(3 Hours)   **(Total marks: 75)**

N.B.: 1. All questions are compulsory.
    2. Figures to right indicate full marks.

Q. I Choose appropriate option for the following multiple choice-based questions.   **20**

1   Instrument error can be corrected by _____.
- a. Cleaning of instrument and apparatus
- b. Changing instrument and apparatus
- c. Calibration of the instrument and apparatus
- d. Running a blank determination

2   Repeatable results of analytical experiment indicates _____of analytical method
- a. Accuracy
- b. Precision
- c. Error
- d. Reliability

3   What is a measure of precision of analytical measurements?
- a. Standard deviation
- b. Absolute error
- c. Mean absolute error
- d. Mean

4   The strength of 1 M iodine solution is equal to _____ solution
- a. ½ N
- b. 1N
- c. 2N
- d. 1/10 N

5   Ephedrine hydrochloride is assayed bye
- a. Non-aqueous acid-base titrations
- b. Complexometric titration
- c. Precipitation titration
- d. Aqueous acid base titrations

6   Determination of concentration of analyte by polarography is based on _____.
- a. Ilkovic equation
- b. Nernst equation
- c. Ohm's law
- d. Faraday's Law

7   The curve obtained by plotting pH as ordinate against volume of titrant as absiscissa is known as
- a. Neutralisation curve
- b. Precipitation curve
- c. Standard curve
- d. Calibration curve

8   _____is used as indicator in cerimetry
- a. Starch
- b. Ceric ammonium sulphate
- c. Ferroin
- d. Methyl violet

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9 The concentration 10 microgram of solute per cm^3 is _____.
   a. 1 ppm
   b. 10 ppb
   c. 10 ppm
   d. 10 %w/v

10 _____ indicator is used for strong acid strong base titrations
   a. Crystal violet
   b. Methyl yellow
   c. Methyl orange
   d. Xylenol orange

11 The titration carried out between the KCl and $AgNO_3$ is termed as _____.
   a. Precipitation titration
   b. Redox titration
   c. Complexometric titration
   d. Non aqueous titration

12 _____is an example of sequestering agent
   a. Dimethyl glyoxime
   b. Potassium chromate
   c. Salicyaldoxime
   d. EDTA

13 _____ is indicator electrode
   a. SHE
   b. Silver chloride electrode
   c. Glass electrode
   d. Calomel electrode

14 The indicator used in complexometric titration are termed as
   a. pM indicator
   b. pH indicator
   c. external indicator
   d. adsorption indicator

15 Benzene is _____ solvent
   a. aprotic solvent
   b. protogenic
   c. photophilic
   d. neutral

16 Identify the correct combination of titrant and indicator:
   a. disodium edetate and mordant balck II
   b. perchloric acid and phenolphthalein
   c. sodium methoxide and starch
   d. sodium thiosulphate and phenol red

17 Solubility of inorganic precipitate is reduced by
   a. addition of acid
   b. addition of organic solvent
   c. increase in temperature
   d. addition of precipitating agent

18 Starch solution is used as an indicator in _____.
   a. Permangnometry
   b. Cerrimetry
   c. Iodine titration
   d. Dichromometry

19 Acidimetry is
   a. Titration of base (analyte) with acid (titrant)
   b. Titration of acid (analyte) with base (titrant)
   c. Determination of purity of acid substance
   d. Blank determination of acidic solvent with base
20 Primary standards are
   a. Solutions of known concentration of analyte
   b. Substances of highest purity
   c. Substances of less purity than secondary standards
   d. Substances of same standards as that of secondary standard

Q. II Answer any two questions. (Any 2)   **20**
1 Explain neutralisation curves. Write a detailed note on theories of acid base indicators.   **10**
2 a. Explain the concept of accuracy and precision of analytical method   **10**
   b. Give two examples of each of the following
      1. Reagent error
      2. Primary standard
      3. Personal error
3 Give an overview on following redox titrations with its principle and applications   **10**
   1. Cerrimetry
   2. Iodimetry
   3. Iodometry

Q. III Answer any seven questions (Any Seven)   **35**
1 Explain the principle and reaction involved in Mohr's method   **5**
2 Give principle and reaction involved in assay of calcium gluconate injection   **5**
3 Explain unit operations in gravimetric analysis   **5**
4 Give principle reaction involved in determination of diazotization titration with suitable example   **5**
5 Explain theory and principle of Conductometry. Give any two applications of conductometry   **5**
6 What is indicator electrode? Give construction and working of glass electrode   **5**
7 Write in detail about DME with respect to construction, working advantages and disadvantages   **5**
8 Replicate water samples are analysed for water hardness with following results 102.2, 102.8, 103.1 and 102.3 ppm $CaCO_3$ calculate Mean, Median and standard Deviation.   **5**
9 When 50 ml of 0.1 M HCl is titrated with 0.1M NaOH, calculate the pH values at the start of the titration and after addition of 10,50,60 ml of titrant.   **5**

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[Time:3 hours]   [Total Marks :75]

Note: Please check whether you have got the right question paper.

NB: 1. **All** questions are **compulsory**.
    2. **Figures** to the **right** indicate **full** marks.

Q. 1   **Choose the correct answer**   **20**

(a) Using Clark's formula, calculate the dose for a child weighing 20 lb. The adult dose is 300 mg.
    (a) 40 mg   (b) 110 mg   (c) 200 mg   (d) 35 mg

(b) In liquid dosage form which of the following dosages forms is used for oral administration
    (a) Liniments   (b)Linctus   (c) Enema   (d) Lotion

(c) Use of formulations made up of numerous plants referred as………..
    (a) Parenteral   (b) Plant Vehicle   (c) Galenical   (d) Generic

(d) The part of the prescription called inscription contains
    (a) Name and quantity of ingredients   (b) Direction to the patient   (c) Direction to the patient's relatives   (d) Patient information

(e) Who organizes the Indian Pharmaceutical Congress every year?
    (a) Indian Pharmaceutical Association   (b) Indian Pharmaceutical Congress   (c) Indian Pharmaceutical Congress Association   (d) Indian Pharmacy Graduates Association

(f) Example of Low-calorie sweetening agents used as additive in liquid dosage form is
    (a) Sucrose   (b) Fructose   (c) Dextrose   (d) Aspartem

(g) The ideal particle size for topical powders is
    (a) 50 – 100 micron   (b) 150 – 200 micron   (c) 250 – 500 micron   (d) Above 1000 micron

(h) How many grams of dextrose required to prepare 3000 ml of 5%w/v solution
    (a) 150 gms   (b) 200 gms   (c) 250 gms   (d) 300 gms

(i) In heat method of preparing effervescent granules to make damp mass
_____ releases 1 molecules of water of crystallization
(a) Citric acid   (b) Tartaric acid   (c) Sodium bicarbonate   (d) Sucrose

(j) Throat paints are ………. liquid preparations
(a) Viscous   (b) Gas   (c) Liquid   (d) Solid

(k) Douches are meant for application in……………
(a) Vaginal   (b) Rectal   (c) Nasal   (d) Buccal

(l) The role of emuslifying agent is _____.
(a) Reduce the interfacial tension between miscible phases   (b) Decrease surface area in emulsion   (c) Improves the medication taste   (d) Increase the size of globules

(m) Double decomposition is an example of _____ incompatibility.
(a) Chemical   (b) Physical   (c) Biological   (d) Therapeutic

(n) One of the following is disadvantage of cocoa butter suppository base is
(a) Polymorphism   (b) Miscibility with many ingredients   (c) Solid at room temperature but melts in body   (d) Blandness

(o) Suppositories can be prepared by _____
(a) Redispersion   (b) Compression   (c) Precipitation   (d) Maceration

(p) _____ is a remedy to overcome the incompatibility between oil and water
(a) Addition of Surfactant   (b) Addition of Sweetner   (c) Addition of Antioxidant   (d) Stirring of immiscible phases

(q) Polyethylene glycol are also known as _____.
(a) Macrogols   (b) Oleaginous   (c) Lanolin   (d) Paraffin

(r) Which base should be selected when water washability is the key requirement?
(a) Hydrocarbon base   (b) Water soluble base   (c) Absorption base   (d) Emulsion base

(s) _____ is an example of gelling agent.
    (a) Pectin   (b) Liquid   (c) Sorbitol   (d) Propylene
                      Paraffin   glycol

(t) Which among the following ointment is prepared by chemical reaction?
    (a) Non-   (b) Simple   (c) Salicylic acid   (d) Whitfield's
    staining Iodine   ointment B.P.   ointment B.P.   ointment
    ointment BPC
    1968

Q.2   **Answer any TWO**   **20**

(a) Give classification of powders. Explain bulk powder for external use

(b) Discuss identification tests and stability problems of emulsions

(c) Explain types of ointment bases. Discuss preparation methods of ointments

Q.3   **Answer any SEVEN**   **35**

(a) Discuss different career options available in the Pharmacy Profession.

(b) Define Prescription. Discuss in detail different parts of prescription

(c) Classify dosage forms. Define Elixirs, liniments, lozenges and
suppositories

(d) How will you prepare 70gms of 15% Iodine Ointment from 5%, 20% &
25% Iodine ointment. Find out how many ml of 70%, 40% and 30% of
alcohol should be mixed to get 55% v/v 1200ml of alcohol.

(e) What are the advantages and Disadvantages of liquid dosage form? Add a
note on vehicles used.

(f) Differentiate between flocculated and Deflocculated suspension

(g) Write a note on solutions instilled in body cavities

(h) Define displacement value. Calculate the formula for 10 bismuth subgallate
Suppositories each containing 300mg of bismuth subgallate. Given:
Displacement value of Bismuth subgallate is 3.

(i) What are pharmaceutical incompatibilities? Mention its types and explain
Chemical incompatibility with suitable example.

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