

JEE-ADVANCED-2013-P1-Model

Time:09:00 A.M to 12:00 Noon

IMPORTANT INSTRUCTIONS**Max Marks: 180****PHYSICS:**

Section	Question Type	+Ve Marks	- Ve Marks	No.of Qs	Total marks
Sec – I(Q.N : 1 – 10)	Questions with Single Correct Choice	2	0	10	20
Sec – II(Q.N : 11 – 15)	Questions with Multiple Correct Choice	4	-1	5	20
Sec – III(Q.N : 16 – 20)	Questions with Integer Answer Type	4	-1	5	20
Total				20	60

CHEMISTRY:

Section	Question Type	+Ve Marks	- Ve Marks	No.of Qs	Total marks
Sec – I(Q.N : 21 – 30)	Questions with Single Correct Choice	2	0	10	20
Sec – II(Q.N : 31 – 35)	Questions with Multiple Correct Choice	4	-1	5	20
Sec – III(Q.N : 36 – 40)	Questions with Integer Answer Type	4	-1	5	20
Total				20	60

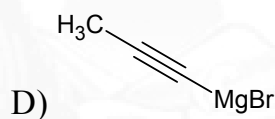
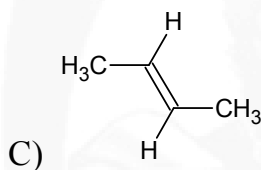
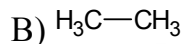
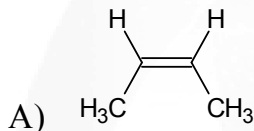
MATHEMATICS:

Section	Question Type	+Ve Marks	- Ve Marks	No.of Qs	Total marks
Sec – I(Q.N : 41 – 50)	Questions with Single Correct Choice	2	0	10	20
Sec – II(Q.N : 51 – 55)	Questions with Multiple Correct Choice	4	-1	5	20
Sec – III(Q.N : 56 – 60)	Questions with Integer Answer Type	4	-1	5	20
Total				20	60

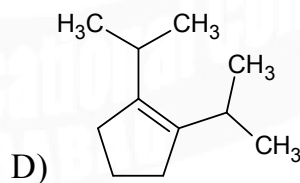
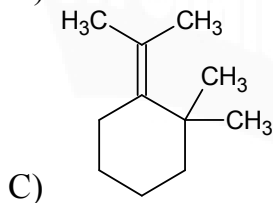
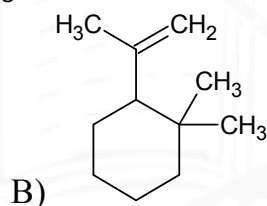
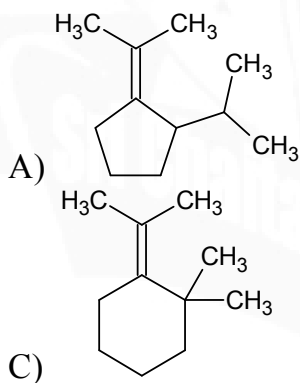
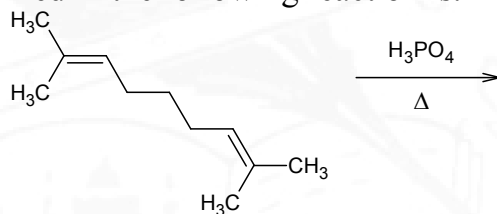
CHEMISTRY:**Max.Marks : 60****SECTION I****Single Correct Answer Type**

This section contains **10 multiple choice questions**. Each question has four choices (A), (B), (C) and (D) out of which **ONLY ONE is correct**.

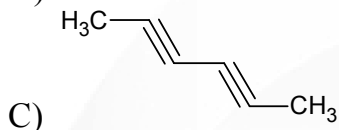
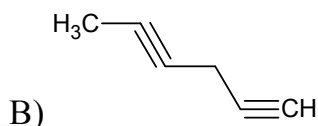
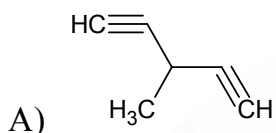
21. Which product (one of the product) is formed when propyne upon reaction with methyl magnesium bromide in dry ether?



22. The major product formed in the following reaction is:

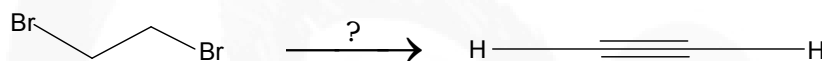


23. Which compound is reduced to diene upon reaction with Na / liq.NH₃?



D) All of these

24. The reagent(s) for the following conversion,



Is:

A) Alcoholic KOH

B) Alcoholic KOH followed by NaNH₂

C) Aqueous KOH followed by NaNH₂

D) Zn/CH₃OH

25. But-2-ene can be obtained by electrolysis of an aqueous solution of

A) 2,3-dimethyl maleic acid

B) 2,3- dimethyl fumaric acid

C) 2,2- dimethyl butanedioic acid

D) 2,3- dimethyl butanedioic acid

26. Arrange the following alkanes in decreasing order of their heats of combustion.

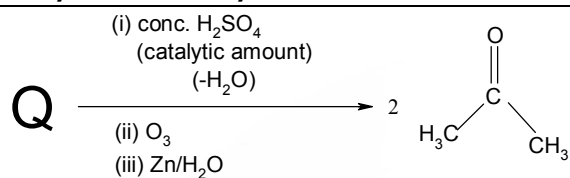
(i) Neo-pentane (ii) Iso pentane (iii) n-pentane

A) i > ii > iii

B) iii > i > ii

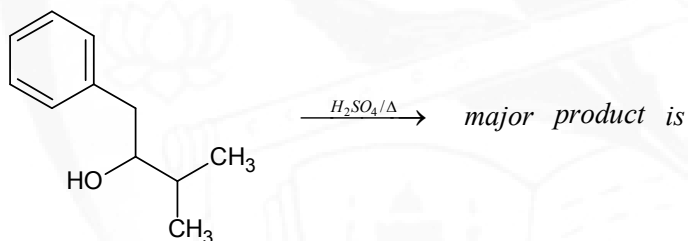
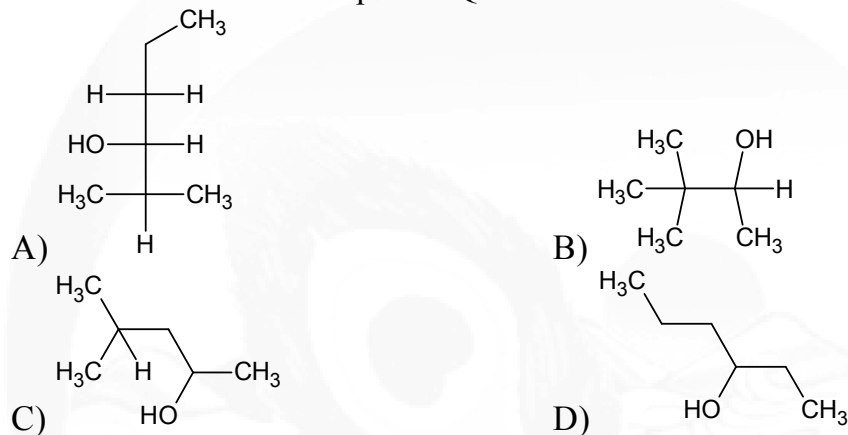
C) iii > ii > i

D) i > iii > ii

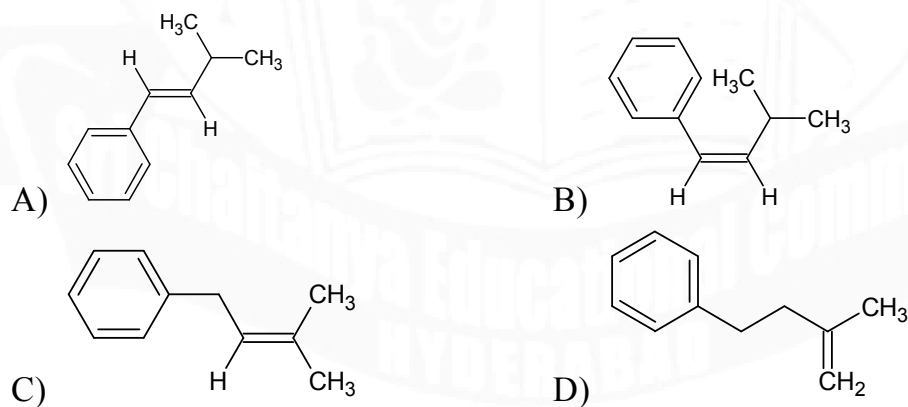


27.

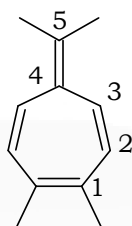
The structure of the compound Q is



28.

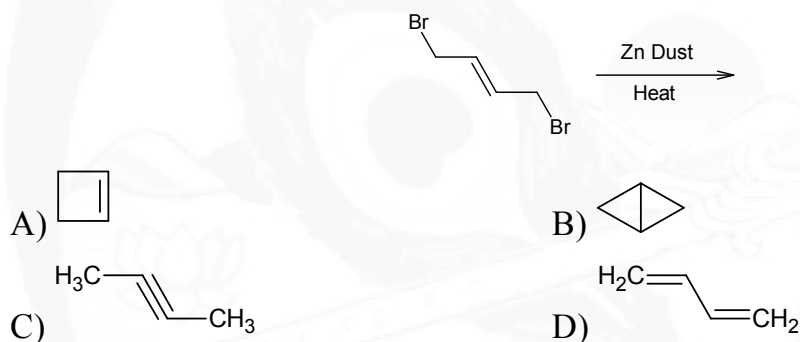


29. Which is the most likely protonation site in the conjugated alkene shown below?



- A) 1 B) 2 C) 4 D) 5

30. The major product formed in the following reaction is;

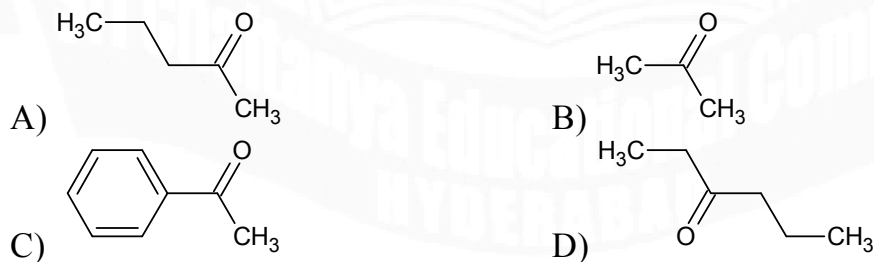


SECTION II

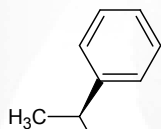
Multiple Correct Answer(s) Type

This section contains **5 multiple choice questions**. Each question has four choices (A), (B), (C) and (D) out of which **ONE or MORE are correct**.

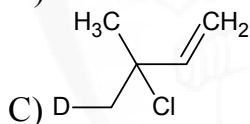
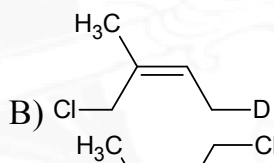
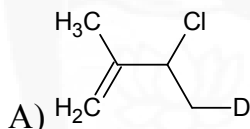
31. Which of the following compound(s) obtained as the only product after hydration of suitable alkyne with $\text{dil. H}_2\text{SO}_4/\text{HgSO}_4$?



32. Propyne gives aqueous soluble salt with;
A) NaNH_2
B) 10% aqueous NaOH solution
C) Ammoniacal silver nitrate solution
D) Ammonical cuprous chloride solution
33. Which on photochemical monochlorination gives atleast one enantiomeric pair?
A) isopentane
B) Ethyl benzene



- C) $\text{H}_3\text{C}-\text{CH}(\text{Ph})-\text{CH}_2-\text{CH}_3$ (Optically pure) D) 2,3-di methyl butane
34. Which product(s) is/are formed when ISOPRENE (2-methyl-buta-1,3-diene) is treated with one equivalent of DCl ?



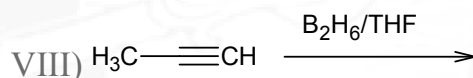
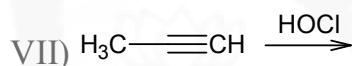
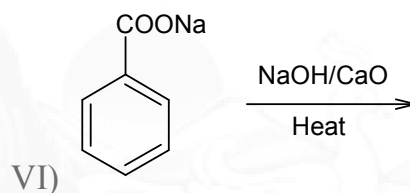
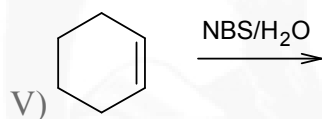
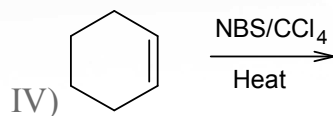
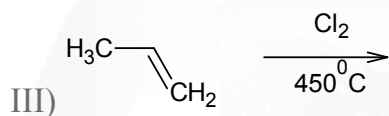
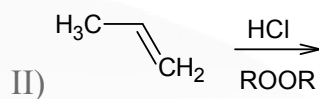
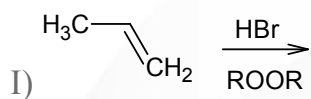
35. Which is/are stereo selective reaction(s)?
- A) Addition of bromine to 2-butyne
- B) Addition of Baeyer's reagent to cis-2-butene
- C) Reduction of 2-butyne with Lindlar catalyst
- D) Dehalogenation of meso-2,3-dibromobutane

SECTION III

Integer Answer Type

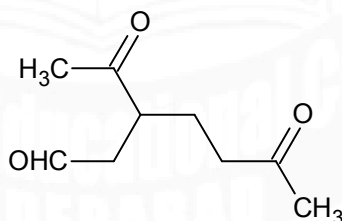
This section contains **5 questions**. The answer to each question is single digit integer, ranging from 0 to 9 (both inclusive).

36. How many of the following are, free radical addition reactions?

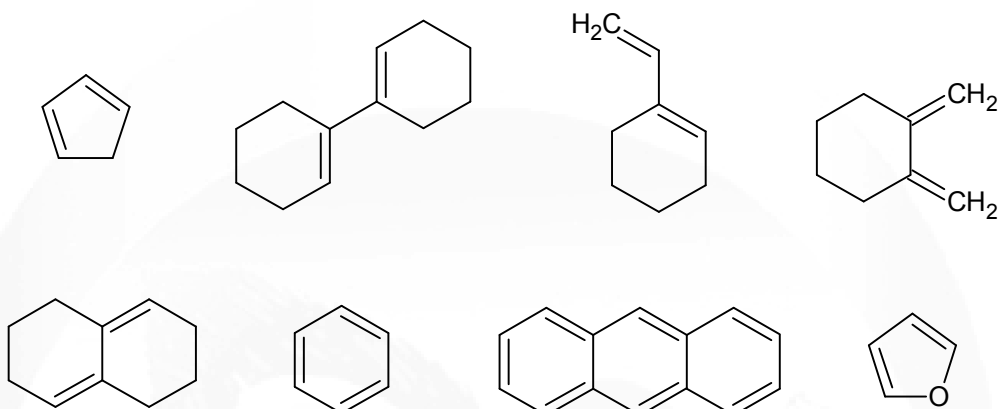


37. The total number of contributing structures showing hyperconjugation (involving C-H bonds) for Lemonene is $(10 \pm x)$. Find the value of 'X' by using following two statements.

- i) Lemonene on catalytic reduction (H_2/Pd) gives 1-isopropyl-4-methylcyclohexane
- ii) Upon reductive ozonolysis Lemonene gives formaldehyde and



38. How many of them will act as diene(s) in Diels-Alder reaction?



39. Acetylene can be prepared by heating iodoform (CHI_3) with silver powder. How many moles of silver iodide will be produced for the formation of 39 gm of acetylene?

40. The number of fractions obtained on fractional distillation of all of its possible photochemical monochlorinated products of the following compound, is

