Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/B. PHARM/SEM-1/PT-103/2011-12

2011
PHARMACEUTICAL CHEMISTRY
(Inorganic Chemistry)

Time Allotted : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.

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

GROUP – A
(Multiple Choice Type Questions)

Choose the correct alternatives for any *ten* of the following :
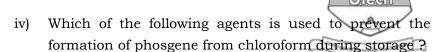
$10 \times 1 = 10$

1. i)   Strong ammonia solution contains

    a)   9.4 to 10.4% ammonia

    b)   9.5 to 10.5% ammonia

    c)   9.6 to 10.6% ammonia

    d)   9.7 to 10.7% ammonia.

    ii) Dry ice is

    a)   Nitrous oxide snow   b)   Nitrogen snow

    c)   Carbon dioxide snow   d)   Helium snow.

    iii) Organic scintilator used in scintillation counter is

    a)   Anthracene   b)   Scintila stilbene

    c)   2, 4, 6 trinitro phenol d)   Bromohexine.

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iv) Which of the following agents is used to prevent the formation of phosgene from chloroform during storage ?

    a) Ethanol   b) Phenol

    c) Methanol   d) Propanol.

v) Which of the following components in calamine lotion provides anaesthetic and antipruritic action ?

    a) Na-Citrate   b) Bentonide

    c) Liquefied phenol   d) Calamine.

vi) Which of the following is the best material for temporary filling of dental cavities ?

    a) Magnesium carbonate   b) Zinc oxide

    c) Zinc carbonate   d) Aluminium oxide.

vii) A buffer shows its maximum buffer capacity when

    a) $pH < pKa$ b) $pH = pKa$

    c) $pH > pKa$ d) none of these.

viii) Lugol solution of iodine contains .... % of KI.

    a) 5   b) 10
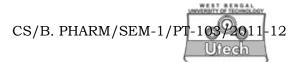
    c) 20   d) 15.

ix) Which of the following drug interactions shows "Burnett syndrome" ?

    a) $CaCO_3$ + Milk   b) $NaHCO_3$ + Milk

    c) Milk + Tetracycline   d) all of these.

x) Which of the following is used as saline cathartic ?

    a) Liquid paraffin   b) Methyl cellulose

    c) Magnesium sulphate   d) Phenolphthalein.

xi) Which of the following is an example of iron transport protein ?

    a)   Ferritin   b)   Transferrin

    c)   Hemosiderin   d)   Albumin.

xii) As per Brönsted-Lowry theory, base is a/an

    a)   Electron donor   b)   Proton donor

    c)   Proton acceptor   d)   none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.

$3 \times 5 = 15$

2. Write a short note on radio-opaque contrast media.

3. a) What do you mean by the term "Oral rehydration therapy" ?

    b) Mention the composition of ORS recommended by WHO.

4. Outline the principle of the limit test for Arsenic.

5. Explain the importance of Na^+ and K^+ in the human physiological system.

6. Discuss about the various sources of impurities in pharmaceutical substances.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What is "Ionic product of water" ?

    b) Prove that pH = pKa + log [conjugate base] / [acid] in case of acidic buffer.

c) How does buffer resist the change of pH after addition of small amount of acid and base ? Explain with example.

d) Why is water considered as acid and base both ?

e) Enumerate the role of buffer in pharmacy and pharmacy practice. 2 + 4 + 3 + 2 + 4

8. Write down the preparations, properties & uses of any *three* of the following : 3 × 5

a) Milk of Magnesia

b) Potassium permanganate

c) Calcium Carbonate I.P.

d) Zinc oxide.

9. a) What are α, β & γ radiations ?

b) What are the various biological effects of radiations ?

c) Define the term "Curie" and "Becquerel".

d) How does "Geiger Müller Counter" help in measurement of radioactivity ? 4 + 4 + 2 + 5

10. a) What are antidotes ?

b) Discuss the role of sodium nitrate as an antidote for cyanide poisoning.

c) Give a general account of antioxidants.

d) Discuss the antioxidant mechanism of hypophosphorus acid. 2 + 5 + 3 + 5

11. a) Write down the difference between the following :

i) Protectives and astringents

ii) Calamine and calamine lotion

iii) Cationic component and anionic component

iv) Water and distilled water.

b) Enumerate the role of fluoride in the prevention of dental caries. (4 × 3) + 3

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