2016

M.Sc.

3rd Semester Examination

CHEMISTRY

PAPER—CEM-304

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(Pharmaceutical Chemistry)

(Organic + Inorganic + Physical Special)

Answer any *five* questions.

1. (a) What are the different nomenclature of drug ? Illustrate with some examples.

(b) How disease and drug can be defined and what are the essential requirements of drugs.

(c) Name and write the structures of at least *two* the following drugs :

(i) Sulphadrugs

(ii) Antibiotics 2+1+1+2+2

2. (a) What are the different pathways through which the drug is administered into our body ? Describe with reference t certain drug.

(b) Write the chemical structures of Salbutamol and Adrenaline. Describe how Salbutamol acts and helps in bronchodialation. 4+4

3. (a) Define receptors and describe the different types of receptors.

(b) Which poly peptide is reponsible for increasing blood pressure in human body ? How do the drug captopril acts and help in lowering blood pressure ? Explain. 4+4

4. (a) Write the structure of ranitidine and establish how it acts as 'antagonist drug' and helps in the treatment of hyperacidity in stomach.

(b) Write uses and synthetic steps of paracetamol starting from p-nitro-chlorobenzene.

(c) Differentiate between 'Agonist' and 'Antagonist' drug. 4+2+2

5. (a) Explain how aspirin is treated for during the inflamation by inhibiting the prostoglandin synthase.

(b) Write the preperative method of Aspirin and its synthetic steps.

(c) Differentiate between metabolite and antimetabolite. 4+2+2

6. Synthesise the following (attempt any *two*) : 4+4

(i) Ibuprofen from Isobutyl benzene.

(ii) Salbutamol from 4-hydroxy-3-hydroxymethyl acetophenone.

(iii) Omeprazole starting from methoxy o-phenylene diamine.

7. (a) Define and differentiate between 'Pharmocokinetics' and 'Pharmacodynamics'.

(b) Describe with a diagram how Captopril binds with ACE enzyme.

(c) Synthesise the antimalarial drug chloroquime starting from 3-chloroaniline. 2+3+3
