)
18. (d)	19. (c)	20. (a)	21. (b)	22. (c)	23. (d)	24. (b)
25. (b)						

