5

SVKM'S NMIMS

Shobhaben Pratapbhai Patel / School of Pharmacy & Technology Management

Programme: B. Pharm / B. Pharm + MBA
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Subject: Pharmaceutical Inorganic Chemistry - Theory

Year: I

Semester: I
Marks: 75
Time: 10.00 am to 1.00 pm
Duration: 3 hrs.
No. of Pages : 3

Date: 11 December 2019

FINAL EXAMINATION

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

1) Question No. 1 is compulsory (10 questions of 2 marks each)
2) Question No. 2 will have 3 questions, 10 marks each (answer 2 out of 3)
3) Question No. 3 will have 9 questions, 5 marks each (answer 7 out of 9)
4) Candidates are requested to attempt all questions as specified above
5) Answer to new question to be started on fresh page
5) Figures in brackets on the right hand side indicate full marks
6) Assume suitable data if necessary

Q.1. **(20 Marks)**

1. The salt used to prepare standard lead and standard arsenic solutions as per IP are:
   A) Potassium chloride and Arsenic nitrate
   B) Sodium nitrate and Arsenic chloride
   C) Lead nitrate and Arsenic trioxide
   D) Lead acetate and Arsine

2. Limit Tests are defined as tests which are used to:
   A) Identify particulate matter and solid particles
   B) Identify and quantify impurities
   C) Identify and control impurities
   D) Identify sediments and coloured particles

3. Who is responsible for publishing the Ayurvedic Pharmacopoeia of India and Indian Herbal Pharmacopoeia?
   A) Indian Drugs Manufacturers Association and Pharmacopoeia Commission for Indian Medicine
   B) Regional Research Laboratory and Central Drug Standards Organisation
   C) Central Drug Standards Organisation and Regional Research Laboratory
   D) Pharmacopoeia Commission for Indian Medicine and Indian Drugs Manufacturers Association

4. Radiopharmaceuticals are used in radiotherapy and radiodiagnosis on account of the following radiations respectively:
   A) Gamma, Alpha

B) Alpha, Beta
C) Beta, Alpha
D) Beta, Gamma

5. The latest editions of published Indian Pharmacopoeia and its addendum are:
   A) 2014 and 2016
   B) 2018 and 2019
   C) 2018 and 2016
   D) 2014 and 2015

6. Two apparatus used to perform limit tests are:
   A) Test tubes and Measuring cylinders
   B) High Performance Liquid Chromatography and Gas Chromatography
   C) Nuclear Magnetic Resonance and Mass Spectroscopy
   D) Gutzeit's apparatus and Nessler's cylinders

7. Astringents in low doses and high doses would act as:
   A) Emetics and expectorant
   B) Electrolyte replenisher and expectorant
   C) Antimicrobials and irritants
   D) Antacids and acidifiers

8. According to Arrhenius theory, acids and bases are substances that:
   A) dissociates in water to form protons and hydroxyl ions
   B) donate protons and accept protons
   C) accepts a pair of electrons and donates a pair of electrons
   D) none of the above

9. Which of the following may be used as bicarbonate and calcium replenishers:
   A) Sodium carbonate and calcium gluconate
   B) Potassium chloride and ferrous gluconate
   C) Sodium chloride and Kaolin
   D) Sodium bicarbonate and calcium gluconate

10. How many grams of sodium chloride is required to produce 10^6 ml of 1 ppm chloride standard solution?
   A) 8.23 g
   B) 1.65 g
   C) 5.00 g
   D) 4.23 g

Q.2. Long Answers (Answer 2 out of 3) **(20 Marks)**

1. Explain physiological buffers with suitable examples. Explain the need to study pH of Pharmaceuticals.
2. Classify GIT agents acting on or via gastrointestinal tract. Mention the sub-classifications of each class of GIT agents and give examples of each class and sub-class. Give the mechanism of saline cathartics.
3. What are various sources of impurities in pharmaceuticals? Enlist the applications of study of impurities in Pharmaceutical substances.

Q.3 Short Answers (Answer 7 out of 9) **(35 Marks)**

1. Give Pharmaceutical uses of the following:
a) Sodium fluoride
b) Copper sulphate
c) Potassium iodide
d) Calcium gluconate
e) Sodium thiosulphate

2. Give the roles of the following reagents in their respective limit tests:
a) Ethanolic sulphate standard solution in LT for sulphates
b) Nitric acid in LT for chlorides
c) Dithizone in LT for Lead
d) Citric acid in LT for Iron
e) Lead acetate cotton in LT for Arsenic

3. Define a) Impurity profiling b) Buffer c) Expectorant d) Buffer capacity e) Pharmacopoeia

4. Write a note on assay alongwith reactions of: (a) Zinc sulphate IP (b) Sodium chloride IP

5. Classify antimicrobials on their mechanism of actions giving suitable examples. Explain mechanism of hydrogen peroxide.

6. Draw and provide specifications of the apparatus used in limit test for Arsenic.

7. Make the following drug solution isotonic with blood plasma using 0.9% sodium chloride solution which is isotonic with body fluids (E = 0.18g NaCl / 1g of the drug):

Drug	0.1%
Purified water (q.s.)	30ml

8. Define radiopharmaceuticals and discuss sodium iodide I^{131} and its uses.

9. Write a brief note on ORS.
