



**HEG-1612020701030200** Seat No. \_\_\_\_\_

**M. P. M. (Sem. III) (CBCS) Examination**

**December – 2017**

**Pharmaceutical Chemistry - III**

*(Organic Chemistry - III)*

Time : **3** Hours]

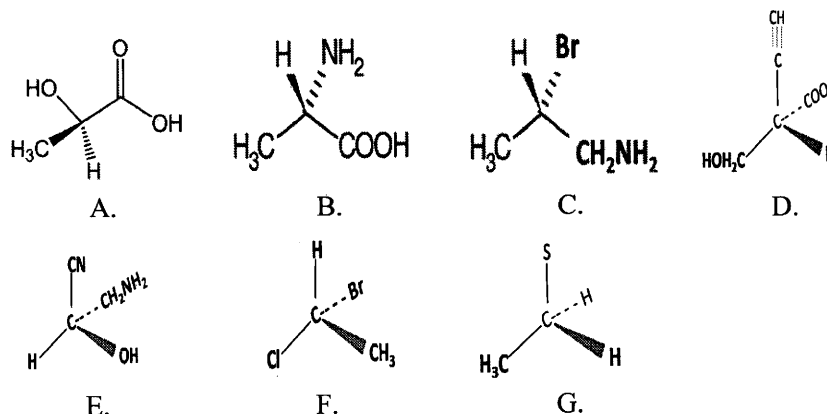
[Total Marks : **80**

- Instructions :** (1) Attempt three questions from each section.  
(2) Question 1 and 5 are compulsory.  
(3) Figures to the right indicates full marks for the respective question.

**SECTION – I**

- 1** Justify the following statements : (Any **Seven**) **14**
- (1) Thiophene, furan, and pyrrole show electrophilic substitution reaction at 2<sup>nd</sup> and 5<sup>th</sup> position most prominently.
  - (2) Spiran do not contain any chiral carbon though it is optically active.
  - (3) Pyridine undergoes nucleophilic substitution at 2-position.
  - (4) Imidazole has higher boiling point as compared to pyrrole.
  - (5) Pyridine is less basic than aliphatic amines.
  - (6) Pyridine is more basic than pyrrole.
  - (7) Chloroacetic acid is more acid than acetic acid.
  - (8) Aromatic character of thiophene is more than pyrrole.
  - (9) Aldol condensation is base catalyzed reaction.
  - (10) Polar solvents are used in microwave synthesis.

2 (1) Assign Assign R/S configuration. 7



(2) Give preparation and reactions of furan. 6

3 (1) Give structure of the following : 7

- Pyrimidine;
- Indole;
- Oxazole;
- Pyrazine;
- Thiazole;
- Pyridazine;
- Imidazole

(2) Write a note on aldol condensation and give two method of preparation and reactions of any two carboxylic acid derivatives. 6

4 (1) Describe in detail about Nucleophilic aromatic substitution reaction with suitable examples. 7

(2) Describe the mechanism of Hantzsch pyridine synthesis and Skraup Quinoline synthesis. 6

## SECTION – II

5 Answer the following questions : (Any Two) 14

- What are  $\alpha, \beta$ -unsaturated carbonyl compounds? Write a short note on Michael addition reaction.
- Give three method of preparation and reactions of carboxylic acid.

- (3) What is racemic modification? Explain different methods of resolution of racemic modifications.
- 6** (1) Draw the conformational isomer of cyclohexane and comment on its stability. **7**
- (2) Explain cannizaro and cross cannizaro reaction with examples. **6**
- 7** (1) Write a note on fries rearrangement and Clemmensen reduction. **7**
- (2) Differentiate Enantiomers and diastereomers. **6**
- 8** Answer the following :
- (1) Give reactions of pyrole and thiophene. **7**
- (2) Give the principles and application of green chemistry. **6**
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