

D 30889

(Pages : 3)

Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION  
OCTOBER 2012**

Chemical Engineering

CH 09 304/PTCH 09 303—ORGANIC CHEMISTRY

(2009 Admissions)

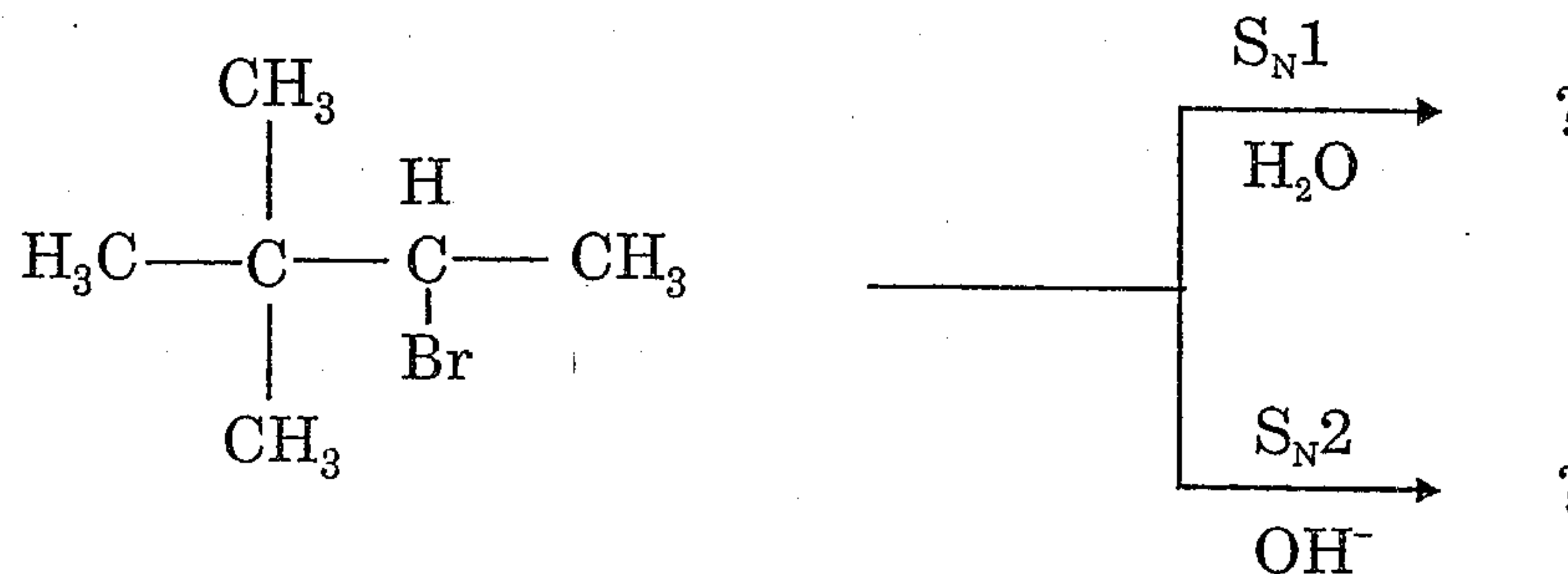
Time : Three Hours

Maximum : 70 Marks

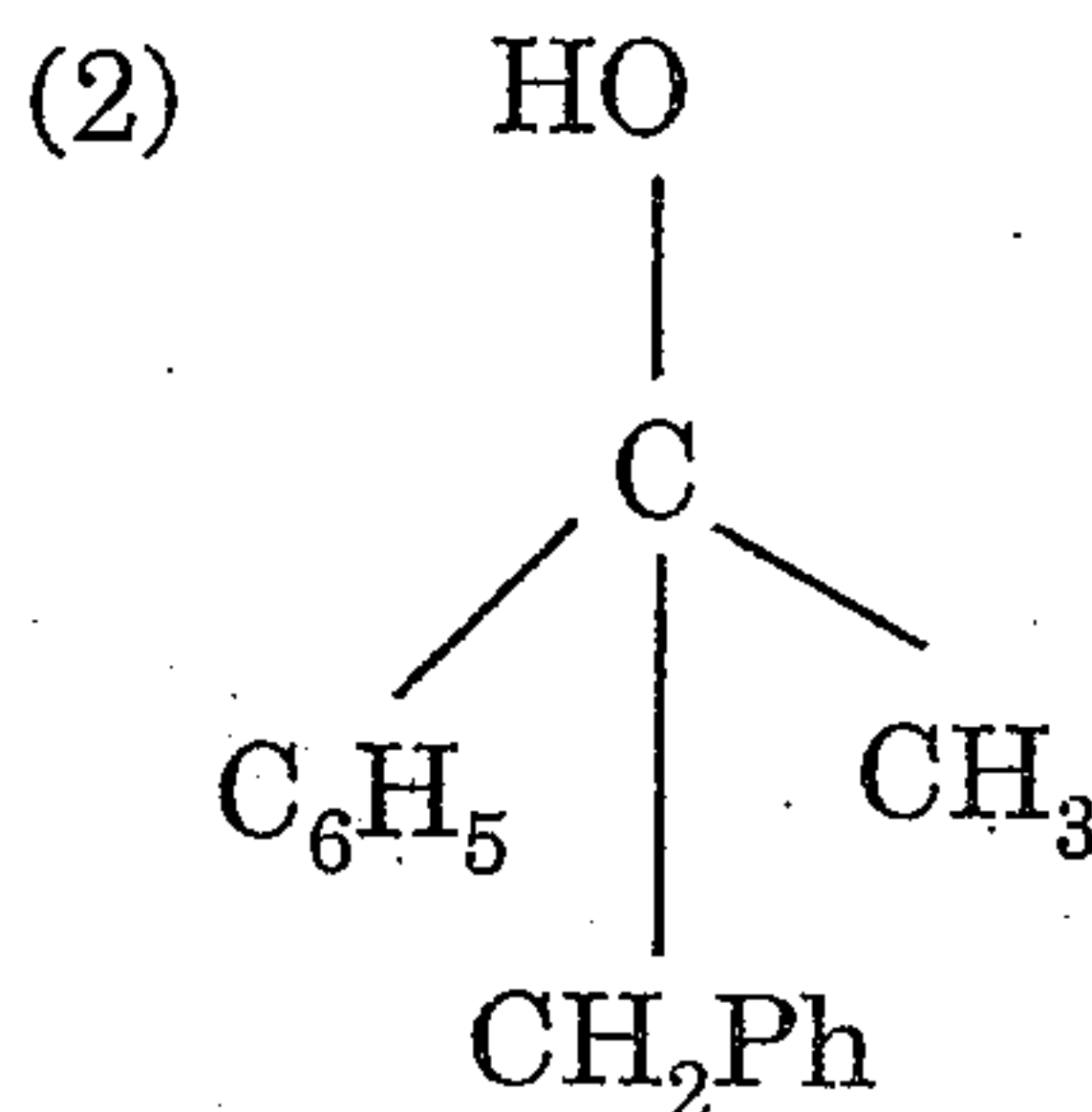
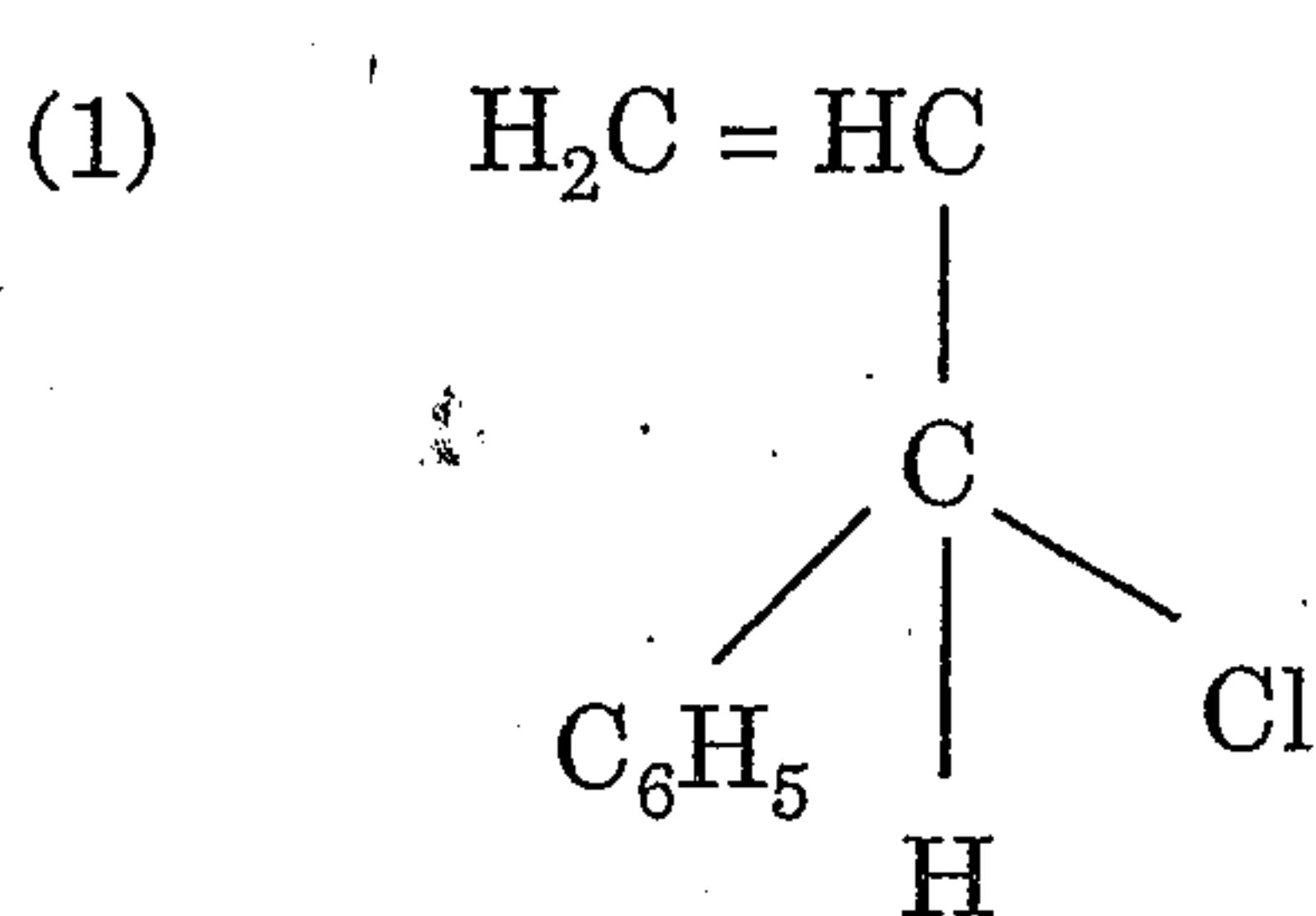
**Part A**

*Answer all questions.*

1. Predict and justify the products.



2. Assign the R or S configuration to each of the following :



3. How do you prepare ethocel ?  
4. Explain whether phenol is acidic or neutral or basic.  
5. What is meant by special isoprene rule ?

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

6. Convert (a) malonic acid to glutamic acid; and (b) ethyl cyanoacetate to a-methyl glutaric acid.  
7. Explain optical isomerism to tartaric acid.  
8. Explain oxazone formation reaction with mechanism.

Turn over

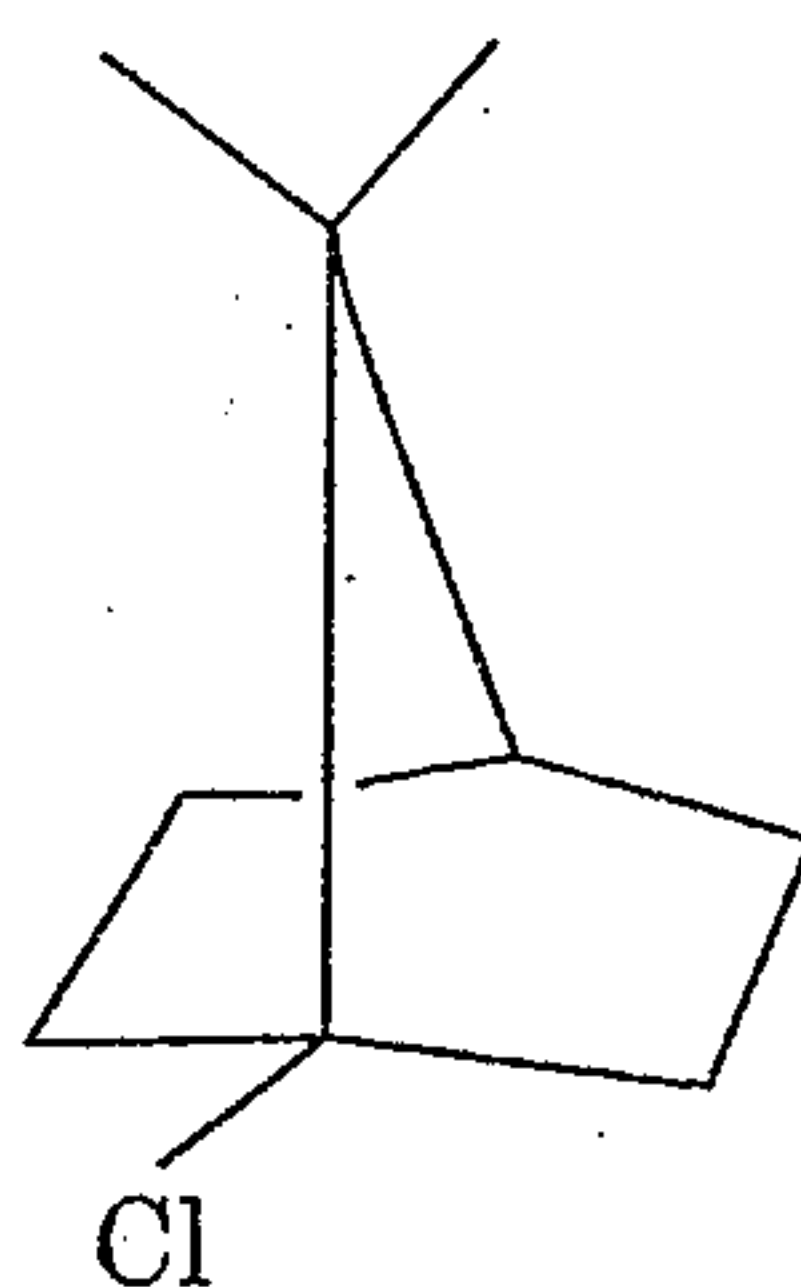
9. (a) What are Histones ? (b) What is meant by salting out of proteins ?  
 10. How do you prepare (i) Malachite green. (ii) Congo red ?  
 11. How do you synthesize pyrrole by Knorr pyrrole synthesis and explain one electrophilic reaction with suitable example.

(4 × 5 = 20 marks)

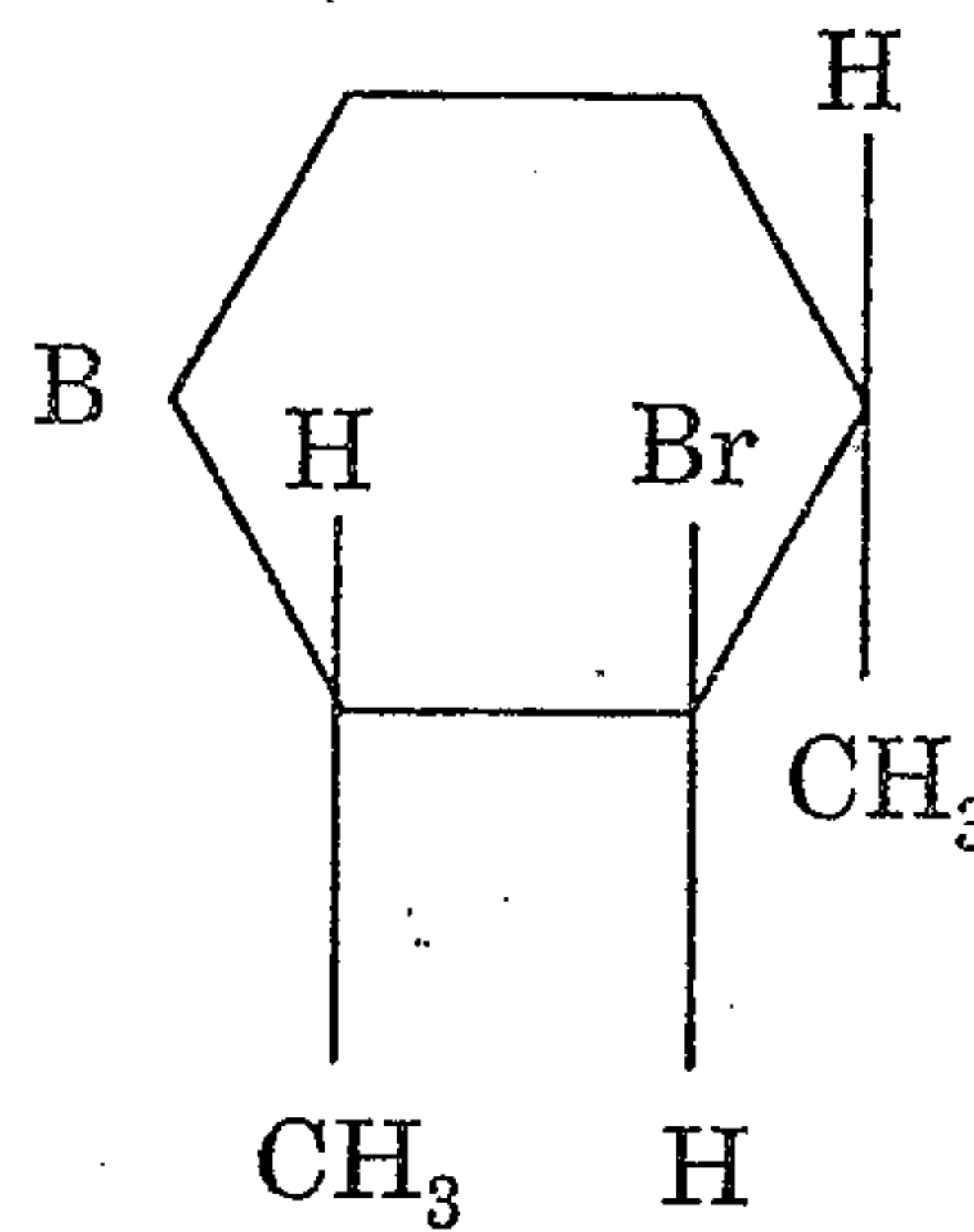
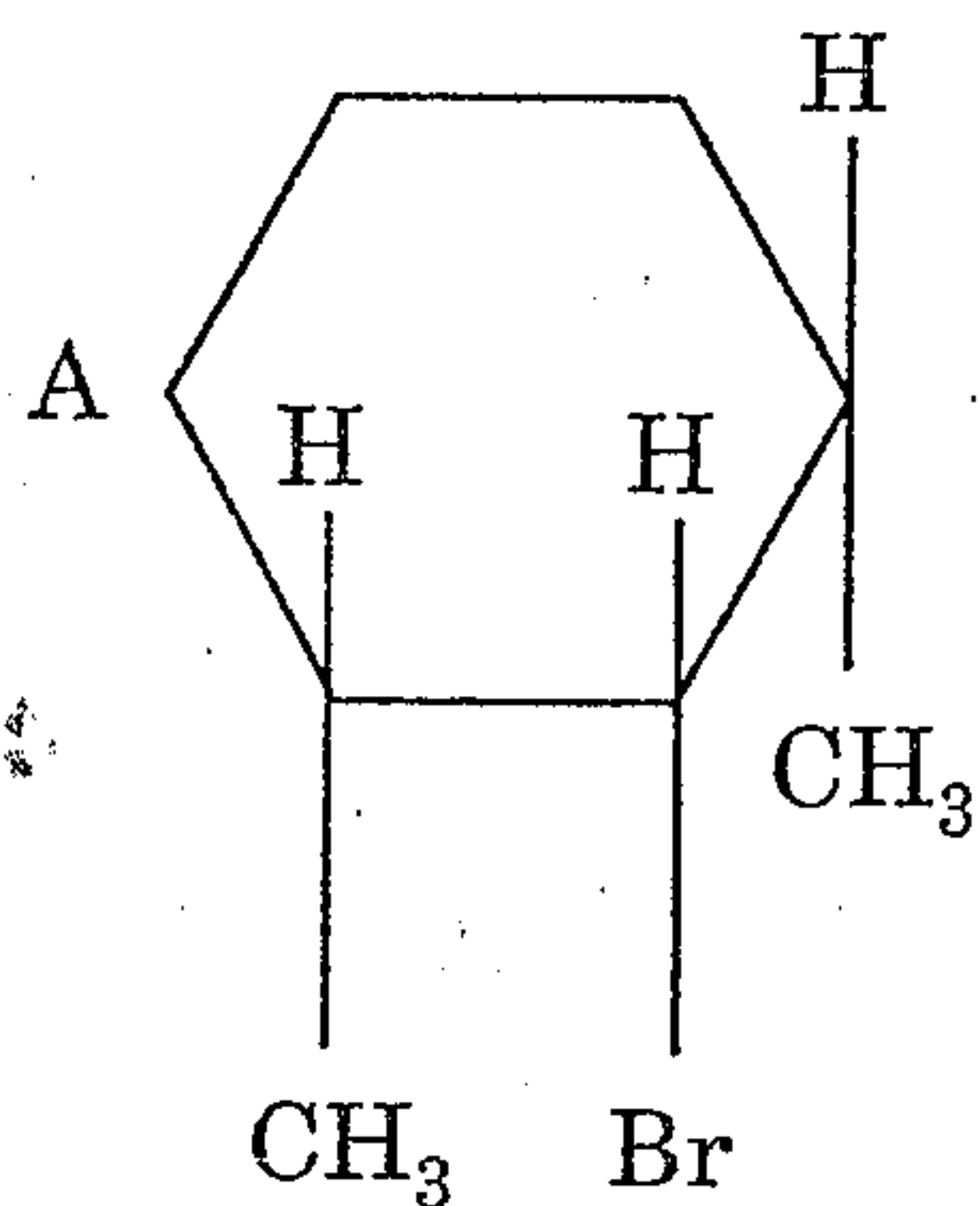
## Part C

*Answer section (a) or section (b) of each question.*

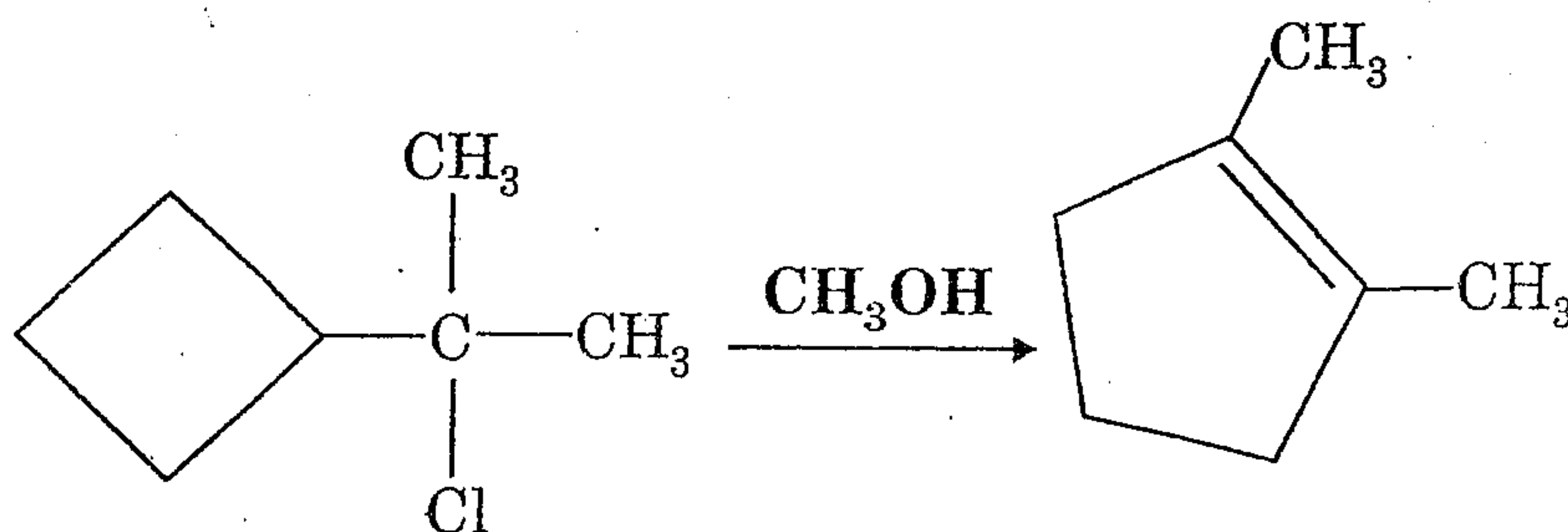
12. (a) (i) Explain why the following alkyl halide does not undergo a substitution reaction, regardless of the conditions under which the reaction is run.



- (ii) Which of the following compounds would you expect to be more reactive in an  $S_N2$  reaction ? Justify your answer.



- (iii) Propose a mechanism for the following reaction :



Or

- (b) Explain the mechanism of (i) Pinacol pinacolone rearrangement ; (ii) Hoffman rearrangement ; (iii) Keto-enol tautomerism.
13. (a) (i) How do you synthesize alanine from ethyl malonate ; (ii) What is meant by Zwitterion ?  
(iii) Write the product when alanine reacts with nitrosyl bromide.

*Or*

- (b) Convert (i) an aldohexose into an aldopentose by Ruff's method.  
(ii) an aldopentose into ketohexose by Wolfram's method.
14. (a) Explain the reduction mechanism of nitrobenzene under various conditions.

*Or*

- (b) Write the following name reactions with mechanism (i) Reimer Tiemann Reaction. (ii) Kolb's reaction. (iii) Coupling reaction.
15. (a) Explain the structural elucidation of nicotine.

*Or*

- (b) How do you synthesize : (i) DDT. (ii) Coumarine. (iii) Vannilin ?

(4 × 10 = 40 marks)