

**MASTER OF PHARMACY EXAMINATION, 2017**  
**(1<sup>st</sup> Semester)**

**Pharmaceutical Chemistry – I**

Time: Three hours.

Full Marks: 100

Answer any *five* questions taking at least One from each group.

**GROUP – A**

1. Explain the therapeutic importance, structural features and source of the following as described in IP 2014 4×5=20
  - (a) Ashwagandha
  - (b) Brahmi
  - (c) Ergor
  - (d) Gokhuru
  - (e) Neem
  - (f) shatavari
  
2. a) Explain the Metabolic pathways for the product of the following metabolites:
  - (i) Tropan alkaloid
  - (ii) Steroidal glycoside

(b) Explain BRS & PRS with example. State the structural features, therapeutic importance of five important BRS developed from Herbs. 8+12 = 20
  
3. Explain the importance of the following for development of drugs from natural resources: 4x5 = 20
  - a. National Biodiversity Authority.
  - b. Diurnal variation with impact in metabolite development
  - c. GACP
  - d. Phytopharmaceuticals

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Subject: PHARMACEUTICAL CHEMISTRY I

Group-B

Q.4. a) Enumerate the development of synthetic antimicrobials.

b) Why are flouoroquinolones more advantageous over other synthetic antibacterials?

c) Discuss the mode of action and SAR of flouoroquinolones.

d) Outline the synthesis of the following with their chemical names.

Ciprofloxacin, Ofloxacin, Nalidixic acid and Norfloxacin

3+2+7+8= 20

Q.5. a) Mention the Importance and methodology for dereplication of Natural products for development of newer drugs.

b) Mention the importance of High Throughput Screening and Combinatorial Chemistry as recent approach for drug development from Natural origin.

10+10=20

## GROUP - C

Answer AT LEAST ONE question from this group. Answers to all part of a question should be written at the same place of the answer-script and in the same order as they appear in the question paper.

6. Write notes on:

[4 x 5]

- (i) Pi-pi ( $\pi$ - $\pi$ ) stacking interaction
- (ii) Keesom and Debye forces
- (iii) Stereochemical features influencing drug activity
- (iv) The "3Rs" principle

7. Discuss:

[12+8]

- (i) Effect of solvents on reactions involving nonelectrolytes
- (ii) Effect of ionic strength on reactions involving ionic species

8. (a) In a study of the acid-catalyzed hydrolysis of procaine, the first-order reaction rate  $k$  was obtained from a plot of  $\log c$  versus  $t$ , and the activation energy  $E_a$  from an Arrhenius plot of  $\log k$  versus  $1/T$ . The values were  $k = 38.5 \times 10^{-6} \text{ sec}^{-1}$  at 97.30 degree C and  $E_a = 16.8 \text{ kcal/mole}$ . Compute  $\Delta S^\ddagger$  and the frequency factor  $A$ . [ $h = 6.62 \times 10^{-27} \text{ erg sec/molecule}$ ].

[6]

(b) Discuss steady state approximation.

[14]