



Seat No. \_\_\_\_\_

**HAL-003-1103007**

**M. Sc. (Sem. III) (CBCS) (WEF-2016)**

**Examination**

**June - 2023**

**C-(OP)-303 : Heterocyclic Chemistry**

**Faculty Code : 003**

**Subject Code : 1103007**

Time :  $2\frac{1}{2}$  / Total Marks : 70

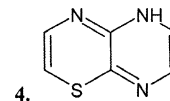
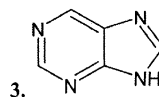
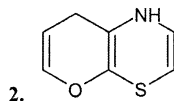
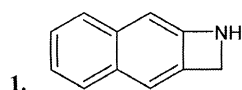
**Instructions :**

- (1) All questions are compulsory.
- (2) All questions carry equal marks.

**1** Answer the following : (any seven)

**14**

- (a) Write any two methods for the synthesis of isoindole.
- (b) Discuss at least two methods for the preparation of isobenzofuran.
- (c) Discuss at least two methods for the synthesis of 1,4-dithiacine.
- (d) Write the synthesis of oxirane.
- (e) Discuss the synthesis of aziridine.
- (f) Write the synthesis of thiepine.
- (g) Write the structures of following :
  - (i) Furo[2,3-c]quinoline
  - (ii) Thieno[3,2-h]cinnoline
  - (iii) Pyrimido [4,5-b]quinoline
  - (iv) Imidazo[2,1-a]phthalazine
- (h) Give the synthesis of carbazole (any one)
- (i) Give any one method for the synthesis of azocine.
- (j) Give the names of following :



- 2 Answer the following : (any two) 14
- (a) Discuss at least three methods for the synthesis of imidazole and draw their resonating structures.
  - (b) Draw the resonating structure of thiazole and discuss their chemical properties.
  - (c) Explain the chemical properties of tetrazole.
- 3 Give at least three methods for the synthesis of the following: 14
- (a) Quinoline
  - (b) Quinazoline
- OR**
- (a) 1,2,4-Triazole
  - (b) Dibenzopyrrole
- 4 Answer the following : 14
- (a) Discuss any one method for the preparation and its chemical properties of pyrazine.
  - (b) Give at least three methods for the synthesis of cinnoline.
- 5 Answer the following : (any two) 14
- (a) Discuss at least two methods for the synthesis of 1,2-diazepine and 1,4-dioxocine.
  - (b) Draw the resonating structures of quinoxaline and discuss its chemical properties.
  - (c) Write at least two methods for the synthesis of following:
    - (i) Oxetane
    - (ii) Thietane
  - (d) Discuss the chemical properties of acridine.
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