

# VIDYAPEETH



BATCH CODE: 19-PJ301EA 2025

SUBJECT NAME: CHEMISTRY

CHAPTER NAME:

Organic chemistry IUPAC Nomenclature

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Lecture No.

01

By – Swapnil Sir



# Today's Goal

## Subtopic

# degree of carbon & Hydrogen

# D.B.E.

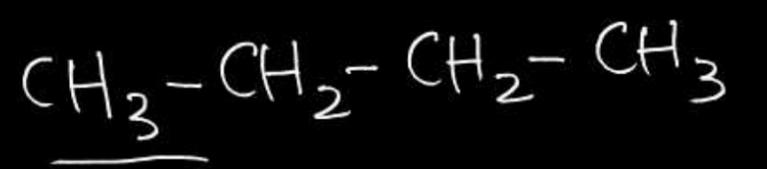
# structural determination.

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# Organic Chemistry ⇒ Essentialy condensation

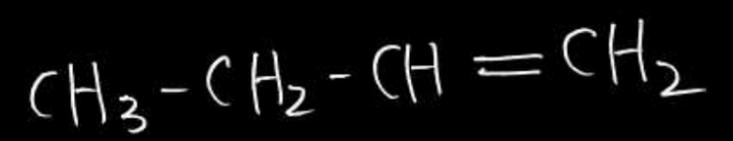


⇒ Condensed formula



#

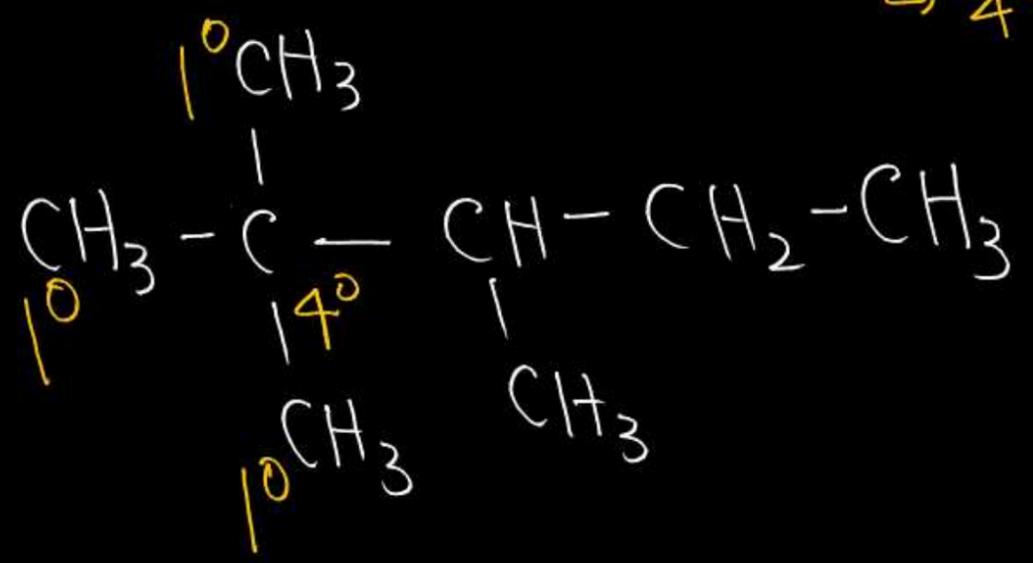
Bond-line notation



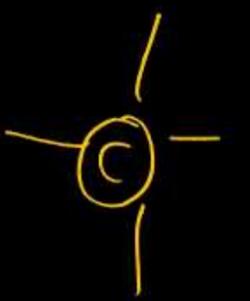
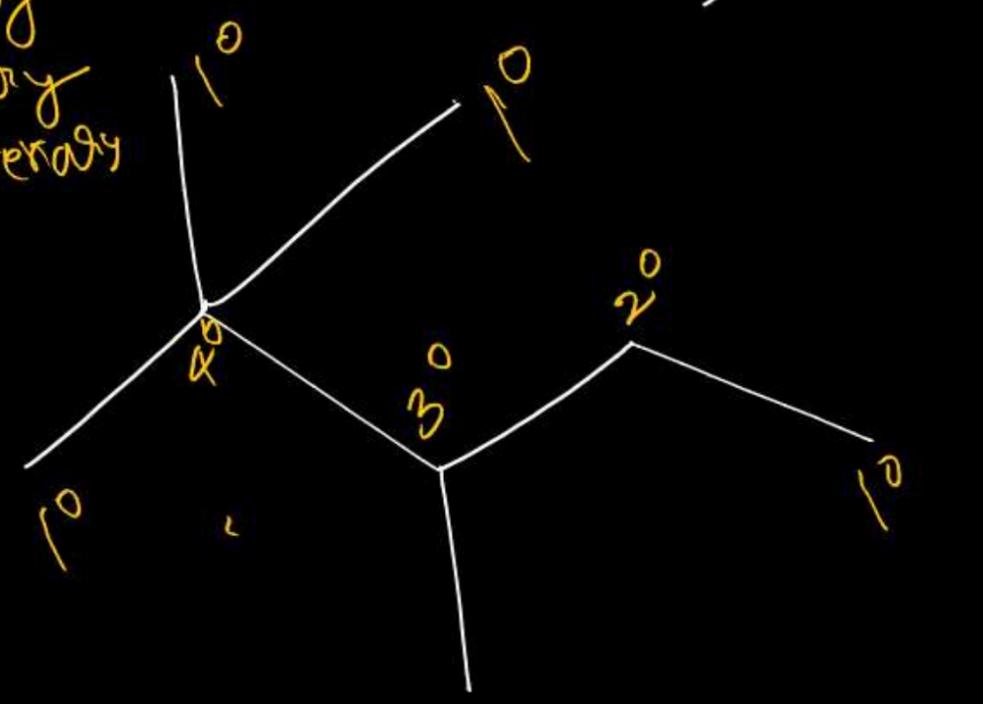
#① degree of Carbon

- 1° → Primary
- 2° → Secondary
- 3° → Tertiary
- 4° → Quaternary

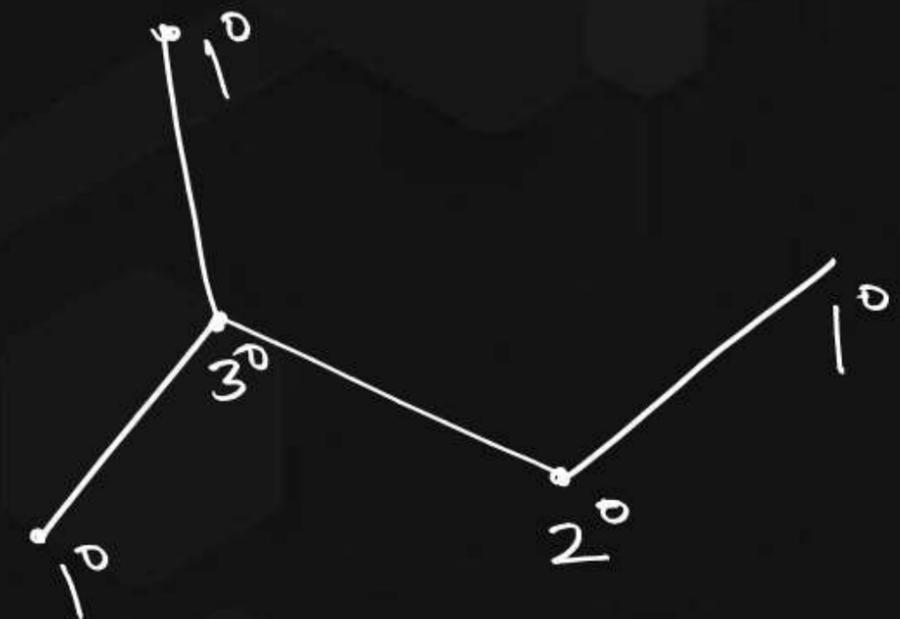
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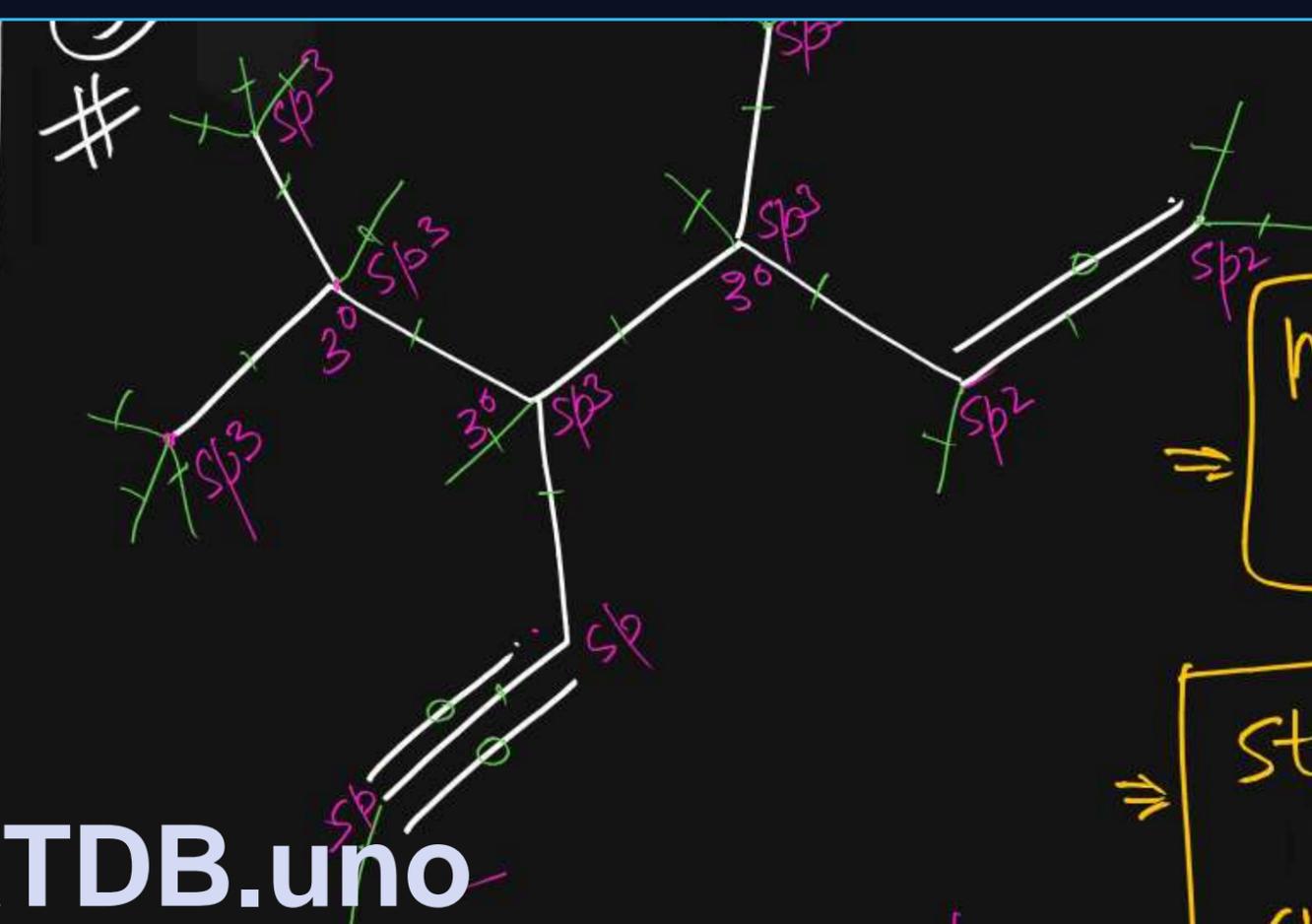
⇒



# Hydrogen atom joined to carbon atom



Primary hydrogen  
 Secondary hydrogen  
 Tertiary hydrogen



no. of  $\sigma$  &  $\pi$  bonds

State of Hybridisation on each Carbon

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$\sigma = 25$	$\pi = 3$
$\pi$	P $\pi$ -P $\pi$
	$\sim sp^3-sp^3 \sim sp^3-s$ $\sim sp^3-sp^2 \sim sp^2-s$ $\sim sp^3-sp \sim sp-s$ $\sim sp-sp$ $\sim sp^2-sp^2$

Overlapping involved for  $\sigma$  bonds &  $\pi$  bonds



# # Double Bond equivalence (D.B.E.)

{ degree of unsaturation }

n = no. of carbons

$$\text{M.f.} \quad \frac{(2n+2) - (\text{no. of H atoms or equivalents})}{2}$$

DBE  $\Rightarrow$  Zero

no cycle  
no unsaturation

DBE  $\Rightarrow$  1

1 - cycle  
1 - unsaturation (double bond)

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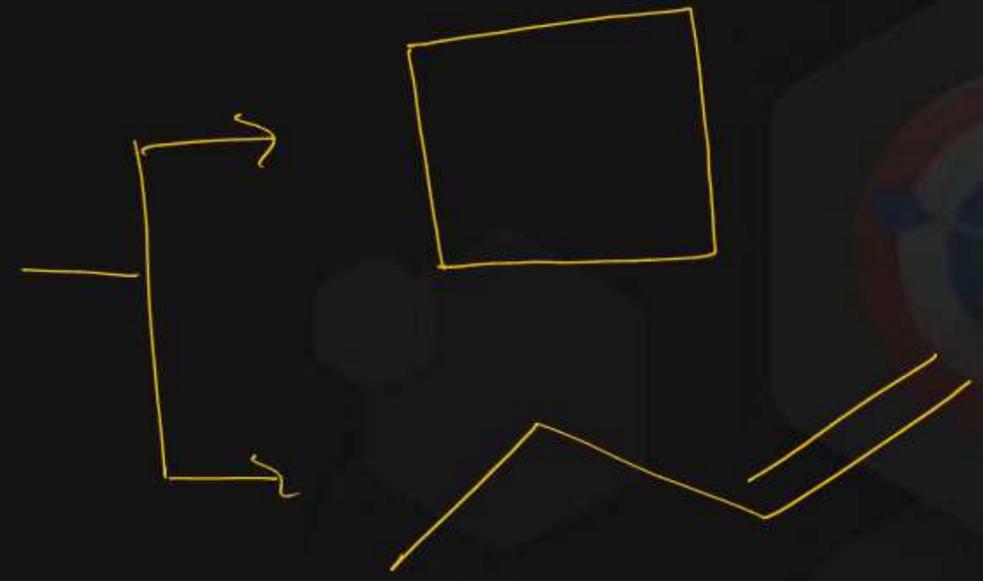


$$\frac{(4 \times 2 + 2) - 8}{2}$$

= 1



DBE = 1

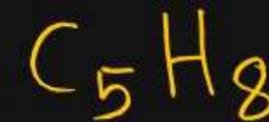




$$\underline{\underline{D_0 B_0 E_0}} = 2$$

{ cyclic ring considered as 1 DB }

Expo



$$DBE = \frac{(2 \times 5 + 2) - 8}{2} = 2$$

→ IR, 1 DB

→ 2 R

→ 2 double bond

→ 1 TB

①



③

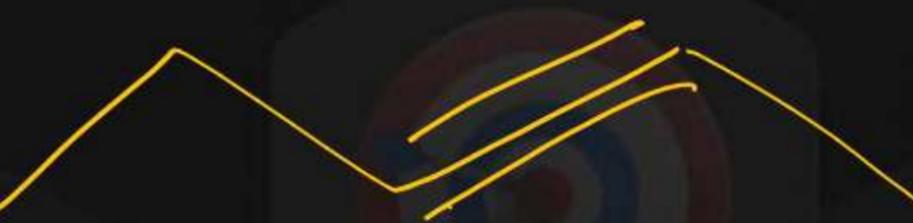


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②



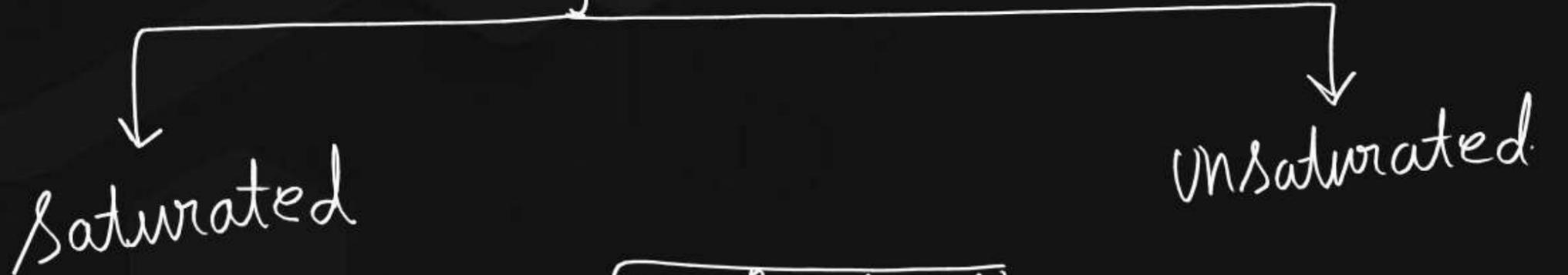
④





#

organic compounds

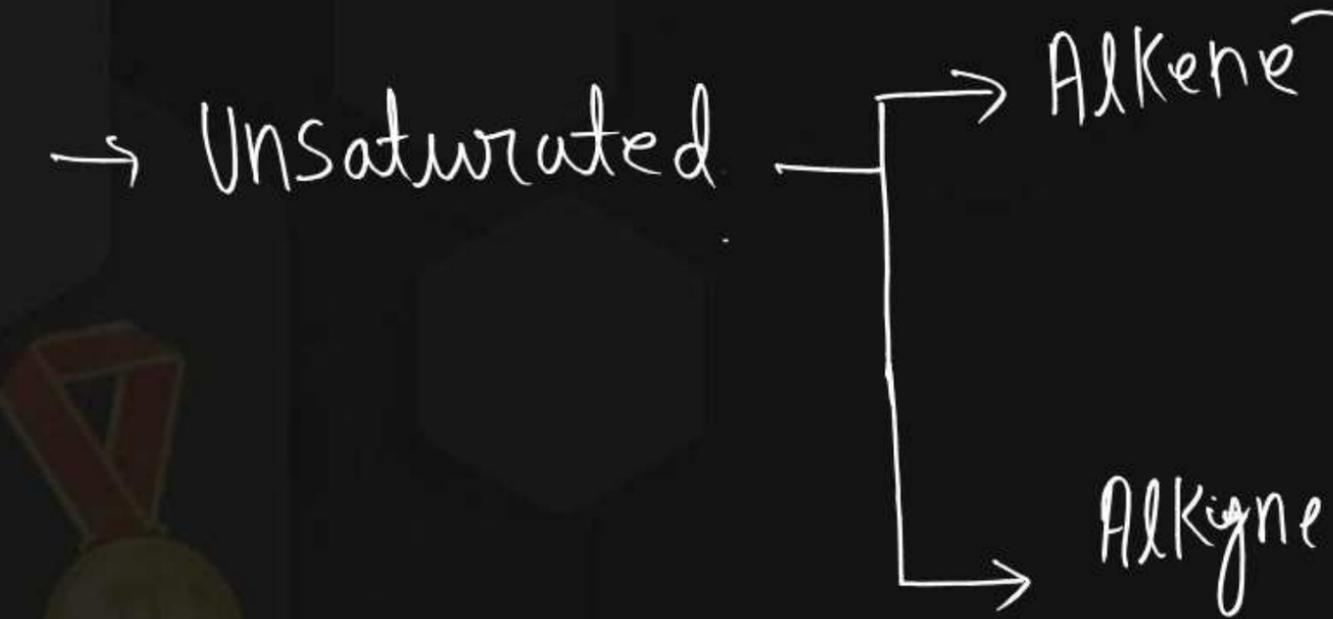


organic compound

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# # Hydrocarbons →



**\* Aromatic**

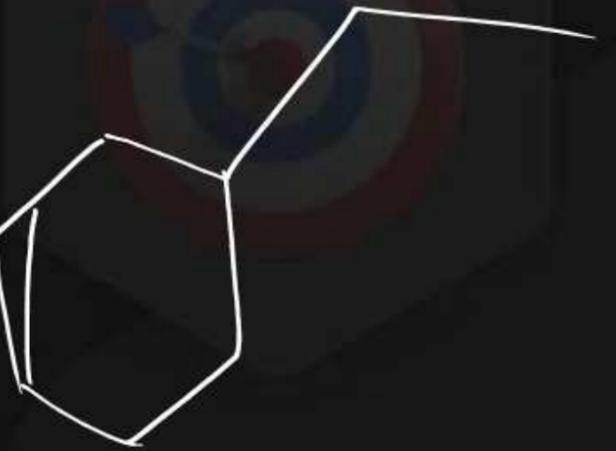
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- \* cyclic
- \* open chain
- \* cycle + chain

U 9 N 9 5 1 14

functional group

↳ atom / groups of atom

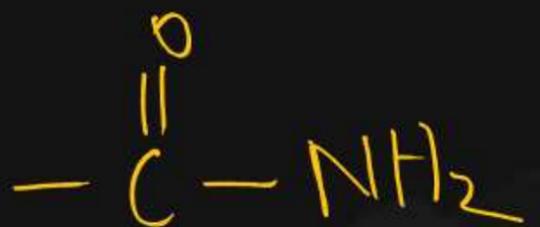
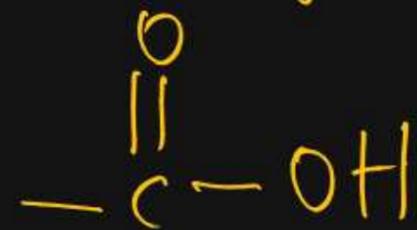
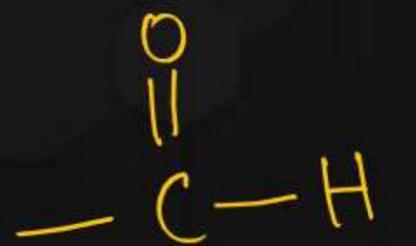




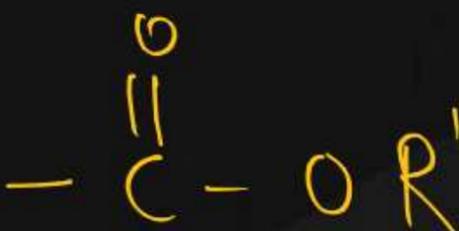
# Hydrocarbons



# Containing functional group



derivatives of carboxylic acid



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# I<sub>o</sub>U<sub>o</sub>P<sub>o</sub>H<sub>o</sub>C<sub>o</sub> Nomenclature



Prefix + Root Word + Suffix-I + Suffix-II

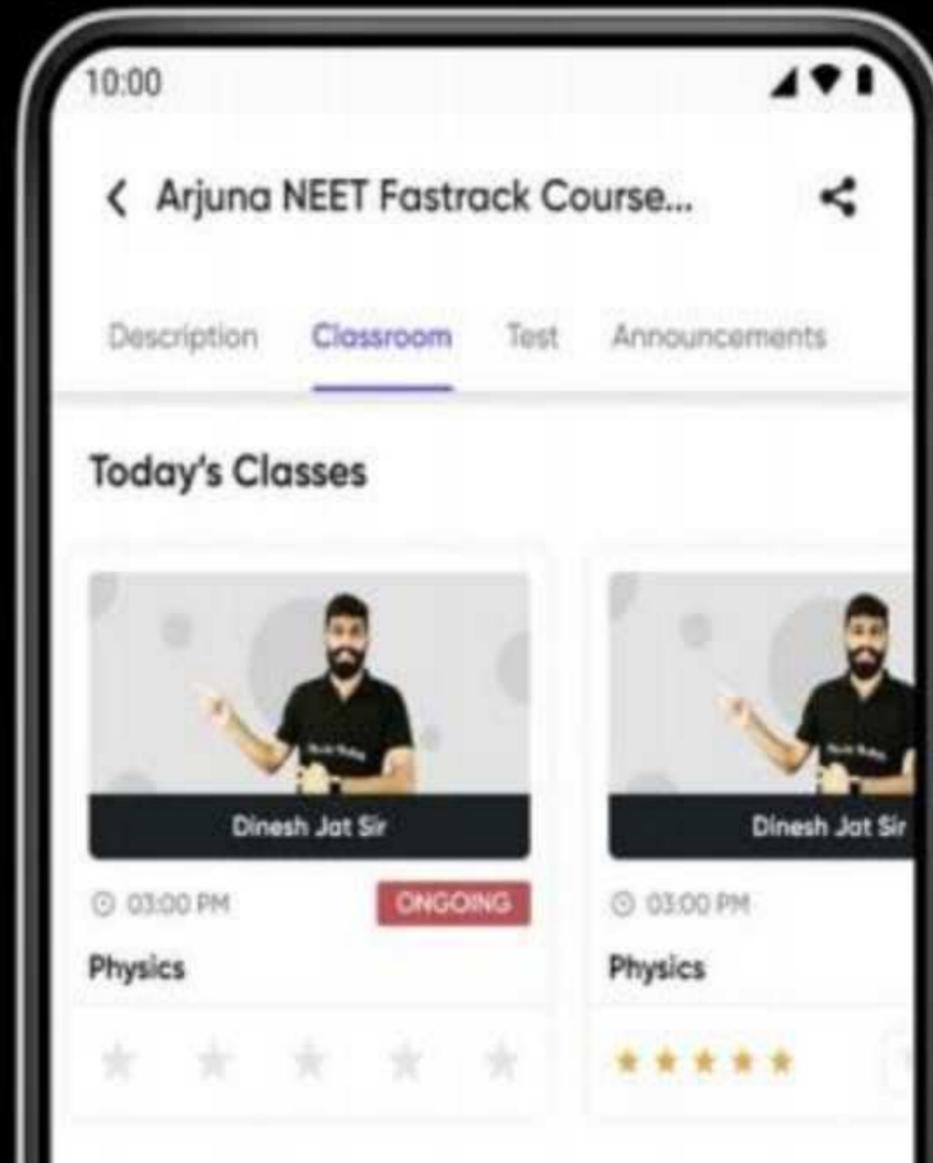
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**VIDYAPEETH**

**WORK, POWER AND ENERGY**

**DPP-1** (JAP/046)

[Introduction, Definition of work, work done by constant force, Area under force-displacement curve]

1. A particle moves from position  $\vec{r}_1 = 3\hat{i} + 2\hat{j} - 6\hat{k}$  to position  $\vec{r}_2 = 14\hat{i} + 13\hat{j} + 9\hat{k}$  under the action of force  $-4\hat{i} + \hat{j} + 3\hat{k}$  N. The work done by this force will be

(A) 100 J  
(B) 50 J

(A)  $8 \times 10^{-2}$  joules  
(B)  $16 \times 10^{-2}$  joules  
(C)  $4 \times 10^{-4}$  joules

*Thank You!!!!*

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