Question bank, paper -6

Chemotherapy

I. Name the following:

1.A neurotoxic sulfonamide. -(Sulfapyridine)

2.A Nitrofuran preparation against Coccidiosis.- (Bifuran)

3.A furazolidone preparation against salmonellosis in birds. -(Neftin)

4.Animal species in which acetylation of sulfonamide is not happening.- (Dogs)

5.A synthetic polymer which can be used to test allergy to penicillin.- (Penicilloyl polymer)

6.A synthetic Cephamycin.- (Moxalactam)

7.Compound successfully used by Paul Ehrlich for the first time in the treatment of sleeping sickness.- (Atoxyl, Sodium arsenite)

8.Father of chemotherapy.- (Paul Ehrlich)

9.Four anticancer antibiotics.- (Actinomycin- D, Dunomycin , Mitamycin, Streptonigrin)

10.First non hormonal synthetic chemical used clinically in the treatment of cancer.- (Nitrogen mustard)

11. The first antibiotic discovered.—(Penicillin)

12.First semisynthetic aminoglycoside antibiotic.- (Amikacin)

13.One antibiotic which inhibits cell membrane synthesis in bacteria.—(Polymixin)

14.One aminoglycoside antibiotic of non streptomyces origin.—(Gentamicin)

15.One monobactam group of antibiotic.—(Aztreonam)

16.One antibacterial agent which inhibits dihydropteroate synthetase .—(Sulfonamide.)

17.Organism which produce Thyrothricin.- (*Bacillus brevis*)

18.One urinary antiseptic used in vet. Practice.- (Methenamine)

19.One antiviral drug which prevents the penetration of virus in to cell.-(Adamantenamine)

20.One organic sulphur fungicide preparation .- (Monosulfiram)

21.One purine analog used in cancer therapy.- (6-mercaptopurine)

22.One antibiotic which blocks DNA directed RNA polymerase.—(Rifampin)

23.One non irritant sulfonamide used on mucous membrane. -(Sulfacetamide)

24.One poorly absorbed sulfonamide-.(Sulfasalazine, Sulfaguanidine)

25.One inhibitor of the dehydropeptidase which hydrolyse imipenim in the kidney proximal tubule.- (Cilastatin)

26.One coumarin antibiotic.—(Novobiocin)

27.Organism which produce Amphotericin B- (*Streptomyces nodosus*.)

28.Organism from which Nystatin is isolated.- (*Streptomyces noursei*)

29.Organism which produce cephalosporin.-(*Cephalosporium acremonium*)

30.Organism which produce Imipenem.- (*Streptomyces cattleya*)

31.One fourth generation fluoroquinolone.- (Trovafloxacin, Altrafloxacin)

32.Plant from which colchicine is obtained.-(*Colchicum autumnale*)

33.Sulfonamide used in the treatment of Leprosy .-(Dapsone.)

34.Sulfonamide used in conjunctivitis.- (Sulfacetamide)

35.Sulfonamide used in Coccidiosis.- (Sulfaquinoxaline)

36.Sulfonamide used as a diuretic-.(Acetazolamide)

37.Sulfonamide having no antibacterial action-(Acetazolamide, Diamox)

38.Sulfonamide with CNS stimulant activity. -(Azabon)

39.Sulfonamide which suppress PG- F activity and used in peptic ulcer.- (Sulfasalazine)

40.Scientist who discovered Penicillin.- (Alexander Fleming)

41.Scientist who discovered Streptomycin.-(Waksman)

42.Two antibacterial agent which inhibits dihydrofolic acid reductase.—(Trimethoprim, Ormetoprim)

43.Two aminocyclitol group of antibiotic which are bacteriostatic .—(Spectinomycin, Apramycin)

44.Three antibiotics which inhibits bacterial cell wall synthesis.—(Penicillin, Vancomycin and Cephalosporin)

45.Three antibiotics which inhibits bacterial protein synthesis(30 S subunits).—(Tetracyclins, Aminoglycosides, Aminocyclitols)

46.Three antibiotics which inhibits bacterial protein l synthesis(50 S subunits).—(Chloramphenicol, Macrolides, Lincosamides)

47.Three betalactamase inhibitors.—(Clavulanic acid, Salbactam, Tazobactam)

48.The first man made drug.- (Salvarsan, Arsphenamin)

49.The precursor chemical used for the synthesis of sulfonamide.- (Prontosil)

50. Scientist who found that Anthrax bacilli can be killed if common bacteria of the air is introduced in to urine.-(Pasteur and Joubert 1877)

51.The species of fungi which produce Penicillin.- (*Penicillium notatum*)

52.The species of fungi which produce Streptomycin.- (*Streptomyces griseus*)

53.The antibiotic isolated from *Streptomyces antibioticus*.-(Oleandomycin)

54.Two macrolide antibiotics.- (Erythromycin, Azithromycin.)

55.Two first generation quinolones.—(Nalidixic acid, Oxolinic acid)

56.Two extended spectrum aminoglycoside .—(Gentamicin, Tobramycin)

57.Two broad spectrum aminoglycoside.—(Neomycin, Kanamycin)

58.Two glycopeptide antibiotics.- (Vancomycin, Teicoplanin)

59.Two Polypeptide antibiotic.- (Polymyxin-B, Colistin)

60.Two polyene antibiotic.- (Nystatin, Hamycin)

61.Two antibacterial agent which blocks DNA gyrase.—(Quinolones, Novobiocin)

62.Two antibacterial agent which blocks DNA replication.—(Metronidazole, Nitrofurans)

63.Two azo derivative antifungal agent.- (Miconazole, Clotrimazole)

64.Two first generation cephalosporin.- (Cephalothin , Cephalexin)

65.Two second generation cephalosporin.- (Cephuroxime, Cephaclor)

66.Two third generation cephalosporin.- (Ceftriaxone, Latamoxef)

67.Two fourth generation cephalosporin.- (Cefepime, Cefquinome)

68.Two amphenicol antibiotics.- (Chloramphenicol, Thiamphenicol, Florfenicol.)

69.Two betalactamase inhibitors used as drugs.-(clavulanate, sulbactum)

70.Two nitrofuran compound for intra mammary use .-(Nitrofurazone, Furazolidone)

71.Two cephalosporins used therapeutically .- (Cephalothin, Cephaloridine)

72.Two semisynthetic derivative of cephalosporin-C.-(Cephalothin, Cephaloridine)

73.Two sulfonamide employed for topical use. -(Sulfacetamide, Silver sulfadiazine,Mafenide)

74.Two drugs which selectively blocks the synthesis of virus directed proteins.-(Hydroxy benzyl benzimidazole, Cytosine arabinoside, 5-iodo 2-deoxy uridine)

75.Two halogenated deoxyuridine.- IUDR, BUDR)

76.Two fourth generation cephalosporins.—(Cefepime, Cefquinone)

77.Two carbapenem group of antibiotic.—(Imipenem, Meropenem)

78.Two vinca alkaloid used in cancer therapy – (Vincristine, Vinblastine)

79.Two uridopenicillins.—(Mezlocillin/ Azlocillin)

80.Two prodrug of ampicillin.—(Hetacillin, Becampicillin)

81.Triple sulfa.-(Sulfadimidine, Sulfamerazine and Sulfamethazine)

82.Three acid resistant penicillin .- (Ampicillin, Cloxacillin, Phenethicillin)

83.Three Penicillinase resistant penicillin.- (Cloxacillin, Methicillin, Nafcillin)

84.Three broad spectrum penicillin.- (Ampicillin, Amoxycillin, Hetacillin)

85.Three hormones used in the treatment of cancer.- (Estrogen, Progestin, Corticosteroids)

86.The least toxic of the five polymyxins .- (Polymyxin – B)

87.Three penicillin substitutes.-(Cephalosporin, Erythromycin, Novobiocin)

88.Three anthracycline antibiotics.- (Daunorubicin, Adriamycin, Rubidazone)

89.Three antibiotic used as growth promoters .-(Avoparcin, Flavomycin, Moenomycin)

90.Three third generation cephalosporins.—(Cefotaxime, Cefixime, Cefoperazone)

91.Three ionophore antibiotic. –(Monensin, Lasalocid, salinomycin, Narasin)

92.Three antiviral antibiotics.- (Actinomycin-D, Phleomycin, Streptovitacin-C, Xerosin, Viscosin)

93.Three anti- pseudomonal penicillin.-(Carboxypenicillin, Carbenicillin, Ticarcillin)

94.The keratolytic component of Whitfields ointment.-(Salicylic acid)

95.Tetracyclin which is not markedly affected by milk and milk product while administering orally.-- (Doxycycline)

96.Two short acting sulphonamide, (less than 12 hrs)—(sulphadiazine, sulphisoxazole.)

97. Two intermediary acting sulphonamide (12 to 24hrs) (sulphadimidine, sulphamethoxazole.)

98. Two long acting sulphonamide (24 to 48 hrs)—(sulphadimethoxine, sulphamethoxypyridazine.)

99. Two ultralong acting sulphonamide (more than 48 hrs) –(sulphadoxine, sulphamethopyrazine.)

100. One prodrug of ampicillin-(hetacillin)

101.Two carbopenem antibiotic-(imipenem, meropenem)

102.One monobactam antibiotic- (aztreonam)

103. Two cephamycins-(cefoxitin, cefotetan)

104. A sulphonamide which is a potent inhibitor of Vitamine K. –(Sulphaquinoxaline)

105. A long acting sulphonamide which is used in animals-(sulphadoxine)

106. A third generation quinolone used in veterinary practice .-(Marbofloxacin)

107. Aminoglycoside having broadest spectrum of activity.-(Amikacin)

108. Beta lactam antibiotic having activity against gram-ve bacteria only.-(Aztreonam)

109. Intracellular storage form of aminoglycosides.-(cytosegreosom)

110. The enzyme that is inhibited by diaminopyridines –(DHFR)

II.Fill in the blanks with most appropriate words:

1.Acetazolamide, a sulfonamide compound produce diuresis by inhibiting .....enzyme. -(carbonic anhydrase)

2.Acetylated form of .....(sulfa compound) is comparatively more soluble in acidic urine.- (Sulfapyrimidines)

3.Actinomycin –D is good in .....(organ)cancer because of its excretion via bile.(-Liver)

4.Actinomycin –D is good in the treatment of .....(type of cancer).-(Hodgkins disease, R.E.lymphadinoma)

5.Among Tetracyclins .....was the first of this group discovered.-(Chlortetracycline)

6.Aquous solution of Tetracyclins will loose their activity in .....hours.-(24)

7.A post slaughter withdrawal period of .....days is necessary in sheep and goat after intra muscular administration of Oxytetracycline .—(28)

8.Among different Tetracyclines , ...will cross the Blood brain barrier more readily than others. -(Tetracyclin)

9.Among different Tetracyclines, ... is preferred in meningitis.-(Tetracycline)

10.Among Sulfonamides, ...is preferred in urinary infection in dogs.-(Sulfisoxazole)

11.Aminoglycoside antibiotics binds poorly to plasma albumin except .....-(Streptomycin)

12,Antimetabolite can be used as antineoplastic agent, ...is a example for folic acid analogue used to treat mammary carcinoma. - -(Methotrexate)

13.Bacitracin is produced by *Bacillus* .....-(*subtilis*)

14.Benzyl penicillin is otherwise known as penicillin .....which is destroyed by gastric acid.- (G)

15.Bacteria become resistant to penicillin because of the production of .....enzyme.-(Penicillinase)

16.Bacitracin is produced by the bacteria named.....- (*Bacillus subtilis*)

17.Bacitracin is isolated first from a patient named.....-.(Tracy)

18.Cephalothine and cephaloridine are semi synthetic derivatives of .....-(Cephalosporin C.)

19.Catalytic hydrogenation of streptomycin gives .....-(Dihydrostreptomycin)

20.Chloramphenicol is produced by the fungi .....-(*Streptomyces venezuelae*)

21.Chloramphenicol acts primarily on ..... ribosomes.-(50S)

22.Chloramphenicol suppress ..... of blood, hence it is better to avoid any chances for bleeding-(Coagulation)

23.Clavulanic acid is produced by *Streptomyces* .....-(*clavuligerus*).

24.Clotrimazole is a broad spectrum .....agent used topically--(antifungal)

25.Continued administration of Streptomycin causes damage to.....cranial nerve.- (8th)

26.Couprimyxin is dark green in colour on application, myxin is released from copper complex and the colour changes from green to .....- (Pink)

27.Colchicine is having .....effect hence can be used in the treatment of gout.- (anti inflammatory)

28.Clindamycin is a semisynthetic derivative of .....-(Lincomycin)

29.Cytosine arabinoside is an analogue of .....--.(2 deoxy cytidine)

30.Diamox , primarily have diuretic action However, it is having .....action also--. (Anticonvulsant)

31.Dihydrostreptomycin is produced by catalytic hydrogenation of .....--.(Streptomycin)

32.Dihydrostreptomycin is more toxic to auditory function (cochlea) causing .....--(Irreversible deafness)

33.Doxycycline and minocycline are .....acting Tetracyclins.—(long)

34.Eventhough discovered in 1928 the therapeutic application of penicillin starts only in the year .....---(1942)

35.Erythromycin is available in three forms ....and .....--(A, B and C)

36.Erythromycin is otherwise called as .....(Gallimycin).

37.Fatty acids like .....and.....are having antifungal action--.(Propionic and Caprylic)

38.For Intra venous injection only .....penicillin is used.-- (G)

39.Fluorescent microscopy reveals the .....fluorescence of the tetracycline in calcified tissue.-- (bluish)

40.Five fluorouracil inhibits the enzyme .....(Thymidylate synthetase)

41.Generally the oral dose of penicillin is .....to.....times more than the parenteral dose.(3-6)

42.Griseofulvin is produced by the fungi *Penicillium* .....(*griseofulvum*)

43.Griseofulvin is very effective systemic antifungal agent, it is an antibiotic which accumulate permanently in ..... tissues.- -(keratin)

44.In patients with glucose -6 phosphate dehydrogenase deficiency sulfonamide will cause .....anemia.-- (Heinz body)

45.In the auditory system Streptomycin will affect the .....portion.-- (Vestibular)

46.If tetracycline is dissolved in .....(solvent) it is stable for longer period.--(Propylene – water)

47.It is not advisable to administer Tetracyclins orally with in at least .....hour before or .....hour after antacids administration. -(one hour, two hour)

48.Among tyrothricin ..... is 25-100 times more active than the others.-(Gramacidine)

49.Isatin B thio semicarbazone selectively blocks .....-(pox virus)

50.Ionophores are polyether antibiotic derived from .....—(Streptomyces)

51.Local anaesthetic of .....series are antagonist with sulfonamide-.(Procaine)

52.Lincomycin is good in the treatment of osteomyelitis because of its .....by bone is highest.-(uptake)

53.Macrolide antibiotic posses a .....ring in their structure. -(lactone)

54.Malachite green is a .....compound used as antifungal agent in fishes.--(Zinc)

55.Methenamine (Hexamine) is an antibacterial agent for .....tract infection.- (urinary)

56.Mitamycin is effective in ....., a type of cancer. -(lymphomas and chronic leukemia)

57.Monensin sodium is an antibiotic mostly used as .....-(anti coccidial)

58.Moropenem antibiotics are not hydrolysed by renal dipeptidase and hence need not be combined with .....-(Cilastatin)

59.Nitrofurazone is a lemon yellow coloured powder used mainly against mixed infections of ..... wounds.- (superficial)

60.Oxytetracycline is produced by the fungi .....-(*Streptomyces rimosus*)

61.Out of the different penicillin namely F G X K O V , ...penicillin is the most active and ..... is the least active.- (G, K)

62.Out of the different penicillin namely F G X K O V ,.....and .....are semisynthetic.-(O, V)

63.Once penicillin solution is prepared it must be used with in .....days- (4-7)

64.One mg. crystalline penicillin is equal to .....U.S.P unit of penicillin.-(1667)

65.One of the important toxicity of Chloramphenicol is .....,.in which a raises in serum iron level is seen. -(Grey syndrome)

66.Penicillin was discovered by Alexander Fleming in .....(year).-(1928)

67.Penicillin is produced by .....,a soil fungi.-(*Penicillium notatum*)

68.Phenoxy methyl penicillin is a semisynthetic one and it is commonly known as .....penicillin which resist gastric acid.- (V)

69.Probenecid causes a .....in the excretion of penicillin.- (reduction)

70.Primarily ..... is a Taeniacide. However , it is having antifungal action as 2% ointment.- (Dichlorophen)

71.Progestin is used as an anticancer agent in the treatment of .....-(Endometrial carcinoma)

72.Resistance to sulpha may develop due to mutation or transfer of .....- (R) factor)

73.Rapid i/v injection of sulfonamide may cause shock particularly in .....species.-(Goat)

74.Semisynthetic penicillins are produced with the help of .....fungi.-(*Penicillium chrysogenum)*

75.Since Streptomycin does not passes the Blood brain barrier, in meningitis it has to be administered by .....route.- (intrathecal)

76.Streptomycin is more toxic to .....portion of auditory system.--(Vestibular)

77.Dihydrostreptomycin is more toxic to.....portion of auditory system.—(Cochlear)

78.Streptomycin was discovered by Waksman in the year.....,--(1943)

79.Streptomycin is produced by the fungi .....--(*Streptomyces griseus*)

80.Streptomycin is hydrolyzed by acid in to Streptidine, ...and.....-- (Streptose and N-methyl glucosamine)

81.Strong sol. of iodine is antifungal on the skin but continued application may cause .....-.(dermatitis)

82.Sulfonamides produce haemolytic anaemia in deficiency of .....enzyme .-(glucose -6- phosphate dehydrogenase)

83.Sulfonamide was first synthesized by .....in 1908.-(Gelmo)

84.Sulfonamide belongs to .....group of dyes.-(Azo)

85.Sulfonamides are generally white crystals and are neutral to pH but its sodium salts solution is having an..... pH.(Alkaline).

86.Sulfonamides are antibacterial mostly against gm –ve bacteria however, ...is a sulfonamide without any antibacterial action. - -(Acetazolamide/diamox)

87.Sulfonamide is a competitive inhibitor of .....--(PABA,)

88.Sulfonamide is a competitive inhibitor of .....enzyme --(dihydropteroate synthase)

89.Sulfadimidine is available as .....% solution.--(33 1/3)

90.Sulfa trimethoprim prevent the ..... and.....of bacterial dihydrofolic acid.--(formation and reduction)

91.Sulphur mustard was first used as a .....by Germans.-- (War gas)

92.Sulfaquinoxaline can be administered orally or in mash to chicks for the control of .....- (Coccediosis)

93.Sulfasalazine inhibits the synthesis of ..... in addition to antibacterial action in the control of diarrhoea. - - (Prostaglandin- F)

94.The general dose of penicillin is .....units / Kg. (4000—10000)

95.Tetracycline is produced by *Streptomyces* .....(*rimosus*)

96.Tetracyclin was discovered by .....in 1948 (Dugger)

97.Tetracycline is having a .....spectrum of activity.(Broad)

98.The loading dose of sulfonamide is .....mg/kg body weight.(150-200)

99.The use of Nitrofuroxime is restricted to ..... infection(Fungal/ Candida)

100.The concentration of tetracycline required to inhibit protein synthesis in mammalian tissue is .....times more than that for bacteria.-- (100)

101.The most important toxicity of fluoroquinolone is erosion of .....in young ones.—(articular cartilage)

102.The major source of L-asparaginase is .....bacteria. --(E.coli)

103.The 'Golden age' of antimicrobial therapy began with the production of .....in 1941.--(Penicillin)

104.Treatment with sulfonamide should not exceed.....days--.(7)

105,The neuromuscular blocking action of Streptomycin can be reversed by the administration of .....--.(Neostigmine)

106.Trimethoprim blocks the production of tetrahydrofolic acid from dihydrofolic acid by reversibly inhibiting the enzyme.....--(Dihydrofolate reductase)

107.The binding of tetrahydrofolic acid reductase is .....for bacterial enzymes than for corresponding mammalian enzymes.-- (Stronger)

108.The absorption rate of Benethamine penicillin is very slow and hence the injection frequency is ones in .....days--(3)

109.The acetylation of isonicotinic acid is fast in .....--(Eskimos)

110.The toxicity of isonicotinic acid can be reduced by prophylactic treatment with.....--(pyridoxine)

111.The three type of cephalosporins are named as ....., ...and .....--(N, P, C)

112.The ingredients of Whitfields ointment is .....and.....--(6% benzoic acid and 3% Salicylic acid in Vaseline)

113.The most important toxicity of aminoglycoside antibiotics are.....and .....--(Ototoxicity and nephrotoxicity)

114.Tetracyclines are deposited in the site of new mineralization of .....--(bone and cartilage)

115.Tyrothricin consist of 2 polypeptide component .....and ....-(Gramacidine and Tyrocidine)

116.Tolbutamide is an orally active antidiabetic agent coming under .....group.- -(Sulfonyl ureas)

117.Virginiamycin is a mixture of Streptogramin –B and .....—(Streptogramin-A)

118.Vincristine and vinblastine are two anticancer alkaloids, it is obtained from the plant .....- -(*Vinca rosea* / *Catharanthus rosea*)

119.Vincristine is more effective in acute .....in childrens.--(leukemia)

120.When penicillin is suspended in oil with aluminium monosterate it is called .....--(Benzathine penicillin)

121.Yellow oxide of mercury ointment is otherwise called as .....--(Golden ointment)

and it is good in ring worm occurring around the eye.

122.....blocks the renal tubular secretion of penicillin hence can be used to prolong the action. --(Probenacid)

123.....part of Streptomycin molecule is essential for the miscoding of protein synthesis by bacteria.--(Streptamine)

124.....is one of the best antibiotic in the treatment of osteomyelitis.-- (Lincomycin)

125.....is the fungistatic ingredient of Whitfields ointment.--(Benzoic acid)

126.....is an antiparasitic agent which reduce aflatoxin formation in infected feed.--(Thiabendazole)

127.....was the first drug of Quinolone group synthesized and was used in urinary tract infection.-(Nalidixic acid)

128.....acid ,a component of human sweat and is having antifungal action.--(Undecylinic)

129.....is an alkaloid from *Liriodendron tulipifera* which is a potent antifungal agent. --(Liriodenine)

.130.....is the nitrogen analogue of sulphur mustard .--(Nitrogen mustard)

131.....is the best example for antibacterial agent which affect the nucleic acid metabolism.- - (Quinolone /Rifamycin)

132..... pyridine (DAP) derivatives are commonly known as trimethoprim.—(2,4 Diamono)

133..... .function of auditory system is more affected by Dihydro streptomycin.-(Cochlear)

134.....crosses the blood brain barrier more readily than other derivatives of tetracyclins--.(Tetracycline)

135.....is the first orally active cephalosporin under first generation group -(Cephalexin)

136..... was the first among the tetracycline group discovered by Dugger in 1948.-(Chlor tetracycline)

.137.....is unique among other tetracyclins that intestinal excretion is the major route of elimination.—(Doxycyclin)

138.....and.....are more lipid soluble tetracyclines that penetrate The CNS, eye and prostate at therapeutic level.—(Doxycycline and minocycline)

139.Milk and milk products will reduce the absorption of Tetracyclines, while .....and.....will increase the absorption.—(citric acid and sodium metaphosphate)

140.....crosses the Blood Brain barrier more readily than other derivatives of tetracyclins.(Tetracycline)

141. Keratoconjunctivitis sicca (KCS)is seen in prolonged treatment with some sulpha like.....and .....(sulphasalazine, sulphamethoxazole)

142. Sulphadoxine is an .....sulphonamide acting for about a week after a single dosing.(ultralong acting)

143.Baquiloprim is mostly used in combination with .....(sulphadimethoxine)

144. Ticarcillin is 2-4 times more active than .....against pseudomonas infection.-(carbenicillin)

145.The phenomenon of antibiosis was demonstrated by .....-.(Pasteur and Jaubert)

146.Penicillin produces its antibacterial action by inhibiting the ..... enzyme (Transpeptidase)

147.....and .....are obtained from *Streptomyces tenebrarius*-(Tobramycin and Apramycin)

148.Some genes that confer drug resistance are located on ..... which are mobile transposable elements.-(Transposomes).

149.Chlortetracycline was discovered by .....in 1948-.(Dugger)

150.When host defence mechanisms are impaired .....antibiotics should be used.-(Bactericidal)

151.Substitution at N4 position of sulphonamide yields.....sulphonamides.-(gut)

152. Sulphonamide and trimethoprim are mixed at the ratio 5 : 1 in order to achieve a plasma concentration of .....(20: 1)

153.Duration of action of benzathine penicillin is .....days.-(5 to 7)

154.There is complete cross resistance among members of tetracyclines except for .....--(Aminocycline)

155.....is an antibacterial substance produced by normal flora of various orifices.-(Bacteriocins)

156.....are a family of cytokines that possess antiviral, immunomodulatory and antiproliferative action.-(Interferons)

157.Zidovudin is an antiviral drug that inhibits .....enzyme.—(RNA dependent DNA polymerase)

III. State true or false:

1.Acetazolamide can be used to treat Glaucoma.--(T)

2.In dogs sulphonamide will be acetylated .—(T)

3.Acetylated form of sulfonamide is more soluble in alkaline urine. --(T)

4.Acetylated form of sulfonamide is less toxic in herbivores .-- (T)

5.Acetylated sulfonamide is less toxic in carnivores than in herbivores.--(F)

6.Acetylated sulfonamide is more toxic in carnivores.--(T)

7.Actinomycin-D inhibits the DNA dependent RNA polymerase in cancer cells.-- (T)

8.Actinomycin D is an antibiotic, it is a powerful anticancer agent.- - (T)

9.Adamantanamine is used for the treatment of viral infection.--(F)

10.Adamantanamine is recommended for the prevention of infection by influenza virus.--(T)

11.Adamantanamine blocks the penetration of host cell by virus.--(T)

12.Adamantanamine is not effective against influenza virus. - - (F)

13.All the aminoglycoside antibiotics are obtained from streptomyces species.-- (F)

14.Aminoglycoside antibiotic will not cross the Blood brain barrier.-- (T)

15.Aminoglycoside antibiotics are poorly absorbed from the Gastro intestinal tract.--(T)

16.Amikacin is resistant to bacterial enzymes that inactivate other aminoglycosides.-- (T)

17.Anthracycline antibiotics are one of the most potent group of antitumor agent.--(T)

18.Alkalinisation of the urine increases the solubility of acetylated sulfonamide. --(T)

19.Amphotericin is well absorbed orally.—(F)

20.Amorphous form of penicillin dissolved in water to give a milky white suspension.-- (T)

21.Aqueous solution of chloramphenicol is unaffected even after boiling --.(T)

22.Aqueous solution of chloramphenicol is stable for one month at room temperature.-- (T)

23.Aminosalicylic acid is a structural analog of PABA. --(T)

24.Antiviral drugs have wide margin of safety.- (F)

25.Bacillus anthracis is highly susceptible to Penicillin-- (T)

26.Bacterial resistance to sulfonamide is mediated mainly by transferring K factor.- - (F)

27.Baquiloprem with sulphadimidine is recommended for use in large animals.—(T)

28.Benzathin penicillin is an amorphous form --(T)

29.Both Gm +ve and Gm-ve bacteria are susceptible to cephalosporin.--(T)

30.Body defence will play well in anticancer treatment .--(T)

31.Carbapenems are beta lactam group of antibiotic.—(T)

32.Cephalosporins are well absorbed orally.-- (F)

33.Carboxy penicillin is recommended against indole positive bacteria.- - (T)

34.Chlorosalicylanide is a less active antifungal agent than salicylic acid.--(F)

35.Chlortetracyclin is more effective than Oxytetracycline in urinary tract infection--(F)

36.Clinical use of sulfanilamide starts in the year 1936.--(T)

37.Cornibacterium constituents inhibits multiplication of Arbovirus.-- (T)

38.Crystalline penicillin dissolved in water to give a milky white suspension.-- (F)

39.Crystal violet/ Gentian violet 1% solution in alcohol is a very good antifungal agent.- (T)

40.Cysteine is antagonist with streptomycin. --(T)

41.Cytosine arabinoside prevent viral penetration in to cells.-- (F)

42.Cytosine arabinoside prevent multiplication of vaccinia and herpes simplex virus.--(T)

43.Cyclophosphamide is effective in lymphosarcoma .--(T)

44.Chlorambucil is recommended in ovarian carcinoma.--(T)

45.Chloramphenicol is not allowed for use in food producing animals. –(T)

46.Dogs appear to be more sensitive to ketoconazole and hence chances for liver toxicity is more.--(F)

47.DHP-1 inhibitor cilastatin decreases the nephrotoxicity of imipenem.—(T)

48.Dihydropteroate synthase incorporate PABA in to dihydropteroic acid.--(T)

49.Dry salts of penicillin is active for 2-3 years.--(T)

50.Dimethyl chlortetracycline causes nephrogenic Diabetic insipidus. --(T)

51.Development of resistance by *Staphylococcus aureus* is by transduction by bacteriophage .--(T)

52.Diamino diphenyl sulfone is used in the treatment of Hansen's disease.--(T)

53.Fast acetylation of isonicotinic acid by Eskimos is inherited as an autosomal dominant trait.-- (T)

54.Furazolidone interfere with acetylation of Co-enzyme-A .--(T)

55.Florfenicol is not known to produce aplastic anemia.—(T)

56.Furazolidone is effective against vaginal trichomoniasis.-- (T)

57.Fucidic acid is an antibacterial agent used against penicillinase producing bacteria.--(T)

58.Fucidic acid is a narrow spectrum steroidal antibiotic.--(T)

59.Food will not alter the absorption of Tetracyclins.-- (F)

60.For the full effect of antibiotics the support of cell defence and humoral system essential.--(T)

61. Fourth generation cephalosporins are active against pseudomonas.—(T)

62.Griseofulvin is highly effective in dermatophytes.-- (T)

63.Griseofulvin is a hepatic microsomal enzyme inducer.-- (T)

64.Griseofulvin binds to microtubules of fungus to inhibit spindle formation and mitosis.—(T)

65.Genetic deficiency of NADH dependent methemoglobin reductase produce methaemoglobinemia in sulfone treatment .--(T)

66.Hydroxy benzyl benzimidazole is more active against Coxakie-B-virus and echovirus.--(T)

67.Halogenated deoxyuridine selectively inhibits DNA synthesis.-- (T)

68.Halogenated deoxyuridins are incorporated by virus in place of thymidine and causes chromatic breakage.-- (T)

69.Helinin produced by *penicillium faviculorus* prevent swine influenza virus.-- (T)

70.Hetacillin is a penicillin but has no antibacterial action in its original state.-- (T)

71.High concentration of Streptomycin is Bactericidal.-- (T)

72.Hydrolysed product of Hetacillin is antibacterial.--(T)

73.Host defence has nothing to do with the antibacterial effect of antibiotics in treatment.-- (F)

74.Iodine ointment is having antifungal action.--(T)

75.Iodine is a very powerful antiseptic , it is also having antimycotic action. - - (T)

76.Imipenem is a beta lactam antibiotic and is nephrotoxic.-(T)

77.Imipenem is a beta lactam antibiotic and it is not nephrotoxic .—(F)

78.Imipenem is a Beta lactam antibiotic rapidly hydrolysed by dehydropeptidase in renal tubules hence it is to be combined with Cilastatin, a reversible inhibitor of this enzyme.--(T)

79.If kidney function is deranged chloramphenicol is not advisable.--(F)

80.In the systemic treatment the duration of action of penicillin can be increased by combining with probenecid.- -(T)

81.Intramuscular route is the safest for chlorotetracyclin injection in dogs.—(F)

82.Leptospira is highly susceptible to penicillin.-- (T)

83.Lincomycin is very effective in osteomyelitis. –(T)

84.MAO inhibitors potentiate the anticonvulsant activity of Acetazolamide.-- (T)

85.Meropenem does not require cilastation as it is having no nephrotoxic action.—(T)

86.Mitamycin -C inhibits replication of DNA in proliferating cells.--(T)

87.Mithramycin is specifically used for testicular carcinoma.—(T)

88.Naftifine is a topically used antifungal agent. –(T)

89.Neomycin is effective against pseudomonas.--(F)

90.Nitrofuran is not effective against pseudomonas --(F)

91.Nitrofurans are having antiprotozoal and antifungal action .--(T)

92.Nitrofurans are reduced by bacteria to reactive intermediate that inhibit nuclic acid synthesis.—(T)

93.Nystatin is good in monilial infection of G.I. tract and systemic moniliasis.-- (T)

94.Nystatin is good in mastitis due to yeast like organism. --(T)

95.Once penicillin is reconstituted it need not be kept under refrigeration.-- (F)

96.Oral antacids will not affect the absorption of Penicillin from G.I.Tract.--(F)

97.Oral tetracyclin will seriously affect the ruminant digestion.—(T)

98.Oily vehicle for penicillin preparation may cause reaction in horse while injection .—(T)

99.Oxy tetracycline is effective topically and used in kerato-conjunctivitis.-- (T)

100.One of the important side effect of griseofulvin is reduction in spermatogenesis.-- (T)

101.Penicillin salts are hygroscopic.-- (T)

102.Penicillin can cross the Blood Brain Barrier easily.-- (F)

103.Penicillin inhibits the cell membrane synthesis in susceptible bacteria. - - (F)

104.Polymyxin is very effective in urinary infection caused by pseudomonus.-- (T)

105.Polymyxin –E is otherwise known as colistin.--(T)

106.Prolonged trimethoprim treatment may produce teratogenicity.-- (T)

107.Prolonged trimethoprim treatment may produce bone marrow suppression.-- (T)

108.Procaine is added to Penicillin to reduce pain during injection.-- (F)

109.Procaine is added to Penicillin to reduce the absorption rate.-- (T)

110.Procaine penicillin should not be used in birds, snakes, turtles, guinea pigs and chinchillas because they are sensitive to procaine.—(T)

111.Pivampicillin and talampicillin are prodrug of ampicillin.—(T)

112.Probenacid reduces the excretion of penicillin.--(T)

113.Pseudomonus and proteus are susceptible to oxytetracyclins.-- (F)

114.On Gram -positive cocci Tetracyclin is less effective than penicillin.-- (T)

115.Rifampin inhibit DNA dependent RNA polymerase.—(T)

116. Streptonigrin is good in Lymphoma . –(T)

117.Salicylic acid require the presence of water for its keratolytic effects.-- (T)

118.Sterile unbuffered solution of sodium salt of sulfonamide can be given intra muscularly without any side effects.—(F)

119.Urea increases the activity of sulfonamide in intrauterine use.—(T)

120.Shigella organism get antibiotic resistance by conjugation process.--(T)

121.Some time streptomycin dependence may develop in susceptible bacteria.-- (T)

122.Some times if the antibiotic sensitivity test of the organism shows negative (resistant), the drug may be effective against the same organism in the urinary tract.--(T)

123.Some times if the antibiotic sensitivity test of the organism shows positive (susceptible) it may not be effective against it in cerebrospinal fluid.--(T)

124.Sodium iodide can be injected intra venously for systemic antifungal infection.-- (T)

125.Sulfonamide is mainly bacteriostatic agent.-- (T)

126.Sulfonamide is mostly active against G –ve bacteria.-- (T)

127.Sulfadoxime is a long acting sulfonamide.-- (T)

128.Sulfisoxazole largely confined to the extracellular fluid.- (T)

129.Sulfonamide has antithyroid activity in rats. - - (T)

130.Sulfa- trimethoprim combination is very effective in Genito- urinary infection with Gm-ve bacteria.-- (T)

131.Sulfonamide causes reduction of egg shell thickness.--(T)

132.Sulfonamide is contraindicated in hepatic and renal dysfunction.-- (T)

133.Sulfonamide is not excreted in milk.--(F)

134.Sulfonamides and salicylates will displace penicillin from plasma binding sites.-- (T)

135.Streptomycin and its salts are hygroscopic . --(T)

136.Streptomycin is an antibacterial agent acts by inhibiting the protein synthesis in susceptible bacteria, it inhibits the 30 S subunit of ribosome. - - (T)

137.Streptomycin is having curare like action on neuromuscular junction.-- (T)

138.Streptococcus is one among the most susceptible bacteria to Tetracyclins. --(T)

139.Streptozotocin is mainly used for inducing diabetes in experimental animals, it is effective in the treatment of carcinoma.--(T)

140.Since sulfonamide is not excreted in milk withdrawal period need not be given before using the milk. –(F)

141.Streptonigrin is an anticancer antibiotic.—(T)

142. To counteract the toxicity of methotrexate thymidine or leucovorin calcium is administered every 6 hour.--(T)

143.Tiamulin is a pleuromutilin class of antibacterial agent.—(T)

144.Tetracycline and Chloramphenicol will interfere with antibacterial action of Penicillin.--(T)

145.Tetracycline salt in powder form is stable for a short period.-- (F)

146.Tetracyclins can be administered orally in adult ruminants with out any side effects. –(F)

147.Tetracyclins potentiate the action of anticoagulants.-- (T)

148.Tetracyclins can be used to label newly formed bone.-- (T)

149.Tetracycline was discovered by Burkholder in 1947. --(F)

150.Teicoplanin is a glycopeptide antibiotic.-(T)

151.The influence of gut pH on absorption of sulfa is less than penicillin.-- (T)

152.The antibacterial action of Nitrofuran is not at all affected by the presence of milk.-- (F)

153.The main advantage of Acetazolamide is the lack of development of refractiveness in the treatment of oedema.--(F)

154.The dosages of anti neoplastic drugs are usually calculated based on the body weight of the patient.- - (F)

155.The action of silver sulfadiazine is adversely affected by procaine injection.--(F)

156.The spelling of Gentamicin end in ‘micin’ indicate that the source of this aminoglycoside is not streptomyces.—(T)

157.The action of sulfacetamide is not affected by procaine injection.--(T)

158.The half life of streptomycin in plasma and otic fluid is the same. --(F)

159.The half life of streptomycin in otic fluid is 5 to 6 times longer than in plasma.-- (T)

160.The acetylation of isonicotinic acid is fast in Negritos.-- (F)

161.Third generation cephalosporins are highly active against pseudomonas.--(T)

162.Tuberculosis and Typhoid organisms are not susceptible to Sulfonamide.--(T)

163.

164.Unlike the discovery of penicillin the discovery of streptomycin was accidental.-- (F)

165.Unlike other broad spectrum antibacterial agents Erythromycin rarely induce significant changes in the intestinal flora.--(T)

166.Like the discovery of Penicillin the discovery of Streptomycin was accidental.--(F)

167.The discovery of Streptomycin was the result of a well planned research work.--(T)

168.Unlike the discovery of penicillin the discovery of Streptomycin was the results of a well planned research work.--(T)

169.Vinblastine is more active than Vincristine.--(F)

170.Citric acid and sodium metaphosphate enhances the absorption of tetracycline.-- (T)

171.The absorption of tetracycline is reduced by the presence of calcium and magnesium in the diet .--(T)

172.Milk will not affect the oral availability of Tetracyclins. --(F)

173.Tetracyclin will chelate with calcium and magnesium.-- (T)

174.Oral antacids will not reduce the availability of Tetracyclins. --(F)

175.Acetylation of sulfonamide is taking place in all the tissues, however it is most abundant in Liver.--(T)

176. Third generation cephalosporins are effective against Gm –ve organism.(T)

177. Carbapenems are betalactam antibiotics.—(T)

178. Sulphaguanidine is not a gut acting drug.--(F)

179.The effect of two bactericidal agents are additive in nature if the organism is sensitive to both.-(T)

180.Triple sulpha is used to reduce hepatotoxicity.-(F)

181.Prolonged exposure of penicillin to water cause hydrolysis and hence reduce the activity.-(T)

182.Clavulanic acid is added to amoxicillin in the ratio 1:5.-(T)

183.Loop diuretics can potentiate the nephrotoxicity of aminoglycosides.-(T)

184.Bone marrow suppression is maximum in the case of florphenicol.-(F)

185.Vancomycin is a glycopeptides antibiotic.-(F)

186.Actinomycin D is a viral protease inhibitor.-(F)

IV.Match the following:

A	B
1.Sodium bicarbonate	Magic bullet----(10)
2. Sulfonamide	Suicide inhibitor—(13)
3. Sulfacetamide	Antileprotic---(12)
4. Trimethoprim	Reduced egg shell thickness.-- (2)
5. Cephalosporins	Sequential blocker---(11)
6. Novobiocin	Streptomycin+INH+PAS –(8)
7. Kanamycin	Stevens Johnson syndrome.-- (2)
8. Tuberculosis	Tetrahydrofolate reductase.-- (4)
9. Transduction	Bacterial cell membrane----(6)
10. Paul Ehrlich	Inhibit bacterial cell wall formation.-(5)
11. Sulfa + trimethoprim	Eye infection----------(3)
12. Sulfones	Bacterial protein synthesis.—(7)
13. Clavulanic acid	Antibacterial drug resistance.-(9)
	Urinary alkaliniser------(1)

A	B
1. 4_{th} generation cephalosporin	Cartilage toxicity—(11,9,10)
2. 3^{rd} generation cephalosporin	*Streptomyces nodosus*--(13)
3. Imipenem	*Streptomyces noursei* –(15)
4. Group 3 tetracyclins	Anticoccedial action—(12)
5. Group 2 tetracyclins	Hindustan antibiotic Pimpri—(14)

6. Streptomycin	2_{nd} generation fluoroquinolones.(10)
7. Dihydrostreptomycin	Cefpime------(1)
8. Tetracyclins	Minocycline—(4)
9. Levofloxacin	More vestibular damage. --(6)
10. Norfloxacin	Cefotaxime---(2)
11. Ciprofloxacin	Tooth discolouration.-- (8)
12. Nitrofurazone	3^{rd} generation fluoroquinolones --(9)
13. Amphotericin-B	More of auditory damage.-- (7)
14. Hamycin	Methacycline—(5)
15. Nystatin	Dehydropeptidase.—(3)

A	B
1. Penicillinase resistant penicillin	Apramycin---- 15
2. Aminopenicillin	Virginiamycin M and A--12
3. Carboxypenicillins	Oxacillin---1
4. Uridopenicillins	Amoxicillins--2
5. Second generation cephalosporin	Ceftiofur--6
6. Third gen. Cephalosporin	Azetreonem--9
7. Fourth gen. Cephalosporin	Florfenicol--13
8. Aminoglycoside	Piperacillin--4
9. Monobactam	Azithrimycin--14
10. Aminocyclitols	Cefapime--7
11. Ionophores	Ticarcillin--3
12. Streptogramins	Monensin--11
13. Amphenicols	Cefachlor--5
14. Macrolide	Apramycin--15
15. Aminocyclitols	Kanamycin--8

A	B
1.Pencillin	Neutropenia—7
2. Gentamicin	Carcinogenicity—8
3. Retracycline	Embryotoxicity-6
4. Chloramphenicol	Cardiovascular toxicity-(9)
5. Ketoconazole	Theileriosis-(11)
6. Mebendazole	Trypanosomosis-(10)
7. Cyclophosphamide	Amoebiosis-(12)
8. lomustine	Hypersensitivity-(1)
9.Monensin	Nephrotoxicity-(2)
10. Suramin	Osteotoxicity-(3)
11. Buparvaquone	Gynaecomastia-(5)
12. Nitrofurans	Grey baby syndrome-(4)

V.Underline the odd one and give reasons:

1.a) Sulfacetamide, b)Sulfadiazine c) Sulfapyridine d) Sulfamerazine.-----(a) is the only topical sulfonamide.

2.a) Sulfacetamide b) Silver sulfadiazine c) Sulfadiazine**.** -----(c) The only systemic sulfa in the group.

3. a) Nitrofuroxime b) Nitrofurantoin c) Furazolidone d) Nitrofurazone.--- -(b) the only systemic nitrofuran in the group.

4. a) Penicillin b) Cephalosporin c) Bacitracin, d) Kanamycin-----(d) the only one which inhibit protein synthesis in bacteria , others are acting on cell wall.

5. a) Streptomycin b) Chloramphenicol c) Tetracyclin d) Griseofulvin -------(d) only one which affect nuclic acid metabolism.

6. a) Mitamycin b) Streptomycin c) Kanamycin d) Neomycin-----(a) only one which affect Intermediary metabolism.

7. a) Streptomycin b) Neomycin c) Kanamycin d) Penicillin------(d) only one with narrow spectrum of action.

8. a) Tetracycline b) Erythromycin c) Streptomycin d) Chloramphenicol.------(c) only one with medium spectrum of action, others are having broad spectrum of action.

9. a) Reduction b) Transformation c) Transduction d) Conjugation-----(a) It is a metabolic reaction, others are process by which drug resistance is transferred.

10. a) Ampicillin b) Hetacillin c) Amoxycillin d) Penicillin G-----(d) one with narrow spectrum of activity, others are with broad spectrum.

11. a) Methicillin b) Cloxacillin c) Nafcillin d) Penicillin G ----(d) Only one susceptible to penicillinase others are resistant.

12. a) Clavulanic acid b) Salbactum c) Tazobactam d) 6-amono penicillanic acid---(d) only basic penicillin others are beta lactamase inhibitors.

13. a) Cephalothin b) Ceftriaxone d) Cephotaxime e) Latamoxef-----(a) is the only first generation cephalosporin others are third generati

VI. Choose the correct answers from the given one:

1.Acquired drug resistance in bacteria is transferred to other bacteria by a) Transduction b) Mutation c) Conjugation d) All the above. –(d)

2.Among the following sulfonamide one is recommended in Hansens disease. a) Sulfaquinoxaline b) Sulfaguanidine c) Dapsone d) sulfadimidine.--(c)

3.Antibiotic will be more effective in a) Lag phase b) Log phase c) Stationary phase of bacteria---(b)

4.Acetylated sulfa is less soluble in a) alkaline medium b) Acidic medium c) neutral medium d) none of the above.- - (b)

5.A topically active sulfonamide a) Sulfamezathin b) Phthalyl sulfathiazole c) Sulfadiazine d) Silver sulfadiazine.—(d)

6.Bacteria become resistant to microorganism by a) Mutation b) Transduction c) Transformation d) Conjugation e) All the above---(e)

7.Combination of antibiotics are used a) When we do not know the causative agent b) To postponed refractivenes c) To increase in-vivo activity d) All the above---(d)

8.Cephalothin and Cephaloridine are semisynthetic derivative of a) Cephalosporin N b) Cephalosporin P c) Cephalosporin C---(c)

9.Fixed dose combination of antibiotics have the following disadvantage a) Effective concentration of either might not reach b) False sense of security c) Large dose of either may possible when first fails d) Super infection may occur e) All the above---(e)

10.Drug resistance in bacteria is transferred by a) Transformation b) Transduction c) Conjugation d) All the above.---(d)

11.First quinolone synthesized a) Cinoxacin b) Nalidixic acid c) Norfloxacin d) None of the above. –(b)

12.Following are systemic sulfonamide except a) Sulfacetamide b) Sulfadimidine c) Sulfathiazole d) Sulfamerazine--.(a)

13.Following are gut acting sulfonamide a) Sulfaguanidine b) Phthalyl sulfathiazole c) Succinyl sulfathiazole d) All the above.--(d)

14.Generally sulfonamides are administered by intravenous route for systemic use Except a)Sulphathiazole b) Sulfamerazine c) Sulfamethazine.d) Sulfadimidine ---(a)

15.IUDR and BUDR are halogenated deoxy uridine .a) it is converted to di and tri phosphate b) act as a precursor for DNA c) incorporated in place of thymidine d) all the above.- -(d)

16.Methotrexate is used as an anticancer agent acting as a) Purine analog b) Alkyl sulphone c) Pyrimidine analog d) None of the above.--(d)

17.Nitrofuran derivatives are active against a)pseudomonas b) E-coli c) Aerobactor d) Trichomonas e) Coccedia f) All the above---(f)

18.Oral availability of tetracyclins is reduced by a) Antacids b) Milk c) Milk products d) Magnesium e) all the above.--- (e)

19.One of the following is a gut acting sulfa a) Sulfaguanidine b) Sulfacetamide c)Sulfadiazine d) Sulfamerazine.-- (a)

20.One of the following is a penicillinase resistant penicillin. A) penicillin G b) ampicillin c) hetacillin d) cloxacillin.- - (d)

21.One of the following is an antifungal antibiotic.a) penicillin b) griseofulvin c) imipenem d) gentian violet. - - (b)

22.One of the following Fluoroquinolone is developed exclusively for use in the veterinary practice. a) Enrofloxacin b) Ciprofloxacin c) Orbifloxacin d) none of the above.- - (a)

23.Penicillinis having a)Narrow spectrum of activity against Gm+ve bacteria b) Broad spectrum of activity against Gm +ve c) Narrow spectrum of activity against Gm –ve bacilli d) Broad spectrum of activity against Gm –ve.---(a)

24.Quinolones developed only for Vety. use a) enrofloxacin and ciprofloxacin b) danofloxacin and Enrofloxacin c) enrofloxacin and norfloxacin d) norfloxacin and danofloxacin. –(b)

25.Streptomycin is a very effective antibiotic against gm –ve bacteria. a) It produce neuromuscular blockade in hosts b) Produce miscoding of protein synthesis in bacteria c) produce vestibular damage in hosts. d) all the above.- - (d)

26.Site of action of penicillinase a) thiazolidone ring b) beta lactam ring c) side chain d) all the above.—(b)

27.Suicidal inhibitor of betalactamase is a) Imipenem b) Aztreonam c) Clavulanic acid d) Monolactam.—(c)

28.Tetracycline is more effective in a) slightly basic pH b) slightly acidic pH

c) neutral pH d) not affected by pH---(b)

29.The main route through which drugs are excreted after biotransformation is via a) kidney liver c) sweat glands d) milk e) none of the above. --(a)

30.The drug of choice for *Bacillus anthracis*. a) Sulfa b) Neomycin c) Hexamine d)Penicillin—(d)

31.The antibacterial action of sulfonamide was revealed by a) Gelmo in 1908 b) Domagk in 1935 c) Alexander Fleming in 1928 d) Waksman in 1943.- - (b)

32.Whitfield ointment consist of a) salicylic acid in Vaseline b) Benzoic acid in Vaseline c) Both benzoic and salicylic acid in Vaseline d) resorcinol in Vaseline.- - (c)

33.Urea increases the activity of sulfonamide in intrauterine use. a) Increase their solubility b) inhibits the reaction with protein c) None of the above d) Both a and b are correct ---- (D)

34.Transfer of resistance gene from a resistant bacterium to susceptible bacterium by agency of a bacteriophage is called a) mutation b) conjugation c) transformation d) transduction.-(D)

35.An example for an ultralong acting sulphonamide a) cotrimoxazole b) sulphadoxine c) sulphathiazole d) sulphaguanidine .-(B)

36.Most nephrotoxic cephalosporin is a) cefaloridine b) cefalonium c) cefapirin d) both a and b -(A)

37.One of the following is an aminoglycoside with extended spectrum a) Amikacin b) Streptomycin c) Neomycin d) Kanamycin .-(A)

38.Thiamphenicol produces a) aplastic anaemia b) bone marrow suppression c) both d) none of the above .-(B)

39.Rifampicin inhibits a) DNA dependent RNA polymerase b) RNA dependent DNA polymerase c) DNA gyrase d) none of the above.-(A)

40.All the following are antagonist of sulpha except a) PABA b) Folic acid c) DAP derivatives d) pus.-(C)

41.Sulphamethoxazole is combined with trimethoprim in the ratio of a) 5: 1 b) 1:5 c) 20: 1 d) 1:20 .-(A)

42.Crystalurea by sulphonamide can be minimised by a) acidification of urine b) triple sulpha c) both a and b d) none.-(B)

43.Prodrug of ampicillin a) Ticarcillin b) Azlocillin c) Hetacillin d) Temocillin .-(C)

44.Which of the following group of antibiotics demonstrates a bactericidal effect? a) Tetracyclines b) Macrolides c) Penicillins d) all the above.-(C)

45.Chronic toxicity of sulphonamides does not include a)keratoconjunctivitissicca b) blood dyscrasias c) hypoprothrombineamia d) aplastic anemia .-(B)

VII. Answer the following. (1-2 sentence)

1.Write the mechanism of action of the following drugs as antibacterial/antifungal) a)Ionophores, b) Griseofulvin, c)Nystatin, d) Ketoconazole, e)Amphotericin-B, f)Flucytosine, g)Terbinafin.

a)Ionophores complex with sodium in the cell membrane to produce passive extracellular transport of potassium and intracellular flax of hydrogen ion which kill the bacteria,

b)Griseofulvin binds with microtubules of fungus to inhibits spindle formation and mitosis.

c)Nystatin and Natamycin binds to ergosterol of the protoplast membrane of fungus to alter permeability and allow leakage of cell content.

d)Ketoconazole inhibits the synthesis of ergosterol in fungal cytoplasmic membranes by blocking cytochrome P 450 enzymes and increasing cellular permeability.

e)Amphotericin –B binds to ergosterol of fungal cell membranes to form pores or channels which results in leakage of cell content.

f)Flucytisine inhibits thymidylate synthase , DNA and RNA synthesis in fungi

g)Terbinafen inhibits the synthesis of ergosterol- a component of fungal cell membranes. It blocks the enzyme sequalene monooxygenase inhibiting conversion of sequalene to sterols.

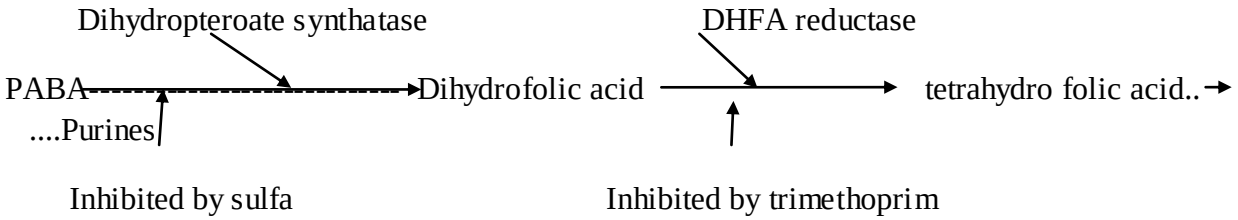
2.What are the mechanisms by which bacteria develops resistance?—Mutation, Conjugation, Transduction and Transformation.

3.What are the mechanisms by which bacteria manifest resistance?—a) May produce enzymes which inactivate drugs. b) Permeability or uptake of drugs by organism may be decreased or transport out of cell may be increased. c) Alterations in the binding site –cause reduce drug affinity. d) May develop alternate metabolic or synthetic pathway to bypass or repair the effect of antimicrobials.

4.Why sulfonamide mixtures are used instead of one compound in the same solution for treatment? –To increase combined total sulfonamide concentration to prevent renal toxicity, as solubility of one sulfa is not influenced by the solubility of other sulfa in the urine.

5.What are potentiated sulfonamides?—They are fixed combination of sulfa and trimethoprim or ormethoprim .Eg. Sulfadiazine with Trimethoprim, Sulfamethoxazole with Trimethoprim, Sulfadimethoxime with Ormethoprim

6.How potentiated sulfa inhibits bacterial growth?—Bacteria synthesise purines and DNA from PABA, the convertion of PABA is inhibited by potentiated sulfa by the following steps.



7.Anthrax bacilli grow rapidly in sterile urine but same died if common bacteria of the air is introduced in to urine at the same time . Two famous scientist observed this .who are they?—Pasteur and Jaubert,1877.

8. What is chemotherapy? Chemotherapy is the treatment of diseases with chemicals having specific effect on the microorganism (causing disease) without injuring the patient.

9.What happens if we administer antibiotic too early of infection ?—As infection starts immune response also starts, when antibiotic is given too early immune response is nullified and reduce the action. For the full effect of antibiotic require the support of cell defence and humoral system.

10. Why sodium salt of sulfonamides are not good for subcutaneous or intramuscular administration? (Sodium salt is highly irritant)

11. Classify sulfonamide.

a). Based on the site of action. a) Systemic sulfonamide. Sulfadimidine , sulfadiazine, sulfamerazine. b) Gut acting- sulfaguanidine, phthalyl sulfathiazole, succinyl sulfathiazole. c) Topically active-sulfacetamide.

b). Based on absorption and excretion. a) Absorbed rapidly and excreted rapidly(Short acting) –sulfadiazine. b)Rapidly absorbed and slowly excreted (Long acting) – sulfamethoxypyridazine. c) poorly absorbed (Gut acting) –Succinyl sulphathiazole. d) Sulfonamide for special use- Acetazolamide, Sulfones.

12.What is ‘Stevens Johnson syndrome’-Hyper sensitivity to sulfonamide-erythema, erosion of mucous membrane from genitalia, conjunctiva, exudation.

13.What is “Wood fields theory’ of antibacterial action of Sulfonamide? Sulfonamide acts as a competitive inhibitor of PABA which is necessary for the synthesis of folic acid in turn required for the synthesis of purines and by the bacteria.

14. Host cells are not affected by sulfonamide Why? Host cells are using preformed folic acid in the food which can not be used by the bacteria. They are synthesizing folic acid of their own which is inhibited by sulfonamide.

15.Even though synthesized in 1908 until 1935 its antimicrobial action was not prooved . Which antimicrobial agent? (Sulfonamide)

16.What are antibiotics: They are complex organic chemicals produced by various species of micro organism(fungi, bacteria, yeast) that reduce the growth of other micro organism and eventually destroy them. However, it is extended to synthetic antibacterial agents like sulfonamide and quinolones.

17.What are the properties of an ideal antibiotic: Must be stable, therapeutic index should be wide, wide spectrum of action, should not give resistant strain, sensitization should be absent, should be water soluble, should not be any selective route of administration, should not be inactivated by tissue enzymes or G.I flora, should not interfere with host immune system, should not show adverse drug interaction with antimicrobials. It should have no/ short withdrawal period, long shelf life, easily available and economic.

18.Classify antibiotic depending on the therapeutic value: a)Narrow spectrum- Penicillin, Bacitracin, b)Medium spectrum-Streptomycin, Kanamycin, Neomycin) Broad spectrum-Tetracycline, Chloramphenicol, Erythromycin.

19.Classify antimicrobial agents depending on biochemical mode of action : a) Agents which have specific effect on cell wall and prevent the synthesis- penicillin, cephalosporin. b) which have specific effect on cell membrane causes leakage of wanted materials - polymyxin, bacitracin, nystatin. c) which inhibit protein synthesis- tetracyclins , chloramphenicol .d)Which causes misreading of messenger RNA- Streptomycin, Gentamicin. e)which Inhibit DNA gyrase- Ciprofloxacin, Norfloxacin. f) which interfere with DNA function- Rifampin, Metronidazole. g) which interfere with DNA synthesis.- Acyclovir, zidovudine. h) which interfere with intermediary metabolism-Sulfonamide, Trimethoprim. i) which inhibit nuclic acid metabolism-Griseofulvin.

20. Classify antibiotic depending on the structure and chemical group , give examples. a)Diaminopyrimidines-trimethoprim, ormetoprim. b) Quinolones—nalidixic acid, enrofloxacin. c) Betalactam group—penicillin, cphalosporin. d)Aminoglycosides—streptomycin, gentamicin. e) Tetracyclines—oxytetracycline, minocycline. f) Sulphonamides-sulphadiazine, sulphaquinoxaline. g)Macrolides-erythromycin, azithromycin. h)Nitrofurans-nitrofurantoin, furazolidone. i)Nitroimidazoles—metronidazole, tinidazole. J)polyene—nystatin, amphotericin-B. k) Imidazole-ketoconazole,fluconazole. l) polypeptide- polymyxin B, bacitracin. m)Amphenicols-Chloramphenicol.

21.Mode of action of penicillin: cross linking of cell wall is inhibited. Teichoic acid synthesis is inhibited up to 40%. Accumulation of unwanted substance in the cell membrane.

22.Micro organism is said to be resistant, When?—If the concentration of the drug required to inhibit the micro organism is greater than the concentration that can safely be achieved in the host , the micro organism is said to be resistant.

23.What are the disadvantages of fixed dose combinations?--Effective concentration of either might not reach. Large dose of either may be possible when first fails. Super infection may occur when dose is inadequate- organism become resistant.

24.What are the methods by which bacteria acquire resistance to drugs? a) By elaboration of enzymes which hydrolyze the drug Eg. beta lactamase against penicillin by *Staphylococcus aureus*. b)Alteration in an outer membrane pore in protein that prevent access of drug to its target cells Eg. Gonococcus to penicillin c) develops impermeable cell membrane that prevent influx . d) Lack transport system .

25.It is an ideal antibiotic for TB treatment ,along with PAS and INH. Which antibiotic?.--(Streptomycin)

26.Sulfamethoxazole is mixed with trimethoprim . Why?—Both are having same half life.

27.Tetracyclines can be used for some diagnostic purpose. for what? Tetracyclin is deposited in new mineralization of bone and cartilages- when it is deposited in cancer of these tissues ,produce yellow fluorescent in U/V light.

28.Mechanism of action of Tetrecyclines : suppress protein synthesis- binds with 50S ribosome and prevent combination of the ribosome with aminoacyl tRNA, abnormal accumulation of substances like glutamic acid, oxidation of glutamate, chelation of metals Mg, Ca, Fe . Supress oxidative phosphorylation.

29. It is advisable to use Tetracyclines 2 days before and 10 days after vaccination .Why? Tetracyclins will produce adrenocortical hyperplasia and suppress immunologic response, that is why to use 2 days before or 10 days after vaccination.

30.For prolonged treatment with Tetracyclines some antifungal drug must be incorporated Why? In long treatment with Tetracyclines some infections especially fungal infections will flare up-to prevent this antifungal agents are incorporated.

31.When this part of streptomycin molecule is replaced, the resultant product become less stable, less active, and less soluble. Which part of the molecule? –Streptose part.

32.Classify penicillin depending on the spectrum of activity and penicillinase sensitivity-

1). Narrow spectrum penicillins a) betalalactamase sensitive: 1.acid susceptible/natural – penicillin-G, 2. acid resistant/semisynthetic-penicillin V. b) betalactamase resistant: 1.isoxazolyl penicillin-cloxacillin 2. non-isoxazolyl penicillin-methicillin.

2). Broad spectrum penicillins a) aminopenicillins-ampicillin b) ampicillin precursor –hetacillin c)others-mecillinam.

3). Extended spectrum penicillins a) carboxypenicillins-carbenicillin b) ureido penicillin-mezlocillin c) piperazine penicillin-piperacillin.

4). Potentiated penicillins/betalactamase protected penicillins-amoxycillin-clavulanic acid, ampicillin-sulbactam, ticarcillin-clavulanic acid, piperacillin-tazobactam.

VIII.Write short notes on:

1. Aminoglycoside antibiotoics: A group of antibiotic which include streptomycin, kanamycin, neomycin,amikacin , gentamicin etc.Medium spectrum of action-gm+ve and gm-ve organisms are susceptible -generally stable- some are effective against pseudomonas , aerobacter, proteus- almost all members produce otoxicity and nephrotoxicity-oral absorption is poor- kanamycin is having broad range of action against gm+ve and gm-ve organism, E.coli,Proteus, Brucella etc.-pseudomonas is susceptible to gentamicin but resist neomycin. Streptomycin is the most important member-, inhibits tubercle bacilli, stable for more than 2 years at room temperature. Act by inhibiting the protein synthesis in bacteria.

2.Biochemical aspects of drug resistance: Drug action is nullified by inactivation- loss of permeabilitry- modification of drug sensitive site- increase production of enzymes inhibited by drugs- increase the concentration of metabolite- stimulate alternate metabolic pathway and reduce the requirement of product inhibited by drugs.-explain

3.Toxicity of tetracyclins:-- Continued oral administration destroy G.I. flora, B complex deficiency(Entero-colitis may be seen) –fur like growth on tongue, photosensitivity, reduce bone growth, leucocytosis, fatty infiltration of liver, brown coating on tongue, brown discolouration of teeth, reduce prothrombin activity, allergy. In prolonged treatment some infections which will not respond to Tetracyclins may flare up (mostly fungal infection) – anti fungal drugs must be incorporated to prevent this. adrenocortical hyperplasia in immunologic response.

4.Combined antibiotic treatment:-- Combined antibiotics are used when we do not know the organism, to postpond refractiveness to treatment, to increase in-vivo activity and to reduce reaction to any antibiotic .Narrow spectrum with medium spectrum –synergetic, some times additive, rarely antagonist eg. penicillin with streptomycin. Broad spectrum with broad spectrum-very rarely synergetic, antagonist so rarely used. Narrow spectrum sensitive with broad spectrum- antagonist. Narrow spectrum with broad spectrum sensitive /no untowards effect eg. penicillin with chloramphenicol. For the action of penicillin protein synthesis must be there but chloramphenicol blocks the protein synthesis. Hence penicillin has no role. Antibiotic with other chemotherapeutic agent –penicillin with sulfa, SM with INH and PAS in tuberculosis Vancomycin + Tobramycin individually less toxic but combination is too toxic . Bactericidal antibiotic with bacteriostatic. Penicillin, cephalosporin, aminoglycosides, vancomycin (cidal) antagonize with tetracyclins, chloramphenicol, clindamycin,erythromycin(static). Disadvantages-risk of toxicity from more than one drug, increase cost of treatment, antagonism, superinfection.

5.General principles of antibiotic treatment:- If antibiotic is given too early it reduces the body defense. For full effect we require the support of cell defense. eg. in adrenal cortical deficiency, agranulocytosis, leukemia etc. only less effect . hence we have to decide whether antibiotic is required or not, then type of antibiotic used (broad, narrow, short or long duration). In per acute case give short duration, high dose. Use always specific antibiotic. In acute case maximum concentration should reach rapidly. Continue the treatment for 48 hours more after the symptoms ceases. Choose the correct route.

6.Toxicity of sulfonamide:- Genito urinary – haematuria, crystal urea, nephritias. Haemopoetic-blood dyscrasia, haemolytic anemia, leucopenia, granulocytopenia, agranulocytosis, hypoprothrombanemia, met.haemoglobin formation, jaundice. G.I-nausea,vomition,anorexia. Hypersensitivity- dermatitis,drug fever,urticaria,polyarthritis,erythemia.Stevens Johnson syndrome.

7.Mechanism of antibacterial action of antibiotics :-.Initiate synthesis or activate enzymes that disrupt bacterial cell wall to cause loss of viability or cell lysis eg.penicillin, bacitracin. Act directly on the cell membrane causes leakage of intracellular compounds –polyene antifungals, polymyxin, nystatin. Affect function of bacterial ribosomes to cause a reversible inhibition of protein synthesis-chloramphenicol, tetracyclins, aminoglycosides. Affect nucleic acid metabolism- Rifamycin, quinolones. Antimetabolites-Trimethoprim, sulfonamides.

8.Mechanism of antibacterial action of Isoniazid(Isonicotinic acid):--Isonicotinic acid inhibit the synthesis of mycolic acid.(a constituent of mycobacterial cell wall)--It prevent elongation of very long chain fatty acid molecule. It also inhibit desaturise that catalises the first reaction that is specific to mycolic acid synthesis.

9.Mechanism of action of penicillin as antibacterial agent: a) Bacteria lost the structural integrity –rods become sphere. b) Cross wall formation in cell wall is reduced. c) Accumulation of certain substances in cell is seen (acid labile soluble phosphate). d)Teichoid acid synthesis is inhibited up to 40%. e) In trans peptidation , D-alanine D alanine is replaced by D –alanine L-glycine. f) Accumulation of fibrous materials in the pockets of membrane and so change in morphology of bacteria.

10. Mechanism of action of streptomycin as anti microbial agent: a) Inhibits protein synthesis – directly acts on ribosome and reduce incorporation of aminoacid in peptide chain(30 S-P 10) –codon for phenyl alanin is mistaken for leucine and it is incorporated. b) Terminal respiration is reduced. c) Disturb permeability of bacterial cell membrane ,stimulate outward permeability of nucleotides AA, K etc. d) Denaturation of DNA. e) Several unwanted materials got accumulated in cell membrane.

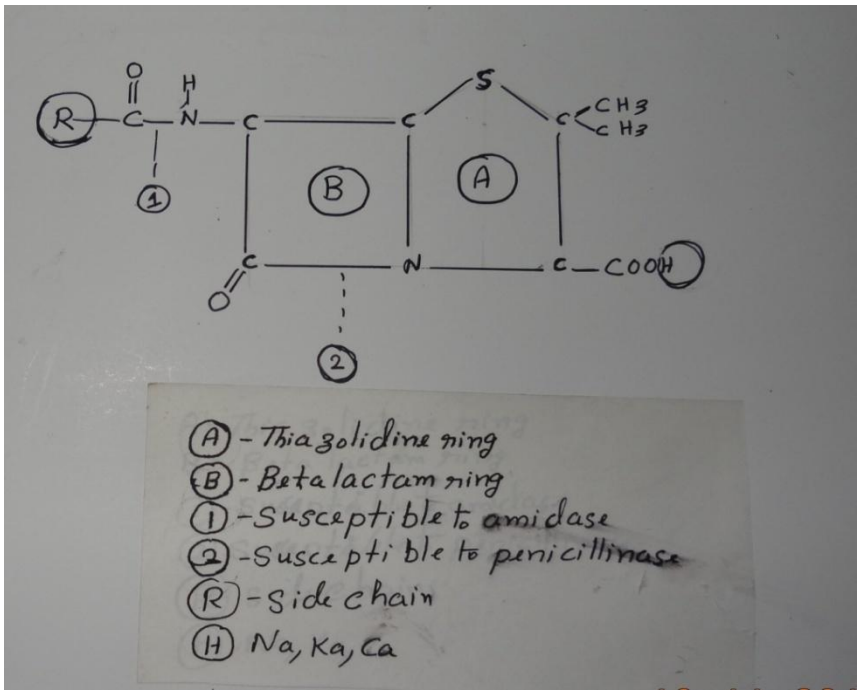
11. Mechanism of action of tetracyclins as anti microbial agent: Oxidation of glutamate is reduced-nitro reductase enzyme is inhibited- glutamic acid uptake is inhibited-abnormal accumulation of glutamic acid- chelation of metals like magnesium, calcium,and iron-reduce oxidative phosphorylation-inhibit normal metabolites depend on folic acid- inhibition of protein synthesis,(specifically binds with 30s ribosomal unit and prevent combination of the ribosome with amino acyl tRNA.

12.Guidelines for successful antimicrobial therapy. For definitive therapy use a narrow spectrum antimicrobial, prefer bactericidal over bacteriostatic drug, use less toxic one, prefer one that require less frequent administration, for less severe infection prefer an oral antimicrobial drug, always use in proper dose, when combination is used individual agent should be used in full dosage unless indicated, don't use indiscriminately, prefer less expensive one, use an antimicrobial by a reliable pharmaceutical, don't use for untreatable infections.

13. Macrolides: Agroup of bacteriostatic antibiotic structurally consist of a large lactone ring attached to deoxy sugars. Eg.erythromycin , oleandomycin. They are weak bases-binds to 50 S ribosomal unit and inhibits protein synthesis –effective against most aerobes and anaerobic Gm –ve bacteria, spectrum of action similar to penicillin.

14.Topically acting sulfonamides; Topically active sulphonamide include sodium sulphacetamide, Mefenide and silver sulphadiazine. Sulphacetamide is used mostly for eye infection 30% solution 1 to 2 drops/ eye. Ophthalmic ointment 10% is also available for eye application, provided there is corneal wounds. Silver sulphadiazine is found to eradicate *Pseudomonas aeruginosa* from burns . Topically effective against other gram +ve and –ve organisms also. Less frequent application is required, it is painless, not produce electrolyte disturbance.

14.In the given structure mark the following parts: Thiazolidine ring, Beta lactam ring-susceptable to amide and susceptible to penicillinase, side chain, sodium, potassium etc.



By replacing different groups at R position different penicillin can be produced namely I,II,III,IV,V in Britain, F,G,X,K,O,V, in USA..

IX. Write essays on:

1. What are betalactam antibiotics, classify with examples depending on the spectrum of activity and duration of action .Explain the mechanism of action on bacteria and bacterial mechanism of resistance to antibiotic?
2. Explain the mechanism of action of penicillin in detail,with the healpof a diagram.
3. Classify sulfonamides with examples , explain the mechanism of action, toxicity and remedial measures to reduce toxicity.
4. What are aminoglycoside antibiotics? Explain its mechanism of action and toxicity.
5. Write an account on antifungal agents.
6. Explain the toxicity of antibiotics.
7. Explain the mechanism of action of Quinolones in detail.
8. Discuss the development of antibiotic resistance in bacteria, what are the methods to overcome it?