Exam Date & Time: 10-Dec-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Pharmaceutical Analysis-I [PQA-BP102T - S2]

Marks: 75   **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions.   Section Duration: 30 mins

1) In one of the following the molecular weight is as same as equivalent weight   (1)

1) Oxalic acid	2) Sodium hydroxide	3) Oxalic dihydrate	4) Sulphuric acid

2) Analgin tablet IP is assayed by   (1)

1) Cerimetry	2) Dichrometry	3) Iodimetry	4) Iodometry

3) _____ is the process of isolating and weighing an element or a compound, in pure form.   (1)

1) Volumetry	2) Potentiometry	3) Conductometry	4) Gravimetry

4) ....gm of sodium hydroxide is required to prepare 250 ml of 0.25M solution as per IP.   (1)

1) 2.5	2) 2.0	3) 3.0	4) 1.75

5) Solution of accurately known concentration is called as   (1)

1) Sample solution	2) Dilute solution	3) Standard solution	4) Concentrated solution

6) Sodium carbonate is the primary standard for   (1)

1) Hydrochloric acid	2) sodium hydroxide	3) ceric ammonium sulphate	4) silver nitrate

7) One of the following is an oxidizing agent   (1)

1) Mohr's salt	2) Oxalic acid	3) Potassium iodide	4) 2,6 dichlorophenol indophenol

8) One of the following is not an external indicator   (1)

1) Stach iodide paper	2) Stach iodide solution	3) Stach iodide paste	4) Starch mucilage

9) In the assay of copper sulphate decomposition of cupric iodide is reversible reaction,   (1)

which can be prevented by converting it to stable cuprous thiocyanate by the addition of _____

1)	Potassium thiocyanate	2)	Potassium cyanate	3)	Potassium cyanide	4)	Acetic acid

10) Oxalic acid is a primary standard for sodium hydroxide. But the official primary standard is   (1)

1)	Boric acid	2)	Acetic acid	3)	Citric acid	4)	Potassium hydrogen phthalate

11) In the assay of calcium hypochloride ....is determined   (1)

1)	Available Calcium	2)	Available Carbonate	3)	Available chlorine	4)	Available calcium hydroxide

12) Maximum number of groups that can be bound to the ion is its_____   (1)

1)	Co-ordination number	2)	Atomic number	3)	Mass number	4)	Valency

13) Starch Iodide paper is used as _____ in Diazotisation titration   (1)

1)	Internal Indicator	2)	Titrant	3)	External Indicator	4)	Masking Agent

14) Assay of Calcium Gluconate injection is done by _____ method   (1)

1)	Complexometric titration	2)	Precipitation titration	3)	Gravimetric analysis	4)	Diazotisation titration

15) 37.2 g of disodium EDTA dihydrate is dissolved in sufficient distilled water to produce 1000 mL of ___ M solution (Molecular weight of disodium EDTA dihydrate is 372.24 g/mol)   (1)

1) 1 M	2) 0.1 M	3) 0.05 M	4) 0.01 M

16) ....is the pH when 100 ml of 1N hydrochloric acid is added with 99 ml of 1N sodium hydroxide   (1)

1)	0.84	2)	2.30	3)	3.30	4)	7.00

17) -------------------- indicator can be used in strong acid V/S strong base titrations   (1)

1)	α-Naphthol benzein	2)	Methyl red	3)	Oracet Blue-B	4)	Brilliant green

18) Benzalkonium chloride can be determined by   (1)

1)	Bromatometry	2)	Cerimetry	3)	Potassium iodate titrations	4)	Dichrometry

19) Calculate the amount to be weighed to prepare 0.05 M KIO3 1 litre solution. (Mol.   (1)

Wt. of KIO3 is 214.001 g/mol)

1)	10.6 gm		2)	10.7 gm		3)	12.7 gm		4)	10.9 gm	

20)   % of Fe in haematite can be determined by

1)	Bromatometry		2)	Cerimetry		3)	Potassium iodate titrations		4)	Dichrometry		(1)

II Long Answers

Answer all the questions.

1)   Explain Volhard's and modified Volhard's method of precipitation titration along with factors to be considered for precipitation titration   (10)

2)   a. Why ceric ammonium sulphate is a superior titrant than potassium permanganate?
       b. Explain briefly the methods to minimize the systematic errors (5+5 marks)   (10)

III Short Answers

Answer all the questions.

1)   98 gm of sulphuric acid to 1000ml water gives 1 molar solution. But for safety reasons Indian pharmacopeia gave a formula to prepare any molar solution of sulphuric acid. Write and derive the formula for the same. Data given- atomic weight of hydrogen-1, oxygen- 16 and Sulphur 32, Commercially available sulphuric acid has 93% of acid by mass and the Density is 1.84 g/cm³   (5)

2)   Explain in detail about filtration and drying steps in gravimetric analysis   (5)

3)   Explain the different types of selectivity concepts in complexometric titrations   (5)

4)   Compare the theories of acid-base titrations with suitable examples   (5)

5)   a. Explain the mechanism of the working of phenolphthalein indicator with the help of Quinonoid-benzenoid theory
       (3 Marks)
       b. List the applications of Neutralization titrations (2 Marks)   (5)

6)   Explain the assay of Potassium iodide by potassium iodate titration   (5)

7)   Explain the principle involved in the estimation of sodium benzoate using non-aqueous titration.   (5)

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