SECTION A

PY-1. The question consists of THIRTY FIVE sub-questions (1.1-1.35) of ONE mark each. For each of these sub-questions, four possible answers (a, b, c, and d) are given, out of which one is correct. Answer each sub-questions by darkening the appropriate bubble on the OBJECTIVE RESPONSE SHEET (ORS) using HB pencil. Do not use the ORS for any rough work. You may like to use the Answer Book for any rough work, if needed.

(1 x 25 = 25)

Q.1.1 The opium alkaloids in papaver somniferum is present as one of the following. Identify:
   a) Free alkaloid  b) As salts of citric acid c) As salt of meconic acid  d) none of these

Q.1.2 In expressing vitamin A activity one of the following is true. Identify :
   a) One RE represent the biological activity of 1 µg of all trans retinol  b) One RE represent the biological activity of 30 mg of all trans retinol  c) One RE represent the biological activity of 0.334 µg of all trans retinol  d) none of the above

Q.1.3 Which of the antineoplastic agent is metabolized by xanthine oxidase?
   a) 6-mercaptopurine  b) Vincristine  c) Chlorambucil  d) 6-Thioguanine

Q.1.4 If the drug has very small volume of distribution (V₀), it is likely that this drug:
   a) has a short biological life  b) does not accumulate in various tissues and organs
   c) not bioavailable  d) will not be effective

Q.1.5 The energy of a photon is given by the relationship E = hν where:
   a) E is energy of photon in kilo-calories  b) E is energy of photon in cycles/sec
   c) E is energy of photon in joules  d) E is energy of photon in ergs

Q.1.6 Gas chromatography technique can be used for:
   a) qualitative analysis only  b) quantitative analysis only  c) both  d) none of these

Q.1.7 Reference compounds widely used in NMR spectroscopy for proton spectra in non aqueous medium is
   a) Silane  b) Tetramethyl Silane  c) DPPH  d) Peroxylamide Di sulphonate

Q.1.8 Liposomes are:
   a) uni- or multilayered vesicles of phospholipids  b) Type of enzymes
   c) fibrinopeptides  d) Red blood cells

Q.1.9 The gondonal hormones like estrogens, androgens and progestins bind with:
   a) receptors located in the cytoplasm  b) receptors located in the nucleolus of the cell
   c) receptors located in the contractile vacuoles  d) none of the above

Q.1.10 A highly sensitive semi-quantitative method of detecting microbial antigens in the biological fluid is:
   a) counter immune electrophoresis  b) nitroblue terazolium dye assay
   c) the coomb’s test  d) radio-immune electrophoresis

Q.1.11 Polyene antibiotics such as amphotericin-B are most likely to:
   a) Inhibit bacterial DNA synthesis  b) bind to prokaryotic ribosomes
   c) act as antimetabolites  d) react with sterols in the membrane
Q.1.12 Among the following statements one of them is most appropriate for $\gamma$-Interferon.
Identify:
  a) They are virus specific substances and not host specific, naturally occurring glycoproteins  
  b) They are not virus specific substances, however, they are naturally occurring glycoproteins  
  c) They are not virus specific substances, however. They are not host specific either, they are naturally occurring glycoproteins  
  d) They are virus specific substances and host specific, naturally occurring glycoproteins
Q.1.13 The tear secretion contains an antibacterial enzyme known as
  a) Zymase  
  b) Diastase  
  c) Lysozyme  
  d) Lipase
Q.1.14 A list of ACE inhibitors is given below. One of them is not a prodrug. Identify:
  a) Benzepril  
  b) Captopril  
  c) Quinopril  
  d) Ramipril
Q.1.15 Which of the following is not a pharmacological effect of MORPHINE?
  a) Constriction of pupil  
  b) CNS depression  
  c) diarrhea  
  d) Respiratory depression
Q.1.16 Half life equation for first order reaction is:
  a) $t_{1/2} = a/2K$  
  b) $t_{1/2} = 0.693/K$  
  c) $t_{1/2} = 1/aK$  
  d) $t_{1/2} = 3/2 a^2K$
Q.1.17 Which one of the following is true for alkaloidal bases:
  a) Water solubility and organic solvent insolubility  
  b) Water insolubility and organic solvent insolubility  
  c) Water solubility and organic solvent solubility  
  d) Water insolubility and organic solvent solubility
Q.1.18 The conductivity of the solution of an electrolysis is:
  a) not temperature dependent  
  b) temperature dependent  
  c) Pressure dependent  
  d) none of these
Q.1.19 One of the material listed below is most commonly used in the film coating of tablets. Identify:
  a) Hydroxy Propyl Methyl cellulose  
  b) Acacia  
  c) Simple syrup  
  d) Bees wax
Q.1.20 Lamination is:
  a) Separation of a tablet into two or more distinct layers  
  b) Partial and complete separation of the top and bottom crowns of a tablet from the main body of the tablet  
  c) Process of sub-coating of tablets  
  d) None of the above
Q.1.21 Among the four OPIOIDS given below one of them is equipotent on $\mu, \delta, k_1$ and $k_3$ receptor types. Identify:
  a) Fentanyl  
  b) Methadone  
  c) Morphine  
  d) Etorphine
Q.1.22 In amperometric titrations one of the following is kept constant:
  a) Current  
  b) Resistance  
  c) Voltage applied  
  d) Conductance
Q.1.23 Disposable syringes are made up of:
  a) Polypropylene  
  b) Transparent polystyrene  
  c) Glass  
  d) Poly Tetra Chloro Ethylene
Q.1.24 Typhoid vaccine I.P. is a sterile suspension or freeze dried solid prepared from
  a) Salmonella Typhi Murium  
  b) Salmonella Para Typhi  
  c) Salmonella Typhi  
  d) Salmonella Enteritidus
Q.1.25 In the microbiological assay of bacitracin-I.P. the test organism used is:
  a) Staphylococcus aureus  
  b) Staphylococcus epidermis  
  c) Micrococcus lutes  
  d) Bacillus pumilus
Q.1.26 In the general formula $R-X-C-C-N : X = nitrogen or carbon, R = Different groups. This formula represents
  a) Antitussive  
  b) Antipyretics  
  c) Analgesics  
  d) Antihistaminic
Q.1.27 The biological source of cinnamon bark is
a) dried inner bark of the shoot of coppiced trees of *Cinnomomum zeylanicum*  
Family-Lauraceace  
b) dried inner bark of the shoot of coppiced trees of *Cinnomomum indicum*  
Family-Lauraceace  
c) dried wood bark of *Cinnomomum Camphora*  
family: Lauraceace  
d) dried inner bark of the shoot of coppiced trees of *Cinnomomum loureirii*  
Family-Lauraceace

Q.1.28 Identify the correct Geneva name for cortisone  
a) 4-pregnene-17α, 21-diol-3, 11, 20-trione  
b) 3-pregnene-17α, 21-diol-3, 11, 20-trione  
c) 4-pregnene-11β, 17α, 21-triol-3, 20-dione  
d) 3-pregnene-11β, 17α, 21-triol-3, 20-dione

Q.1.29 Identify one of the carbonic anhydrase inhibitor that inhibit only luminal  
carbonic anhydrase enzyme:  
a) Methazolamide  
b) Acetazolamide  
c) Dichlorophenamide  
d) Benzolamide

Q.1.30 Testosterone is rapidly converted to one of the following metabolic product in  
many tissues, which is active androgen:  
a) 5-β-dihydro testosterone  
b) 5-OH-testosterone  
c) 5-α-Dihydro Testosterone  
d) 5α, 6β-OH-Testosterone

Q.1.31 One of the following drugs is an alkylating agent. Identify:  
a) Cyclophosphamid  
b) Methotraxate  
c) Allopurinol  
d) Rifampicin

Q.1.32 Listed below are the structures of sulphonamides. One of them used as an  

![Antidiabetic Structure](image)

Q.1.33 Four sets of intermediates are listed below. Choose the correct set for the  
synthesis of BUPIVACAINE-I.P.  
a) α-Picolinic Acid Chloride with 2,6-Diethyl Aniline  
b) β-Picolinic Acid Chloride with 2,6-Dimethyl Aniline  
c) α-Picolinic Acid Chloride with Aniline Hydrochloride  
d) α-Picolinic Acid Chloride with 2,6-Dimethyl Aniline

Q.1.34 Among the immunizing agents listed below one of them is orally administered.  
Identify:  
a) Tetanus Toxoid  
b) Rabies Vaccine  
c) Poliomyelties Vaccine  
d) Mumps Virus Vaccine

Q.1.35 In vitro dissolution rate studies on drug product are useful in bioavailability  
evaluations if they are correlated with:  
a) disintegration rate  
b) in-vivo studies in at least three species of animals  
c) the chemical stability of the drug  
d) in-vivo studies in human

2. Match each of the items 1 and 2 on the left with an appropriate item on the right  
[ABCD] and write in the specific space provided in the answer-book as shown below.  
Model Question:50
Q following ring systems are present in alkaloids given in a to d. Match them
1) Ascorbic acid tablets I.P.       a) Fluorometry
2) Thiamine HCl I.P.       b) Ceric ammonium sulphate oxidation
c) Gravimetry
d) Non-aqueous

Model answer- Since (1) corresponds to(b), (2) corresponds to (d). write

<table>
<thead>
<tr>
<th>Question Number</th>
<th>(1)</th>
<th>(2)</th>
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<tr>
<td>50</td>
<td>b</td>
<td>d</td>
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Q.2.1 The mechanism of action of antiviral drugs is given. Match with closely associated drugs given in a to d
1) Inhibit an early step in viral replication probably viral uncoating    a) Amantadine
2) Irreversible inactivation of DNA polymerase    b) Methisazone
c) Rifampin
d) Acyclovir

Q.2.2 Given below are the etiologic agents. Match with common name of the infection listed in a to d
1) Enterobius vermicularis       a) Tape worm
2) Taenia saginata       b) Pin worm
c) Round worm
d) Hook worm

Q.2.3 The substance mentioned below elicit the therapeutic effect given in a to d
1) Hepatitis B. Immuno globulin antibodies     a) Induce active long term immunity in new host cell
2) Tetanus toxoid     b) Induce functional differentiation
c) Provide transfer of passive immunity
d) Provide short term non-specific bactericidal effect

Q.2.4 The following glycosides of Digitalis Purpurea given on hydrolysis the genius and sugar listed in a to d. Match them
1) Purpurea Glycoside-A     a) 1, 3, 5,11α, 19-hexahydroxy cardenolide + Glucose + Digitoxose
2) Purpurea Glycoside-B     b) 3β, 14β-dihydroxy cardenolide + Glucose + Digitoxose
c) 3β, 14β,16β-trihydroxy cardenolide + Glucose + Digitoxose
d) 3β, 12β, 14β-trihydroxy cardenolide + Glucose + Digitoxose

Q.2.5 Listed below are some important antibiotics a to d. Match them
1) bacitracin     a) From several amino acids
2) Erythromycin     b) From single amino acid
c) From acetate or propionate units
d) From sugars

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The substitution of R in antibiotics. Match them

1) Cloxacillin
2) Carbenicillin

Q.2.7 Some of the vitamins listed below are associated with co-enzyme given in a to d. Match them
1) Nicotinic acid  a) Coenzyme A
2) Riboflavin       b) Coenzyme I
                   c) TPP
                   d) FAD

Q.2.8 Listed below are some common additives. Match them with their correct use in a to d.
1) Acacia       a) Binder
2) Lactose      b) Glident
                 c) Diluent
                 d) Lubricant

Q.2.9 The compounds listed are assayed by methods given a to d. Match them
1) Pyridoxine Hydrochloride I.P.  a) Colorimetry
2) Ranitidine Hydrochloride       b) HPLC
                                   c) Flourimetry
                                   d) Non-aqueous titration

Q.2.10 The following technique are associated with the support materials used in the column which are given in a to d. Match them
1) Size exclusion chromatography  a) Octadecyl silane chemically bound to the porous silica
2) HPLC                        b) Cellulose acetate
                                c) Diatomaceous support
d) Agarose F.C.

Q.2.11 For the following potentiometric titrations indicators electrodes used is given from a to d. Match them
1) Acid base      a) Silver electrode
2) Complexometry  b) Glass electrode
                 c) Platinum electrode
d) Mercury-Mercury electrode

Q.2.12 Following ring systems are present in drugs listed below in a to d. Match them correctly:
1) Imidazole      a) Pelleterine
2) Isoquinoline   b) Nicotine
                  c) Papaverine
d) Pilocarpine

Q.2.13 Following constituents are present in drugs listed in a to d. Match them:
1) D-Linalool  
2) Panaxadiol  
   a) Opium  
   b) Coriandrum Sativum  
   c) Ginseng  
   d) Brahmi

Q.2.14 Systematic name of the following biologically important purines are given below in a to d. Match them correctly:
1) Adenine  
2) Guanine  
   a) 2-amino-6-oxy purine  
   b) 6-amino purine  
   c) 1,3,7-trimethyl-6-hydroxy purine  
   d) 6-hydroxy purine

Q.2.15 The drugs mentioned below are synthesized from intermediates listed in a to d. Match them
1) Meprobamate  
2) Diazepam  
   a) 2-Chloro-5-amino Benzphenone and glycine  
   b) 2-amino-5-Chloro Benzphenone and glycine  
   c) 2-ethyl Benzaldehyde and formadehyde  
   d) 2-methyl Benzaldehyde and formadehyde

Q.2.16 Some drugs listed below from a to d are having specific Mechanism of action Match them
1) Interferes with rennin angiotensin system  
2) Directly relaxes arteriolar smooth muscles and thus decreases peripheral resistance  
   a) Hydralazine  
   b) Methyl Dopa  
   c) Enalpril  
   d) Clonidine

Q.2.17 Given blow from a to d are application forms for the specific purpose listed as Per D and C act
1) Manufacture of cosmetics  
2) Retail sale of schedule C and C₁  
   a) Form No. 31  
   b) Form No. 20C  
   c) Form No. 20  
   d) Form No. 21

Q.2.18 For many drugs in the I. P, extract solubility limits are not listed. Instead, descriptive terminology is employ. Match the numbered solubility limits with the correct lettered solubility expression
1) Very soluble  
2) Sparingly soluble  
   a) Less then 1  
   b) From 1 to 10  
   c) From 30 to 100  
   d) From 100 to 1000

Q.2.19 It is often desirable to formulate a dosage form so that its pH is approximately
1) Blood  
2) Skin  
   a) pH 7.4  
   b) pH 6.5  
   c) pH 5.5  
   d) pH-6.8

Q.2.20 The following microscopical characteristic is associated with the drug mentioned in a to d. Match them
1) Rubiaceous type of stomata (Paracytic)  
2) Ranunculaceous type of stomata  
   a) Atropa belladonna leaves  
   b) Cassia acutifolia leaves  
   c) Cassia auriculata leaves  
   d) Digitalis purpurea leaves
Answer Key-1998 (Multiple Choice)


Match the column

1. (1) a  (2) d  
2. (1) b  (2) a  
3. (1) a  (2) c  
4. (1) b  (2) c  
5. (1) a  (2) c  
6. (1) a  (2) d  
7. (1) b  (2) d  
8. (1) a  (2) c  
9. (1) d  (2) b  
10. (1) d  (2) a  
11. (1) b  (2) d  
12. (1) d  (2) c  
13. (1) b  (2) c  
14. (1) b  (2) a  
15. (1) d  (2) b  
16. (1) c  (2) a  
17. (1) a  (2) d  
18. (1) a  (2) c  
19. (1) a  (2) c  
20. (1) b  (2) d