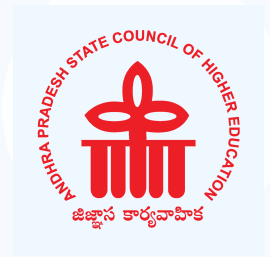


# AP PGECET 2026 Pharmacy Question Paper

## Question Paper

Conducted by National Testing Agency (NTA)



### General Instructions

- (i) The test is of 3 hours duration.
- (ii) This test paper consists of 160 questions. The maximum marks are 160.
- (iii) Physics and Chemistry contains 40 questions each and Mathematics contains 80 questions.
- (iv) Each question carries +1 marks for correct answer and there is no negative marking for wrong answer.

1. Which of the following pathways is used in the biosynthesis of carotenoids?

- (A) Acetate-mevalonate pathway
- (B) Isoprenoid pathway
- (C) Phenylpropanoid pathway
- (D) Shikimic acid pathway

2. Pyrethrum is a natural insecticide derived from \_\_\_\_\_.

- (A) Azadirachta indica
- (B) Chrysanthemum cinerariifolium
- (C) Citronella silvatica
- (D) Nepeta cataria

3. Lycopodium spore method of analysis is used for determining \_\_\_\_\_ of herbal drugs.

- (A) Moisture content
- (B) Ash content
- (C) Purity
- (D) Metabolites

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4. All are specific identification tests for glycosides except \_\_\_\_\_ test.

- (A) Baljet
- (B) Borntrager's
- (C) Hager's test
- (D) Legal

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5. Stas-Otto method is used for extraction of \_\_\_\_\_.

- (A) Steroids
- (B) Alkaloids
- (C) Carbohydrates
- (D) Flavonoids

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6. The most useful evaluation parameter for detecting adulteration in powdered leaf drugs is \_\_\_\_\_.

- (A) Ash value
- (B) Inorganic impurities
- (C) Microscopic evaluation
- (D) Organoleptic evaluation

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7. Papaverine is a \_\_\_\_\_ alkaloid.

- (A) Isoquinoline
- (B) Tropane
- (C) Pseudo
- (D) Purine

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8. Which of the following adulterants are added in powdered capsicum for increasing bulk?

- (A) Dextrin
- (B) Red sanders wood
- (C) Powdered olive stones
- (D) Starch

---

**9. A manufacturer wishes to cultivate aromatic plants for isolating volatile oils. Which factor that most significantly influences the biosynthesis of volatile oils should be controlled?**

- (A) Altitude and temperature
  - (B) Irrigation schedule
  - (C) Plant spacing
  - (D) Soil moisture
- 

**10. Choose the correct combination.**

- (A) Arachis oil – rich in MUFA/PUFA, hypoallergenic
  - (B) Croton oil – alcohol insoluble, purgative
  - (C) Chaulmoogra oil – anti-psoriatic, *Hydnocarpus* genus
  - (D) Sunflower oil – Source of vitamin A, lowers LDL
- 

**11. Which herbal drug enzymes are used for aiding digestion?**

- (A) Rauwolfia
  - (B) Papaya
  - (C) Cinchona
  - (D) Cinnamon
- 

**12. Which test is used to determine the purity of honey?**

- (A) Barfoed's test
  - (B) Fiehe's test
  - (C) Kedde test
  - (D) Salkowski's test
- 

**13. Which test is used to detect anthraquinone glycosides and produces a pink colour in the ammoniacal layer?**

- (A) Salkowski test
  - (B) Hager test
  - (C) Legal test
  - (D) Modified Borntrager's test
-

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14. Choose the correct option to justify the requirement: “Absorbent Cotton Wool IP (Indian Pharmacopoeia) should exhibit rapid sinking time.”

- (A) Within 3–6 seconds
  - (B) Within 7–10 seconds
  - (C) Within 11–15 seconds
  - (D) Within 15–20 seconds
- 

15. Protein fibroin is a chemical constituent of \_\_\_\_\_ fibre.

- (A) Cotton
  - (B) Wool
  - (C) Silk
  - (D) Nylon
- 

16. Which of the following is NOT an anthranilic acid derivative?

- (A) Betrixaban
  - (B) Furosemide
  - (C) Mefenamic acid
  - (D) Naproxen
- 

17. Which of the following is the molecular formula of cisplatin?

- (A)  $C_{12}H_6N_2Pt$
  - (B)  $C_6H_{12}N_2O_4Pt$
  - (C)  $C_2H_8N_2O_3Pt$
  - (D)  $(C_{12}H_{14}N_2O_4)_2 \cdot (Pt^{2+})$
- 

18. Which of the following statement is INCORRECT about antianginal organic nitrates?

- (A) Ester prodrugs of nitric acid and polyols
  - (B) Release nitric oxide to show therapeutic effect
  - (C) Alkyl Nitrates with hydrocarbon chains
  - (D) Lipophilic compounds and rapidly absorbed through bio-membranes
-

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19. 4-(2-Aminoethyl)benzene-1,2-diol is commonly known as \_\_\_\_\_.

- (A) catechol
  - (B) dopamine
  - (C) hydroquinone
  - (D) resorcinol
- 

20. The anti-cancer drug which acts through aziridine-mediated DNA-alkylation is \_\_\_\_\_.

- (A) cytarabine
  - (B) cisplatin
  - (C) cyclophosphamide
  - (D) bleomycin
- 

21. The following pharmacophore is required for the sedative-hypnotic activity of \_\_\_\_\_ drug.



The image shows a pyrimidine-2,4,6-trione core with two alkyl/aryl substitutions (*R,R*) at the C-5 position.

- (A) zolpidem
  - (B) estazolam
  - (C) quazepam
  - (D) Pentobarbital
- 

22. Which anti-malarial agent is an 8-aminoquinoline derivative?

- (A) Chloroquine

- (B) Primaquine
  - (C) Mefloquine
  - (D) Halofantrine
- 

**23. Albuterol basically differs from sympathomimetic in that the hydroxyl group at C-3 of the aromatic ring is replaced with \_\_\_\_\_ group.**

- (A) hydroxymethyl
  - (B) hydroxyethyl
  - (C) hydroxypropyl
  - (D) hydroxybutyl
- 

**24. Activity of cardiac glycoside depends to a great extent on \_\_\_\_\_.**

- (A) 23<sup>rd</sup> carbonyl oxygen
  - (B) C-3 OH
  - (C) side chain at C-14
  - (D) side chain at C-17
- 

**25. Tricyclic antidepressants have how many rings in core structure?**

- (A) 2
  - (B) 3
  - (C) 4
  - (D) 5
- 

**26. Which of the functional group in the given drug is responsible for photosensitivity?**



The image displays the core scaffold of a **sulfonamide antibacterial** (specifically, a sulfanilamide derivative showcasing a para-amino group and a sulfonamide moiety linked to a benzene ring).

- (A)  $\text{NH}_2$
- (B)  $\text{SO}_2$
- (C)  $\text{NH}$
- (D)  $\text{S}$

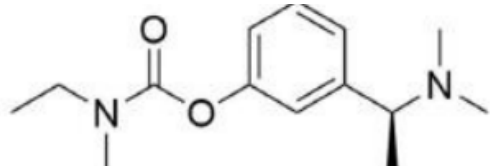
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27. Which of the following is not a primary factor that affects the rate of an  $\text{S}_{\text{N}}1$  Reaction?

- (A) Concentration of the nucleophile
- (B) Nature of the leaving group
- (C) Stability of the carbocation
- (D) Steric hindrance

---

28. Given structure is \_\_\_\_\_.



The image displays a benzene ring with an ethyl-methyl carbamate moiety attached at the meta

position relative to a dimethylaminoethyl branch featuring a single chiral center.

- (A) edrophonium
  - (B) rivastigmine
  - (C) neostigmine
  - (D) tabun
- 

**29. Another name of diphenhydramine is :**

- (A) Benzhydramine
  - (B) Dimenhydrinate
  - (C) Mecloprodin
  - (D) Neohetramine
- 

**30. Due to the presence of a \_\_\_\_\_, charged \_\_\_\_\_ group, acetylcholine does not penetrate lipid membranes.**

- (A) highly polar, acetyl
  - (B) weakly polar, acetyl
  - (C) weakly polar, ammonium
  - (D) highly polar, ammonium
- 

**31. Which of the following does not specifically target VEGF receptors?**

- (A) Bevacizumab
  - (B) Everolimus
  - (C) Linalidomide
  - (D) Neuropilin
- 

**32. Which of the following anticoagulant is a sulfated polysachharide?**

- (A) Heparin
  - (B) Warfarin
  - (C) phenindione
  - (D) Dicoumarol
-

33. Which of the following statement is NOT CORRECT?

- (A) Fluoroquinolones absorption is reduced with polyvalent metal ions
  - (B) Sulfamethaxazole is a competitive inhibitor of enzyme dihydropteroate synthase
  - (C) 1,3-Diaminoinositol is the pharmacophore moiety in aminoglycosides
  - (D) Macrocyclic lactone ring is present in tetracycline antibacterials
- 

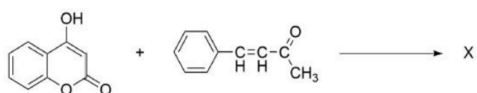
34. All statements are true for natural estrogens except:

- (A) Contain aromatic A-ring
  - (B) Contain C-18 steroid nucleus
  - (C) Have hydroxyl groups at the C-5 and/or C-18 positions
  - (D) Are synthesized from cholesterol through steroidogenesis.
- 

35. The basic structural moiety of buspirone is \_\_\_\_\_.

- (A) azaspirodecanedione
  - (B) benzodiazepine
  - (C) dibenzoxepin
  - (D) Indole
- 

36. In the given reaction, x will be \_\_\_\_\_.



The chemical reaction shows **4-hydroxycoumarin** reacting with an  $\alpha, \beta$ -unsaturated ketone, **benzylideneacetone** (4-phenylbut-3-en-2-one), to form product X.

- (A) warfarin
  - (B) menadione
  - (C) acetomenadione
  - (D) clopidogrel
- 

37. A compound mainly containing a benzothiadiazine ring is most likely to have \_\_\_\_\_ activity.

- (A) antipsychotic
  - (B) anti-histaminic
-

- (C) diuretic
  - (D) muscle relaxant
- 

**38. Identify the most commonly used reaction to convert aldehydes and ketones to alkenes**

- (A) Reimer–Tiemann reaction
  - (B) Wittig reaction
  - (C) Wolff reaction
  - (D) Wolff-Kishner reaction
- 

**39. Silver nitrate is used in the limit test of \_\_\_\_\_.**

- (A) lead
  - (B) sulphate
  - (C) chloride
  - (D) iron
- 

**40. Which of the following is the limit for metals in drugs, expressed in terms of ppm of lead as per the Indian Pharmacopoeia (IP)?**

- (A) 10 ppm
  - (B) 20 ppm
  - (C) 50 ppm
  - (D) 100 ppm
- 

**41. What is the working principle of Hoesppler viscometer?**

- (A) Flow rate of fluid is inversely proportional to its viscosity
  - (B) Rise of liquid in Capillary correlates with its viscosity
  - (C) Time of Fall of a ball in a fluid filled tube correlates with viscosity
  - (D) Torque required to shear a cone against the fluid lined plate correlates with viscosity
- 

**42. Which process causes phase inversion in emulsions?**

- (A) Increase in emulsifier concentration
  - (B) Change in phase volume ratio
  - (C) Increased droplet size
  - (D) Increased viscosity
- 

**43. Which form of a drug has greatest solubility?**

- (A) Anhydrous
  - (B) Amorphous
  - (C) Crystalline
  - (D) Monohydrate
- 

**44. Which of the following equations defines the surface excess?**

- (A) BET equation
  - (B) Gibbs equation
  - (C) Langmuir equation
  - (D) Young-Laplace equation
- 

**45. What is the usual range of aggregation number of surfactant molecules to form spherical micelles?**

- (A) 25 to 50
  - (B) 50 to 100
  - (C) 100 to 200
  - (D) 200 to 500
- 

**46. Which of the following solvent is most suitable to determine partition coefficient of drug?**

- (A) n-Hexane
  - (B) Chloroform
  - (C) Amyl acetate
  - (D) n-Octanol
-

47. Which of the following is not a plasticizer?

- (A) Dioctyl phthalate
  - (B) Glucaric acid
  - (C) Triacetin
  - (D) Triethyl citrate
- 

48. The time required for the complete degradation of a drug in solution is a finite value. The order of that reaction is:

- (A) Zero
  - (B) Pseudo First
  - (C) Second
  - (D) First
- 

49. Which material answers the description of being “a clay formed from volcanic ash, primarily composed of montmorillonite”?

- (A) Bentonite
  - (B) Diatomaceous earth
  - (C) Kaolin
  - (D) Veegum
- 

50. A researcher wishes to formulate a transdermal patch for which a bio adhesive polymer is required. Which of the following is NOT suitable?

- (A) Hydroxyethyl cellulose
  - (B) Polycarbophil
  - (C) Polyvinylpyrrolidone
  - (D) Polyvinylalcohol
- 

51. A manufacturer wishes to formulate a cough syrup complying to Indian Pharmacopeial standards. What should be the concentration of sugar in the syrup?

- (A) 66.7% w/v
  - (B) 66.7% w/w
  - (C) 85% w/v
  - (D) 85% w/w
- 

**52. In which of the following USP dissolution apparatus reciprocating motion is used?**

- (A) Apparatus III
  - (B) Apparatus IV
  - (C) Apparatus V
  - (D) Apparatus VI
- 

**53. The component of pharmaceutical aerosols which ensures that the product is delivered in proper and desired form is called**

- (A) Propellant
  - (B) Valve
  - (C) Actuator
  - (D) Dip Tube
- 

**54. Select the correct combination of tablet defect and one of its formulation related causes**

- (A) Capping – too much binder
  - (B) Lamination - granules with low content of fines
  - (C) Picking - too much lubricant
  - (D) Sticking – improper drying of granules before compression
- 

**55. According to the FDA, the guidelines for stability testing are outlined in:**

- (A) 1 CFR § 11.16
- (B) 11 CFR § 21.61
- (C) 21 CFR § 211.166
- (D) 31 CFR § 321.196

---

**56. In parenterals, Water attack test is used for which type of glass?**

- (A) Type I
  - (B) Type II
  - (C) Type III
  - (D) Non Parentral
- 

**57. Progesterone injection BP is a sterile solution of progesterone in a suitable vegetable oil. Which oil is used in its formulation?**

- (A) Cottonseed oil
  - (B) Ethyl oleate
  - (C) Fractionated coconut oil
  - (D) Soyabean oil
- 

**58. Which of the following combination of properties in a drug makes it suitable for once a day sustained release tablet?**

- (A) Absorbed from the stomach, plasma half-life is 8 hours
  - (B) Administered thrice a day, plasma half-life is 6 hours
  - (C) Dose – 400 mg, administered thrice a day
  - (D) Dose 500 mg, shows extensive first pass metabolism
- 

**59. Which of the following statements are correct :**

- 1. Zein is an alcohol soluble protein derivative from corn**
- 2. Eudragit L and S are soluble in intestinal fluid at pH 6 and pH 7**

- (A) Both 1 and 2 are correct
  - (B) Only 1 is correct
  - (C) Only 2 is correct
  - (D) Both 1 and 2 are incorrect
-

**60. Which of the following is the recommended storage condition for cyanocobalamin injection USP?**

- (A) Ambient storage
  - (B) Cool place
  - (C) Controlled cold temperature
  - (D) Controlled room temperature
- 

**61. Which of the following methods of sterilization should be chosen for sterilization of disposable plastic syringes?**

- (A) Autoclaving
  - (B) Dry heat sterilization
  - (C) Ethylene oxide sterilization
  - (D) Ultraviolet light sterilization
- 

**62. Which of the following is the least preferred propellant in aerosols due to its highest ozone depleting effect?**

- (A) Butane
  - (B) Freon
  - (C) Propane
  - (D) Tetrafluoropropene
- 

**63. A researcher wants to improve the spreadability of a cleansing cream product. Which of the following ingredients should be added?**

- (A) Isopropyl myristate
  - (B) Ozokerite
  - (C) Stearic acid
  - (D) Xanthan gum
- 

**64. A cosmetologist is preparing a mouth wash. What should be added to ensure hydration of dry mouth?**

- (A) Carbopol
  - (B) Carboxy methyl cellulose
  - (C) Triclosan
  - (D) Xylitol
- 

**65. A drug with  $pK_a$  value of 4.7 is more likely to be less ionized and more absorbed from:**

- (A) Stomach
  - (B) Small Intestine
  - (C) Large Intestine
  - (D) Oesophagus
- 

**66. Which of the following is applicable to Wagner Nelson method?**

- (A) It applies to drugs showing absorption by saturable kinetics
  - (B) It applies to orally administered drugs following a one-compartment model
  - (C) It provides absorption rate constant for drugs following multi-compartment model
  - (D) It characterizes drug absorption kinetics following non-oral administration
- 

**67. Which of the following statements is NOT TRUE for Flip-flop phenomenon?**

- (A) Absorption rate constant is significantly higher than the elimination rate constant
  - (B) Apparent elimination rate is influenced more by the absorption process than by the actual elimination process
  - (C) Drugs exhibiting flip-flop kinetics may show prolonged effects due to slower absorption
  - (D) Terminal slope of the plasma concentration-time curve reflects the elimination rate
- 

**68. In non-compartmental analysis, which statement DOES NOT APPLY to Area under the first moment curve [AUMC]?**

- (A) It is the area under the plot of the product of concentration and time vs. time
  - (B) It is used to calculate the mean residence time (MRT) of the drug
  - (C) It is used to calculate the bioavailability and clearance rate
  - (D) It is sensitive to the terminal phase of drug elimination
-

**69. The excretion rate constant can be determined from**

- (A) Salivary secretion studies
  - (B) Plasma drug concentrations
  - (C) Urinary sample analysis
  - (D) Lung expiration studies
- 

**70. The unit of zero order elimination rate constant is:**

- (A) mg/ml\*hour
  - (B) 1/hour
  - (C) mg/hour
  - (D) 1/ml\*hour
- 

**71. Chapter \_\_\_\_\_ of the Pharmacy Act, 1948 deals with State Pharmacy Councils.**

- (A) I
  - (B) II
  - (C) III
  - (D) IV
- 

**72. The First Schedule to the Drugs and Cosmetic Act, 1940 prescribes:**

- (A) Standards for cosmetics
  - (B) Standards for medical devices
  - (C) Authoritative books of Ayurvedic, Sidda and Unani systems
  - (D) Standards for drugs
- 

**73. Which of the following description defines a misbranded drug?**

- (A) If it has been substituted wholly or in part by another drug or substances
  - (B) If it is not labelled in the prescribed manner
  - (C) If it purports to be the product of a manufacturer of whom it is not truly a product
  - (D) If it is has been prepared, packed or stored under insanitary conditions where it may be rendered injurious to health
-

**74. How many maximum members can be there in the Narcotic Drugs and Psychotropic Substances Committee formed under the provisions of the Narcotic Drugs and Psychotropic Substances Act and Rules?**

- (A) 8
  - (B) 10
  - (C) 15
  - (D) 20
- 

**75. Identify the correct pair**

- (A) Essential Commodities Act + DPCO
  - (B) NPPA + CDSCO
  - (C) NPPA + August 2007
  - (D) CDSCO + Ministry of Chemicals and Fertilizers
- 

**76. Which of the following words fulfils the definition of therapeutic index?**

**"The therapeutic index is a quantitative measure of a drug's \_\_\_\_\_".**

- (A) Efficacy
  - (B) Safety
  - (C) Toxicity
  - (D) Therapeutic value
- 

**77. Lithium is used for the treatment of \_\_\_\_\_.**

- (A) convulsions
  - (B) bipolar disorder
  - (C) parkinson disease
  - (D) alzheimer's disease
- 

**78. Which of the following drugs is NOT used in the treatment of Alzheimer's disease?**

- (A) Aducanumab
  - (B) Carbamazepine
  - (C) Donepezil
  - (D) Galantamine
-

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**79. If a patient is suffering from severe fluid accumulation in the body due to kidney dysfunction, the drug used to treat this condition is \_\_\_\_\_.**

- (A) amlodipine
  - (B) vasopressin
  - (C) spironolactone
  - (D) glimepiride
- 

**80. Which of the following antiepileptic drugs is contraindicated for absence seizures in children?**

- (A) Ethosuximide
  - (B) Lamotrigine
  - (C) Phenytoin
  - (D) Valproic acid
- 

**81. Drug interaction with grapefruit juice involves \_\_\_\_\_.**

- (A) CYP450 inhibition
  - (B) renal excretion
  - (C) increased metabolism
  - (D) enzyme induction
- 

**82. Proton pump inhibitors act by inhibiting:**

- (A)  $H^+/K^+$  ATPase enzyme
  - (B)  $H^+/Na^+$  pump
  - (C)  $H^+/K^+$  pump
  - (D)  $H^+$ /ATPase enzyme
- 

**83. Antidote for paracetamol poisoning is \_\_\_\_\_.**

- (A) N-acetylcysteine
  - (B) naloxone
  - (C) atropine
  - (D) protamine
-

---

**84. Which of the following is not an aminoglycoside?**

- (A) Gentamycin
  - (B) Streptomycin
  - (C) Kanamycin
  - (D) Azithromycin
- 

**85. \_\_\_\_\_ is NOT a serious side effect of long-term corticosteroid therapy.**

- (A) Cushing's syndrome
  - (B) Dyslipidaemia
  - (C) Immune-stimulation
  - (D) Osteoporosis
- 

**86. Metoclopramide produces its pharmacological effects through \_\_\_\_\_.**

- (A) 5-HT agonist
  - (B) dopamine D<sub>2</sub> antagonist
  - (C) H<sub>1</sub> antagonist
  - (D) muscarinic antagonist
- 

**87. Which of the following is a recently preferred combination of drugs for the treatment of patients suffering from Hepatitis C.?**

- (A) Interferon and ribavirin
  - (B) Interferon and zidovudine
  - (C) Glecaprevir and pibrentasvir
  - (D) Sofosbuvir and Stavudine
- 

**88. In a 3-point bioassay, the main purpose is to:**

- (A) Determine LD<sub>50</sub>
  - (B) Compare potency of test and standard drug
  - (C) Determine ED<sub>50</sub>
  - (D) Measure toxicity
-

---

**89. Antithroid drug inhibiting hormone synthesis is \_\_\_\_\_.**

- (A) propranolol
  - (B) methimazole
  - (C) levothyroxine
  - (D) iodothyronine
- 

**90. The full form of CAR T- cell therapy used in cancer treatment is:**

- (A) Cancer antibody release Targeted – cell therapy
  - (B) Cancer antigen receptor Targeted – cell therapy
  - (C) Chimeric antigen receptor T- cell therapy
  - (D) Chimeric antibody release T- cell therapy
- 

**91. Which of the following is/are not true about Parkinson's disease?**

- A. Parkinson's disease is caused by the degeneration of the substantia nigra in the midbrain.
- B. Parkinson's disease is caused by the degenerative loss of nigrostriatal dopaminergic neurons.
- C. Bradykinesia, rigidity and tremor are the main symptoms in Parkinson's disease.
- D. Parkinson's disease is caused by the degenerative loss of nigrostriatal cholinergic neurons.

**Choose the correct answer from the options given below:**

- (A) A, B and D only
  - (B) A, B and C only
  - (C) C only
  - (D) D only
- 

**92. Which of the following is essential for DNA synthesis in RBC maturation?**

- (A) Iron
- (B) Vitamin B12
- (C) Vitamin C
- (D) Calcium

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**93. Which of the following prostaglandin is used in the treatment of pulmonary arterial hypertension?**

- (A) Thromboxane A<sub>2</sub>
  - (B) Prostacyclin
  - (C) Misoprostol
  - (D) Fasudil
- 

**94. Organophosphate poisoning typically presents with \_\_\_\_\_.**

- (A) dry mouth
  - (B) mydriasis
  - (C) bronchospasm
  - (D) tachycardia
- 

**95. Which drug is commonly used as an emergency oral contraceptive?**

- (A) Ethinyl estradiol
  - (B) Oxytocin
  - (C) Progesterone
  - (D) Levonorgestrel
- 

**96. A Quality Assurance manager conducts tests to determine the ability of a developed analytical method to accurately detect and respond to changes in various parameters. The tested parameter is called as \_\_\_\_\_.**

- (A) accuracy
  - (B) precision
  - (C) sensitivity
  - (D) specificity
- 

**97. An indicator changes colour over pH 3 to 4 is suitable for \_\_\_\_\_ titration.**

- (A) strong acid–strong base
  - (B) weak acid–strong base
-

- (C) strong base–weak acid  
(D) weak base–strong acid
- 

**98. Which of the following is NOT used as primary standard for acid-base titration in volumetric analysis?**

- (A) Anhydrous sodium carbonate  
(B) Potassium dichromate  
(C) Potassium permanganate  
(D) Sodium oxalate
- 

**99. Equivalent weight of  $\text{KMnO}_4$  in acidic medium is \_\_\_\_\_.**

- (A) molecular weight of  $\text{KMnO}_4/1$   
(B) molecular weight of  $\text{KMnO}_4/2$   
(C) molecular weight of  $\text{KMnO}_4/3$   
(D) molecular weight of  $\text{KMnO}_4/5$
- 

**100. In  $A = A_{1\%}^{1\text{cm}} \cdot b \cdot c$ ,  $A_{1\%}^{1\text{cm}}$  is defined as \_\_\_\_\_.**

- (A) Absorbance of a 1 mol/L solution in a 1 cm path length cell  
(B) Absorbance of a 0.1% w/v solution in a cell of 1 cm path length  
(C) Absorbance of a 1% w/v solution in a cell of 10 cm path length  
(D) Absorbance of a 1% w/v solution in a cell of 1 cm path length
- 

**101. 20 gm NaOH in 500 ml =**

- (A) 0.1 N  
(B) 1 N  
(C) 0.5 M  
(D) 0.05 N
- 

**102. Which of the following bonds will show the strongest absorption in their IR spectra?**

- (A) Carbon–hydrogen  
(B) Oxygen–hydrogen
-

- (C) Nitrogen–hydrogen
  - (D) Sulfur–hydrogen
- 

**103. In polarography, when limiting current is achieved, which of the following processes takes place?**

- (A) The rate of electron transfer just matches the rate of mass transfer
  - (B) The rate of electron transfer is slower than the rate of mass transfer
  - (C) The rate of electron transfer becomes independent of the rate of mass transfer
  - (D) The rate of electron transfer far exceeds the rate of mass transfer
- 

**104. Back diffusion occurs mostly in \_\_\_\_\_.**

- (A) Size exclusion chromatography
  - (B) HPLC
  - (C) Gas chromatography
  - (D) HPTLC
- 

**105. \_\_\_\_\_ chromatography is the correct technique for separation of two analytes with similar chemical nature.**

- (A) Partition
  - (B) Adsorption
  - (C) Chiral
  - (D) Ion pair
- 

**106. Which of the following components does NOT form a part of monochromator in spectroscopy?**

- (A) Beam splitter
  - (B) Collimating mirror
  - (C) Diffracting grating
  - (D) Prism
- 

**107. \_\_\_\_\_ gas is NOT suitable in gas chromatography?**

- (A) Argon
  - (B) Hydrogen
  - (C) Methane
  - (D) Nitrogen
- 

**108. Bathochromic shift depends on**

- (A) isolated double bonds
  - (B) conjugated double bond
  - (C) thermal conductivity
  - (D) absorption of light
- 

**109. Flame photometry is mainly used for estimation of \_\_\_\_\_.**

- (A) Alkali and alkaline earth metals
  - (B) Transition metals
  - (C) Halogens
  - (D) Organic compounds
- 

**110. Identify the correct statement with respect to gel permeation chromatography:**

- (A) Separation is based on the difference in size
  - (B) Smaller molecules are eluted faster than larger ones
  - (C) Stationary phase in GPC is a column filled with gel made of cellulose or silica
  - (D) It is widely used for the separation of small, low molecular weight, compounds
- 

**111. Non-aqueous titrations are mainly used for determination of \_\_\_\_\_.**

- (A) strong acids
  - (B) strong bases
  - (C) weakly acidic or basic compounds
  - (D) neutral substances
- 

**112. Which error can be minimized by increasing the number of observations?**

- (A) Systematic error
  - (B) Random error
-

- (C) Method error
  - (D) Personal error
- 

**113. The Q3C ICH guidelines are related to:**

- (A) Impurities in new drug products
  - (B) Impurities in new drug substances
  - (C) Elemental impurities
  - (D) Residual solvents
- 

**114. Which of the following is used as indicator electrode in acid-base titration?**

- (A) Calomel electrode
  - (B) Platinum electrode
  - (C) Silver electrode
  - (D) Glass electrode
- 

**115. Which of the following is NOT an advantage of paper chromatography?**

- (A) Can separate ionic and polar compounds
  - (B) High separation efficiency for large molecules
  - (C) Low cost and simplicity
  - (D) Requires only small sample volumes
- 

**116. Which functional group shows very strong absorption band in IR spectroscopy?**

- (A) C-H
  - (B) C-C
  - (C) C=O
  - (D) C=C
- 

**117. What is the range of the energy required to produce ions in mass spectrometry through electron ionization?**

- (A) 1 eV to 5 eV
- (B) 5 eV to 10 eV

- (C) 10 eV to 100 eV  
(D) 100 eV to 200 eV
- 

**118. What is the correct order of elution in column chromatography using silica gel as the stationary phase and a non-polar solvent?**

- (A) Amines > non-polar compounds > saturated hydrocarbons > esters  
(B) Esters > amines > non-polar compounds > saturated hydrocarbons  
(C) Non-polar compounds > saturated hydrocarbons > esters > amines  
(D) Saturated hydrocarbons > esters > amines > non-polar compounds
- 

**119. Identify the false statement with respect to McLafferty rearrangement in mass spectroscopy.**

- (A) It is a fragmentation reaction  
(B) A six-membered cyclic transition state is involved  
(C) It occurs in any compound that has a hydrogen atom on the  $\gamma$ -carbon  
(D) A radical cation and a neutral alkene fragments are formed
- 

**120. ALCOA principle stands for:**

- (A) Accurate, Logical, Complete, Organized, Available  
(B) Attributable, Legible, Contemporaneous, Original, Accurate  
(C) Analytical, Logical, Certified, Original, Approved  
(D) Attributable, Legible, Complete, Organized, Accurate
-