Question bank, paper -7

Chemotherapy

I.Name the following.

1.A deoxiguanosine analogue used against herpes simplex virus.--(Acyclovir)

2.Antibiotic produced by *Streptomyces brevis*---(Tyrothricin)

3.Antibiotic produced by *Streptomyces orchidaceus*---(Cycloserine)

4.Antibiotic produced by *Streptomyces noursei* ---(Nystatin)

5..Antibiotic produced by *Streptomyces fradiae*---(Neomycin)

6.Antibiotics with antiviral activity.- -(Actinimycin-D, Streptovitacin-C, Ehrlichin, Xerosin)

7.A macrolide antibiotic which has special affinity to prostate gland.--(Speramycin)

8.Bacterial constituents which inhibit virus.- -(Helinin, M-8450)

9. First pyrimidine antimetabolite used as antiviral drugs.-- (Idoxuridine)

10. First orally active antifungal drugs. --(Ketoconazole)

11. First anti tubercular drug used clinically .--(Streptomycin)

12. First nitrogen mustard introduced for the treatment of cancer.- -(Mechlorethamine)

13. Halogenated deoxyuridine with antiviral action.- - (FUDR, IUDR, BUDR.)

14. Large molecular substances of biological origin with antiviral action.—(Specific antibody, mucoproteins)

15. Most abundant isotope of radium.-- (Ra -226)

16. One fungus causing systemic infection.-- (*Aspergillus fumigatus)*

17. One quinolone which is having 100% absorption.--(Lomefloxacin)

18. One antiviral agent which is an analogue of adenosine.--(Vidarabin)

19. One inorganic phosphonate analogue with antiviral action.-- (Foscarnet)

20. One organic sulphur preparation used as antifungal agent.--(Monosulfiram)

21. One radioactive iodine.--(I 131)

22. One radioactive gold.--(Au 198)

23. One interferon inducer.—(polyriboinosinic acid –polyribocytidylic acid.(poly-I poly –C))

24. One radioactive cobalt.-- (Co 60)

25. One DDT related compound having anti neoplastic activity.- - (Mitotane/DDD)

26. Pro-drug of acyclovir.--(Valacyclovir)

27. Scientist who discovered Chloramphenicol.-- (Burkholder in 1947)

28. Structural analogue of Amantadine. --(Rimantadine)

29. The first antibiotic manufactured synthetically.--(Chloramphenicol)

30. The antibiotic of choice for *Salmonella typhosa*.--(Chloramphenicol)

31. The first nitrogen mustard compound introduced for cancer treatment.--(Meclorethamine)

32. Three ionizing radiation rays which are dangerous to the body.--(Alpha, Beta, Gama)

33. Three polyene antifungal antibiotics.--(Nystatin. Amphotericin –B, Natamycin)

34. Three antibiotics for growth promotion. - -(Avoparcin, moenomycin, monensin sodium.)

35. Two polyene antibiotic having anti fungal action. --(Nystatin, Amphotericin-B)

36. Two pyrimidine analogues used in cancer treatment.- -(Fluorouracil, Cytosine arabinoside)

37. Two purine analogue used in cancer treatment.- - (6-Mercaptopurine, Azathioprim)

38. Two drugs which inhibits viral mutation.--(Ritonavir, Indinavir)

39. Two drugs which inhibits viral release—(Zanamivir, Oseltamivir)

40. Two drugs which is active against influenza virus.--(Amantadine, Rimantadine)

41. Two drugs which inhibits viral genome replication.-- (Acyclovir, Idoxuridine)

42. Two anti HIV inhibitors. ---(Zidovudine, Didanosine)

43. Two antibiotic produced by Bacillus species.---- (Polymyxin, Bacitracin)

44. Two repository preparation of penicillin.---(Procaine penicillin, Benethamine penicillin)

45.Two aminoglycoside antibiotic which is not produced by streptomycin-(gentamicin, sisomicin, netilmicin)

46. One short acting tetracyclin-(oxytetracyclin)

47. One long acting tetracycline-(doxycycline)

48. One intermediary acting tetracycline-(demeclocycline)

49. Organism which is resistant to methenamine.-(Protease)

50. One penicillin binding protein.-(Transpeptidase)

51. Sulphonamide which is a potent inhibitor of vitamin K.-(Sulphaquinoxaline)

52.The enzyme which is inhibited by DAP.-(Dihydrofolate reductase)

53.Antimicrobial agent which exhibit biphasic effect.-(Quinolones)

54.Combination of antibiotic which produce enhanced toxicity.-(Vancomycin with Tobramycin)

55.Betalactam antibiotic having activity against gram-ve bacteria.-(Aztreonam)

56.A bacteria which is resistant to methicillin.-(Protease)

57.An antibiotic which produce time dependent effect.-(Penicillin)

58.The antibacterial substance produced by normal microflora.-(Bacteriosin)

59.The nucleus of cephalosporin.-(7 amino cephalosporin)

60.One monobactam antibiotic.-(Carbapenam)

61.One long acting sulphonamide.-(Sulphadoxine)

62. An enzyme used in cancer therapy.-(L-asparaginase)

II.Fill in the blanks with most appropriate words.

1.Adrenocortico steroid is used in the treatment of malignancy because of its ability to suppress .....in lymphocytes.--(mitosis)

2.Aspergillus fumigatus causes .....pneumonia in chicken.--(Brooder)

3.After the emission of an alpha particle from the nucleus of a radium atom it is converted in to another element ....., which is in gaseous form.—(Radon)

4.All the bacteria is susceptible to methenamine except .....--(Urea splitting bacteria,/ Proteus, Pseudomonas, E.coli, Klebsiella)

5.Amino glycoside antibiotics cause .....blocks by .by inhibiting pre-junctional release of acetyl choline.--(neuromuscular)

6.Aminoglycosides without streptidin moiety will prevent.....but no miscoding.--(Protein synthesis)

7.Because of the alkalinity of sulfonamide .....injection causes damage to tissues.--(i/m, s/c)

8.Carbolfuchsin is having .....action and is used only topically.--(antifungal)

9.Catomega interferon is produced by .....and closely related to alpha interferon.—(Genetic engineering)

10.Chloramphenicol is bacterio.....(static/cidal) in action.--(static)

11.Chloramphenicol is produced by the organism *Streptomyces*.....--*(venezuelae*)

12. Chloramphenicol is synthesized from .....--(Paranitro bromo acetophenone)

13.Chloramphenicol is conjugated with .....and excreted via kidney.--(Glucuronic acid)

14.Chloramphenicol inhibits the protein synthesis in bacteria by binding with .....unit of ribosome --(50 S)

15.Chloramphenicol palmitate is converted in to chloramphenicol in the.....of the body.-- (duodenum)

16.Chloramphenicol palmitate is converted in to chloramphenicol in the duodenum by the pancreatic .....enzyme.--(lipase)

17.Chloramphenicol irreversibly inhibit the hepatic microsomal enzyme.....--(Cytochrome P-450)

18.Copper sulphate .....% solution is antifungal.-- (1-2%)

19.Colchicine is an anticancer alkaloid from.....--(*Colchicum autumnale*)

20.Colchicine is a powerful .....agent and this effect is utilized in the treatment of gout.--(Anti inflammatory)

21.Eventhough Benzoic acid is used as antifungal agent, its main use is as a .....--(preservative)

22.Eukaryotic cells contain an enzyme..... similar to the enzyme DNA gyrase in bacteria.--(type II DNA topoisomerase)

23.Eventhough Sulfonamide was prepared by.....as early as 1908 its therapeutic value was revealed only in 1938.--(Gelmo)

24.First man made drug ‘salvarsan’ was used first against .....--(Syphilis)

25.For miscoding of protein synthesis by streptomycin in bacteria .....moiety of streptomycin molecule is essential.--(streptidin)

26.For the antibacterial action of chloramphenicol .....moiety of the molecule must be intact.--(propane diol)

27.For a good drug the Therapeutic Index must be .....or higher.--(7)

28.For testing neuro toxicity .....is the best experimental animal.-- (Cat)

29.For testing delayed toxicity .....is the best experimental animal.--(Monkey)

30.For the keratolytic action of salicylic acid presence of .....is essential.-- (moisture).

31.Gentian violet 1% in alcohol is a very good .....agent.--(antifungal)

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

33.In chloramphenicol treatment blood picture must be tested every .....days.--(3-4)

34.Chloramphenicol treatment should not exceed .....days.--(10)

35.In Whitfields ointment benzoic acid is a fungistatic and salicylic acid is .....in action. --(keratolytic)

36.In 1926 Roch used pamaquine against .....--(Malaria)

37.In 1747 James Lind found that .....can be treated with Lime juice.--(Scurvey)

38.In the structure of penicillin .....is called as the nucleus of penicillin.-- (thiazolidone rings)

39.In presence of streptomycin susceptible bacterial cell will miscode, the codon for .....is mistaken for leucine.(---(Phenyl alanine)

40.Iodoxuridine is an analogue of .....and is incorporated in viral DNA.--(Thymidine)

41.L –asparaginase is good in the treatment of .....--(human leukemia and carcinoma)

42.Large dose and long term treatment with trimethoprim causes bone..... suppression.--(marrow).

43.1-3 BIS (2-chloroethyl 1-nitrosourea) is an MAO inhibitor useful in .....disease.& CNS involvement of leukemia since it passes BBB.--(Hodgkins)

44.Nitro..... is an antifungal nitrofuran.-- (furoxime)

45.Nearly .....% of the urinary excretion of penicillin occurs by tubular secretion.--(80—85)

46.One of the earliest sign of chloramphenicol toxicity is rise of serum iron level and it is called .....--(Grey syndrome)

47.Organic sulfur, monosulfiram is a very good antifungal agent at a concentration of 25 % sol. in .....--(alcohol)

48.On hydrolysis of streptomycin molecule we will get ....., streptose and .....----(Streptidin, N-methyl glycosamin)

49.Out of Tetracycline compound, action of .....is least affected by presence of milk and milk products in the diet.—(Doxycycline)

50.Out of Tetracycline compounds .....is the least allergic.--(Oxy tetracycline)

51.Paclitaxel is an anticancer agent obtained from the bark of .....plant.--(Western yew)

52.Polymyxin group of antibiotic consists of A,B,C,D and E out of which the least toxic one is .....---(polymyxin-B)

53.Radon can be removed from the mother element Ra 226 by .....--(acidification)

54.Since the absorption of benethamine penicillin is slow it needs to be given only ones in .....days.--(3)

55.Sodium iodide can be used as an antifungal agent by .....route.--(Intra venous)

56.Speramycin is a macrolide antibiotic and has special affinity to .....gland.--(Prostate)

57.The commercial source of L-asparaginase is .....bacteria .--(E.coli.)

58.The group of antibiotics containing macrocyclic structures are called as .....antibiotics and can be used in penicillin resistant organism.--(Macrolide)

59.The earliest evidence of chemotherapy is in 1700 when juice of.....bark was used to cure malaria accidentally. (Cinchona)

60.The toxicity of chloramphenicol is mainly due to the presence of .....group in the molecule.---(Aromatic nitro)

61.Tetracycline was discovered by .....in 1948.---(Dugger)

62.The most abundant Radium isotope is .....--(Ra-226)

63.The half life of Ra -226 is .....years.--(1600)

64.The pro-drug of chloramphenicol.is.....-- (chloramphenicol palmitate)

65.The neuromuscular blockage caused by streptomycin can be overcome by

.....administration.--(calcium)

66.The important toxicity of chloramphenicol is .....--(Blood dyscrasia)

67.Tetracycline binds with .....of ribosome and prevent the access to tRNA to m RNA ribosome complex.--(30 s unit)

68.To get an increase stability to tetracycline preparation it is dissolved in.....and water solvent mixture.----(Propylene glycol)

69.Tylosin is a ..... group of antibiotic.--(Macrolide)

70.Whitfields ointment is an antifungal ointment which consist of ..... % salicylic acid and 6%.....in vaseline--(3% , Benzoic acid)

71.When penicillin is suspended in oil with aluminium monosterate blood level will be maintained for a long time and the frequency of administration can be reduced to ones in.....days.--(7)

72.Zanamivir is administered as .....because of poor oral bioavailability.--(an inhalation /aerosole)

73.....and .....are two saturated fatty acids having antifungal action.--(Propionic acid and caprylic acid)

74.....is a folic acid analogue having anticancer activity.--(Methotrexate)

75.....solution was the first arsenical compound found to have effect on neoplastic disease.- -(Fowlers)

76.....causes damage to auditory and vestibular part of auditory system almost equally.—Tobramycin)

77.The name of those aminoglyciside antibiotics which ends in 'mycin'is produced by .....species of fungi-(Streptomyces)

78.Gentamicin is produced by .....fungi.-(*Micromonospora purpurea*)

79.....is a fluorinated quinolone developed first exclusively for use in animals.-(Enrofloxacin)

80.....is a semisynthetic derivative of lincomycin.-(clindamycin)

81.Thiabendazole is primarily having.....action, but it also has a potent antifungal action.-(anthelmintic)

82.The most frequent side effect of quinolone is .....-(joint arthropathy)

83.The lowest concentration that results in 99.9 % decline in bacterial number is known as .....-(minimum bactericidal concentration)

84.Cilastatin is added to prevent renal tubular degradation of ....., a beta lactam antibiotic.-(Imipenem)

85.The most extensive use of chemoprophylaxis is to prevent .....-(wound infection)

86.The incidence of super infection is .....with a broad spectrum antibiotic when compared with a narrow spectrum antibiotic.-(Highest)

87.Sulphamethoxazole is combined with trimethoprim in the ratio of .....-(5:1)

III.State true or false.

1.Actinomycin –D is good in liver cancer as it is excreted in bile.—(T)

2.Actinomycin –D inhibits RNA polymerase.—(T)

3.Actinomycin –D block multiplication of DNA virus.--(T)

4.Acyclovir is a purine nucleoside analogue.--(T)

5.Acyclovir is active against Herpes virus.-- (T)

6.Adamantanamine is used only as a preventive antiviral agent.- -(T)

7.Adamantanamine is active mostly against DNA virus.- -(F)

8.Against gm+ve cocci tetracycline is more effective than penicillin.--(F)

9.Agranulocytosis due to chloramphenicol toxicity is irreversible.--(T)

10.Aqueous solution of chloramphenicol is not stable for more than 7 days at normal room temperature.--(F)

11.Aqueous solution of chloramphenicol is stable even after boiling.--(T)

12.Amikacin and kanamycin mainly affect auditory function ---.(T)

13.Amikacin is an acetylated derivative of kanamycin.—(T)

14.Amantadine is effective in influenza A virus.--(T)

15.Antibiotics will inhibits the normal inhibitory biochemical process in mutant bacteria and enhances their growth and multiplication.-- (T)

16.Antipseudomonal penicillins may cause thrombocytopenia and decrease agglutination.—(T)

17.Amdinocillin is less active than ampicillin against E coli, Klebsiella and salmonella.--(T)

18.Amphotericin –B is the most effective drug in Aspergillosis.--(F)

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

20.Aqueous solution of chloramphenicol is inactivated by boiling .--(F)

21.As a Beta lactamase inhibitor salbactam is more potent than clavulanic acid.--(T)

22.Azathioprim is used as an immunosuppressant in organ transplantation.--(T)

23.Bacitracin was first isolated from a girl named Tracy.--(T)

24.Bacillus anthraces is resistant to chloramphenicol. --(F)

25.Baquiloprim with sulphadimethoxine is mostly used in small animals.—(T)

26.Benethamine penicillin is an aqueous suspension of penicillin with buffering and suspending agent.--(T)

27.Busulfan can be used to treat polycythemia vera--.(T)

28.Broad spectrum antifungal agents inhibits 14 alpha demethylase , a microsomal C-450 dependent enzyme.-- (T)

29.Broad spectrum antifungal agents blocks biosynthesis of ergosterol for the cytoplasmic membrane.--(T)

30.Carbenicillin is effective against all strains of pseudomonas and proteus.--(T)

31.Chloramphenicol inhibits aldehyde dehydrogenase enzyme .--(T)

32.Chloramphenicol causes accumulation of acetaldehyde formed from alcohol --(T)

33.Chloramphenicol is absorbed even per rectally .--(T)

34.Chloramphenicol will not be excreted in urine in dangerous condition of the kidney.--(F)

35.Chloramphenicol will not cross the placental barrier.-- (F)

36.Chloramphenicol is bacteriostatic except against few organism.--(T)

37.Chloramphenicol interfere with immune response to toxoid. --(T)

38.Chloramphenicol is having disulfiram like reaction in alcoholics.--(T)

39.Chloramphenicol inhibits the enzyme aldehyde dehydrogenase in the body.--(T)

40.Chloramphenicol primarily acts on 50S ribosomal unit.-- (T)

41.Clotrimazole is a broad spectrum antifungal agent.--(T)

42.lindamycin will distribute well in bone tissue.-- (T)

43.Clindamycin is a semisynthetic derivative of Lincomycin.--(T)

44.Cobalt -60 is good in the treatment of carcinoma of oesophagus and bronchi.--(T)

45.Colistin is very effective against pseudomonas. --(T)

46.Colistin is a polypeptide antibiotic.-- (T)

47.Colistin is polymyxin-E.—(T)

48.Corticosteroids are of good value in the treatment of acute leukemia in children and malignant lymphoma.--(T)

49.Conjugation is the major process of drug resistance transfer in gram –ve bacteria.--(T)

50.Ciclopiroxolamine is a broad spectrum antifungal agent. --(T)

51.Cycloserine is not active against mycobacterium tuberculosis.--(F)

52.Cyclophosphamide can be used as an immunosuppressant.--(T)

53.Dunorubicin is highly effective in acute leukemia. --(T)

54.Echinocandins causes disruption of fungal cell wall integrity.--(T)

55.Ethambutol is a tuberculostatic drug.-- (T)

56.Eventhough the action of aminosalicylic acid is similar to sulfonamide no action on sulfonamide sensitive bacteria is seen.--(T)

57.Eventhough, Dichlorophen is mainly used as a taenicide it also posses antifungal action--.(T)

58.Erythromycin is very effective against micoplasma.--(T)

59.Epipodophyllotoxin is obtained from Mandrake root.--(T)

60.Estrogen will transfer resting mammary cancer cells in to the proliferating pool of cells and kill it.--(F)

61.Efavirenz is a non nucleoside reverse transcriptase inhibitor.--(T)

62.First generation cephalosporin is having good activity against Gram+ ve bacteria. Including beta lactamase producing staphyloccus.--(T)

63.For the full effect of antibiotics it does not require the support of cell defence and humoral system.--(F)

64.Foscarnet is a non nucleoside DNA polymerase inhibitor. --(T)

65.Fowlers solution (pot. arsenite) is effective in the treatment of chronic granulocytic leukemia --(T)

66.Fourth generation cephalosporins have increased activity against both gm+ve and gm-ve bacteria. --(T)

67.Food enhances the oral absorption of nitrofurantoin.-- (T)

68.Furazolidone is commonly used for treating local infection.-- (T)

69.Gram-ve bacterial cell contain no teichoic acid.--(T)

70.Gram+ve bacterial cell contain no murein.--(F)

71.Glucocorticoids can be recommended in lymphomas.--(T)

72.Gold -198 is used mostly in cancer of pleura and peritoneum.-- (T)

73.Griseofulvin will migrate to newly formed tissues from keratin tissues. - -(F)

74.Hetacillin as such is a powerful antibacterial agent .- -(F)

75.Hetacillin is hydrolyzed immediately to Ampicillin which is antibacterial in action.- -(T)

76.In infection due to blastomycosis and histoplasmosis ketoconazole is good. --(T)

77..In trimethoprim toxicity Leucovorin is recommended---(T)

78.In meningitis Oxytetracycline is better than Tetracycline.--(F)

79.Isonicotinic acid is bactericidal for rapidly dividing bacilli and bacteriostatic for resting bacilli.-- (T)

80.In the transduction process of drug resistance transfer bacteriophage is involved.--(T)

81.Increase in body temperature reduces the action of penicillin.--(F)

82.Increase in body temperature reduces the action of streptomycin.--(T)

83.Interferon directly attach to virus to inactivate it.—(F)

84.Increase in body temperature increases the action of streptomycin.--(F)

85.Increase in body temperature increases the action of penicillin.--(T)

86.If antibiotics are given too early it reduces the body defence.--(T)

87.Isoniazide is a tuberculocidal drug.--(T)

88.Ketoconazole inhibits hepatic p-450 enzymes.--(T)

89.If the therapeutic index of a drug is less than 7 it can be considered as a good drug.--(F)

90.In patients with pernicious anemia chloramphenicol is not recommended.--(T)

91.In the presence of antibiotic mutant will grow faster.--(T)

92.In co-trimazine Trimethoprim is mixed with Sulphadiazine in the ratio 1:5.—(T)

93.In a drug free medium if bacteria is grown both drug sensitive and mutant will be there.--(T)

94.In patients with iron deficiency anaemia chloramphenicol is not advisable. --(T)

95.In penicillin sensitive patients we can recommend cephalosporins.--(T)

96.Anamycin causes Ototoxicity and Nephrotoxicity . --(T)

97.Large dose and long term treatment with trimethoprim causes bone marrow suppression.(T)

98.Monensin sodium is having limited antibacterial action.-- (T)

99..Monosulfiram is one of the most active fungicidal organic sulfur.- -(T)

100.Methotrexate suppress di hydrofolate reductase in mammals, birds, and bacteria equally.--(T)

101.Methotrexate is toxic to bone marrow. --(T)

102.Monensin sodium is an ionophorous poly ether antibiotic.--(T)

103.Mitotane is a related to DDT and it can be used in the treatment of neoplasm of adrenal cortex –(T)

104.Adrenal cortex (Cushings syndrome).--(T)

105.Miconazole is very effective in Tinea pedis.--(T)

106.Monensin sodium is mostly used as anti coccidial agent.-- (T)

107.Nicotinamide possess tuberculostatic action. --(T)

108.Nitrofurazone is commonly used as injection--.(F)

109.Nitrofurantoin is particularly used to treat urinary tract infection.--(T)

110.Nitrofuroxime is an antifungal agent effective against candida.-- (T)

111.Oxytetracycline is better than Chlortetracyclin in urinary tract infection. --(T)

112.Organisms develop resistance to chloramphenicol immediately. --(F)

113.Organisms develop resistance to streptomycin immediately.--(T)

114.Organisms lose resistance to chloramphenicol immediately.--(T)

115.Ormetoprim with sulphadimethoxine is having less duration of action than co-trimazine.—(F)

116..Procaine is added to penicillin to reduce its absorption rate.--(T)

117.Procaine penicillin need to be given only once in 24 hours.--(T)

118.Penicillin and chloramphenicol are antagonist.--(T)

119.Piperacillin is a uridopenicillins.--(T)

120.Pirazinamide inhibits mycolic acid synthesis--.(T)

121.Polymyxin-B is very effective in pseudomonas urinary infection.--(T)

122.Procaine is added to penicillin to reduce the pain during injection.--(F)

123..Polymyxin B is mainly used topically.—(T)

124.Poly-I poly-C is an interferon inducer.—(T)

125.Quinolones are bactericidal in action .-- (T)

126.Quinolones inhibit gyrase mediated DNA -ve supercoiling in bacteria.-- (T)

127.Ribavirin is a purine neucleoside analog having antiviral action.--(T)

128.Risorcinol is an ingredient of carbol fuchsin.--(T

129.Radon gas is radioactive.--(T)

130.Radon is used for the radiation of tumour.--(T)

131.Rate of transfer of F factor is slower than R factor in drug resistant bacteria. --(F)

132.Reduction in circulating reticulocyte due to chloramphenicol treatment is reversible.--(T)

133.Rifampin inhibit DNA dependent RNA polymerase--.(T)

134.Rifampicin is an antitubercular antibiotic with some antiviral activity.—(T)

135. 6-mercaptopurine is a purine analog used as an immune suppressant in organ transplant.(T)

136.Sodium thiosulphate is a fungistatic agent.-- (T)

137.Sorivudine is a pyrimidine analogue with anti viral activity. –(T)

138.Streptomycin and gentamicin causes mainly vestibular damage.-- (T)

139.Streptomycin solution retains its activity for at least 2 months.--(T)

140.Streptomycin and its salts are stable for at least 2 years at room temperature. --(T)

141.Streptomycin is not synergistic with penicillin.--(F)

142.Streptomycin is more active in an alkaline medium hence alkalinisation of urine is essential for the successful treatment of urinary tract infection.-- (T)

143.Streptomycin will easily crosses the blood brain barrier.--(F)

144.Second generation cephalosporins have moderate action on gm+ve and gm-ve bacteria.-(T)

145.Tazobactam is a betalactamase inhibitor.--(T)

146.Tetracycline is deposited at the active site of ossification.-- (T)

147.Transduction is the process of drug resistance transfer in penicillin.--(T)

148.The alpha and beta particles of Ra -226 can be filtered by a thin metal / plastic sheet.--(T)

149.The protein synthesis in mammals also is inhibited by chloramphenicol.--(T)

150.The toxic signs of chloramphenicol are , blood dyscrasia, suppress bone marrow, suppress haemopoiesis .--(T)

151.Tetracycline readily crosses the blood brain barrier.--(T)

152.The transfer of drug resistant factor R and F are by conjugation.--(T)

15 3.The first antibiotic of choice against g-ve infection is Polymyxin-B.--(F)

154.The uptake of Lincomycin by bone tissue is highest and hence good in Osteomyelitis.-- (T)

155.Third generation Cephalosporins have decreased activity against gm+ve and increase activity against gm-ve bacteria--.(T)

156.Trimethoprim mixed with sulphadoxine combination provide longer duration of action.—(T)

157.Type II DNA topoisomerase is necessary for removing +ve supercoiling in eukaryotic DNA to prevent its tangling during replication.--(T)

158.Tyrothricin is a polypeptide antibiotic. --(T)

159.Undecylenic acid is an antifungal agent.--(T)

160.Unlike procaine penicillin which is given intr- venously, Benethamine penicillin is advisable only intra muscularly. --(F)

161.Vincristine and Vinblastine inhibit mitosis and suppress bone marrow.--(T)

162.Viral genome replication depend on a polymerase which is inhibited by acyclovir. --(T)

163.Acyclovir triphosphate inhibits the herpes virus DNA polymerase.--(T)

164.Acyclovir as such can inhibit virus DNA polymerase.--(F)

165.Amikacin is produced by *Streptomyces* species of fungi-(F)

166.Timicosin is a semisynthetic macrolide antibiotic-(T)

167.Timicosin is less toxic than erythromycin-(F)

168.Clarithromycin is a semisynthetic derivative of erythromycin.-(T)

169.Lincosamide is a monoglycoside antibiotic.-(T)

170.Non-systemic antacids will interfere with the absorption of quinolones.-(T)

171.Quinolones chelate with Mg^{++}, Ca^{++}, Al^{+++} ions-(T)

172.Oxolinic acid is a fluorinated first generation quinolone-(T)

173.Cartilage deformities and joint growth disorders have been noted in young dogs treated with Enrofloxacin.-(T)

174.Orbifloxacin is a synthetic fluorinated quinolone.-(T)

175.Polymyxin-E is otherwise known as Colistin.(T)

176.Rifamycin SV is a natural rifamycin-(T)

177.Rifampin is a semisynthetic rifamycin-(T)

178.Sulphaguanidine is a gut acting sulphonamide.(T)

179.Amoxicilline and clavulanic acid are combined in the ratio 4:1.-(T)

180.Reversible type of bone marrow suppression is seen in case of all animals by the use of Chloramphenicol.-(T)

181.Tylosin is an antibiotic obtained from *Streptomyces ambofaciens*.-(F)

182.Polymyxin B is also called as colistin._(T)

183.Griseofulvin is a broad spectrum fungicidal drug.-(F)

184.Penicillin G sodium is added to long acting preparation to reduce toxicity.-(F)

185.Procaine penicillin is used in race horses because it may cause sedation.-(F)

186.Post antibiotic effect is more prominent with Beta lactam antibiotics.-(F)

187.Complete antibiotic mediated bacterial killing is a must in successful therapy.-(F)

188.Augmentin contain Amoxycillin and clavulanic acid .-(T)

189.Sulphonamides induce thyroid hyperplasia.-(T)

190.Lincosamides are primarily bacteriostatc in nature.-(F)

191.R-determinant factor code for genes responsible for bacterial conjugation.-(T)

192.Conjugation is the most important method of transferring resistance because it produce a permanent genetic change.-(F)

193.Resistance through mutation is a single step process.-(F)

194.Transportation of antibiotic across the bacterial cell wall is an energy dependent process.-(T)

195. Patients under anti proliferative drug therapy are prone to a variety of secondary infection.-(T)

IVChoose the correct answer from the given ones.

1.Amphotericin –B is effective in infection due to a)Blastomycosis, b)Cryptococcal meningitis c)Coccidiomycosis d)Histoplasmosis e)All the above.---(E)

2.Amphotericin –B is very effective in a) Candidiasis b) Coccidiomycosis c) Cryptococcus d) Aspergillosis e) all the above except aspergillosis.—(E)

3.Adverse effect of aminoglycosides include all of the following except a) Neuromuscular blocker b) Myelosuppression c) Nephrotoxicity d) Ototoxicity.-(B)

4.Bacteria will develop resistance to chloramphenicol. a) immediately b) slowly c) no.resistance d) very slowly---.(D)

5.Bacterial resistance due to drug inactivating enzyme is important for all of the antibiotics except, a) Penicillin b) Cephalosporin c) Gentamicin d)Tetracyclin.-(D)

6.Best effect of Methenamine is obtained when the urine is a) alkaline b) acidic c) Neutral d) not affected.-(B)

7.Chloramphenicol potentiate the action of the following drugs. a) oral antidiabetic agent b) barbiturates c) oral anticoagulants d) nitrous oxide e) all the above except -d.-- (E)

8.Chloramphenicol toxicity causes. a) an increase in bleeding time b) thrombocytopenia c) non reversible agranulocytosis d) all the above.-- (D)

9.Name of tetracycline compounds, depending on the half life in the decreasing order is given below, which one is correct. a)Chlortetracyclin, oxytetracyclin , Doxycyclin, Methacyclin b) Doxycyclin, Minocyclin, Tetracyclin, Chlortetracyclin c) Doxycycline, Chlortetracyclin, Minocyclin, Tetracyclin d) Chlortetracyclin, Tetracyclin, Doxycyclin, Minocyclin.—(B)

10.Following are antiviral antibiotic. a) xerosin b) ehrlichin c) viscosin d) netropsin e) all the above---(E)

11.Following are macrolide antibiotic a) Erythromycin b) Oleandomycin c) Gentamicin d) all the above.--(both A and B are correct)

12.Crystalisation occurs with Sulphonamide therapy if there is a) acidic b) basic c) neutral d) not affected.-(A)

13.Chloramphenicol treatment prolong the action of a) certain analgesics b) oral anticoagulants c) oral anti diabetics d) anti convulsants. e) all the above.--(E)

14.Griseofulvin accumulate permanently in the following tissue. a) Hair b)Hoof c)Nail d)all the above.-- (D)

15.Duration of action of Benzathine penicillin a) 2 weeks b) 24 hours c) 5-7 days d) 18 hours .-(C)

16.Griseofulvin act as antifungal agents by a) inhibit mitosis b) destroy mitotic spindles c) interact with microtubles d) all the above. –(D)

17.In general gut acting sulphonamides are a) N4 substituted b) N1 substituted c) Both N1 and N4 substituted d) Unsubstituted.-(A)

18.Ionizing radiations are capable of causing the following changes in the cells a) Initial death of cells b) Injury inhibiting mitotic division c)suppress cellular functional activity d) mutational changes in germ cells e) all the above --(E)

19.Mechlorethamine is effective in the treatment of the following condition a) Hodgkins disease b)chronic leukemia c) carcinoma of bronchi d) all the above.---(D)

20.Nystatin is effective in infection due to the following organism a) Candida b) Cryptococcus c) Histoplasma d)Coccidiodes e) all the above--- (E)

21.One of the following is not an aminoglycoside antibiotic a) streptomycin b) polymyxin-B c) kanamycin d) neomycin e) gentamicin --.(B)

22.One of the following is a natural penicillin a) Ampicillin b) Penicillin V c) Amoxycillin d) Azlocillin.-(B)

23.One of the following is a prodrug of Ampicillin a) Carbenecillin b) Bacampicillin c) Azocillin d) Amidocillin.-(B)

24.One of the following is antipseudomonal penicillin a) Becampicillin b) Cloxacillin c) Carbenicillin d)Hetacillin.-(C)

25.Penicillinase resistant penicillin a) Methicillin and Carbenicillin b) Oxacillin and Methicillin c) methicillin and Becampicillin d) Cloxacillin and Carbenicillin.-(B)

26.Penicillin was introduced in to therapy a) Chain and Florey b) Chain and Domagk c) Florey and Fleming d) Waksman.-(A)

27.Phenithicillin is a) Penicillinase resistant b) Acid resistant c) Broad spectrum d) none of the above .-(B)

28.Quinolons produce its action by inhibiting a) Dihydropteroate synthatase b) DNA gyrase c) Dihydrofolate reductase d) Transpeptidase.-(B)

29.Sulphonamide which is preferred in urinary infection a) Sulphisoxazole b) Sulphasalazine c) Sulphadiazine d) Sulphadimidine.-(A)

30.Transfer of multiple drug resistance through conjugation is observed in infection of the a)Urinary tract b) Intestinal tract c) Respiratory tract d) skin .-(B)

31.The antibacterial activity of Amoxicillin may include penicillinase producing organism if it is combining with a) Phenethicillin b) Ampicillin c) Clavulanic acid d) Penicilloic acid.-(C)

32.The drug which has greatest potential for causing icterus and bilirubinuria a) selamectin b) Ivermectin c) Millumycin d) Melarsomine.-(D)

33.Topically active sulphonamide a) Sulphacetamide and sulphasalazine b) Silver sulphadiazine and Mafenide c) Sulphacetamide and Sulphademidine d) Mefenide and Sulphasalasine.-(B)

34.Weekly monitoring of renal function is necessary in antifungal therapy with a) Amphotericin- B b)Ketoconazole c) Flucytosine d) Griseofulvin.-(A)

35..Zidovudine an antiviral agent a) inhibits RNA dependent DNA polymerase b) is a thymidine analog c) inhibits HIV-1 virus d) all the above---(D)

36.An example of a fourth generation cephalosporin a) cefovecin b) cefixime c) cefipime d) cefadroxil.-(C)

37.An example of a long acting tetracycline is a) aureomycin b) oxytetracycline c) methacycline d) minocycline. (D)

V.Underline the odd one out and give your reasons.

1.Amphotericin-B, nystatin, flucytosin, mercuric iodide.- - (Mercuric iodide is the only heavy metal compound with antifungal action others are antibiotic with this action.)

2.Cefuroxime, cefaclor, cefotetan, cefquinone.- (Cefquinone is fourth generation cephalosporin, all the others are second generation only.)

3.Cyclophosphamide, chlorambucin, busulfan, methotrexate. –(Methotrexate -all are alkylating agent except methotrexate which is an antimetabolite.)

4.Dactinomycin, bleomycin, vincristine, actinomycin-D.-(Vincristine-All are antibiotic except vincristine which is an alkaloid.)

5.Dichlorphen, tolnaftate, hexetidin, copper sulphate. - -(Copper sulphate ,is the only heavy metal in this group with anti fungal action, others are new type of antifungal agents)

6.Erythromycin, azithromycin, roxithromycin, clarithromycin, streptomycin.- (Streptomycin- is the only aminoglycoside antibiotic ,others are macrolide group.)

7.Flurouracil, L-asparaginase, 6-mercaptopurine, methotrexate.--(L –asparaginase- is the only natural compound others are antimetabolite used in cancer therapy)

8.Melphalan, methotrexate, 5-fluorouracil, cytarabine.- (Melphalan-all are antimetabolites except melphalan which is an alkylating agent.)

9.Methotrexate , diethyl stilbestrol, hydroxyprogesterone, testosterone.- -(Methotrexate, only antimetabolite with anticancer action others are hormones with this action.)

10.Penicillin, cephalosporin, bacitracin, cycloserine, streptomycin.—(Streptomycin-all are acting on bacterial cell wall except streptomycin which acts on protein synthesis.)

11.Polymyxin, nystatin, amphoterecin-B, colistin, tetracycline -(Tetracycline-all are acting on bacterial cell membrane except tetracycline which act on protein synthesis.

12.Potassium arsenite, mitotane, hydroxyurea, cobalt-60.- - (Cobalt -60 is the only antineoplastic agent in this group with radioactivity others are with out radioactivity.)

13.Streptomycin, aztreonam, imipenem, penicillin .-(Streptomycin is the only aminoglycoside antibiotic ,all the others are beta lactam group of antibiotic.)

14.Tetracycline, erythromycin, rifamycin, clindamycin, -(Rifamycin-all are inhibiting protein synthesis except rifamycin which act on nucleic acid of bacteria.)

15.Trovafloxacin, norfloxacin, enroxacin, ciprofloxacin.-(Trovafloxacin is fourth generation quinolone, all the others are second generation only)

16.Tamoxifen, flutamide, cyproterone, finasteride, prednisolone.- (Prednisolone-all are hormonal antagonist except prednisolone which is a glucocorticoid.)

17.Vincristine, mitamycin-C , paclitaxel, etoposide, vinblastine, -(Mitamycin-all are plant derived anticancer agent except mitamycin-C which is an antibiotic.)

18.Vinblastine, vincristine, colchicin, actinomycin-D.--(Actinomycin-D, only anticancer antibiotic in this group, others are alkaloids.)

19.Vinblastin, actinomycin-D, prednisone, L-asparaginase.- -(Prednisone- only hormone others are natural product having anticancer action)

20.Yellow mercuric oxide, copper sulphate, iodine ointment, clotrimazole. - - (Clotrimazole-only antibiotic with antifungal action, others are old type of anti fungal agent)

21.Zidovudin, entrofloxacin ganciclovir, vidarabin, acyclovir,-(Entrofloxacin- all are antiviral except entrofloxacin which is antibacterial.)

VI.Match the following

A	B
1.Penicillin	*Streptomyces erythreus*. (6)
2.Streptomycin	*Penicillium griseofulvum*. (9)
3.Chlorotetracycline	*Streptomyces garyphalus*. (11)
4. Oxytetracycline	*Streptomyces aureofaciens*. (3)
5. Chloramphenicol	*Bacillus polymyxa*.(7)
6. Erythromycin	*Streptomyces noursei*. (10)
7. Polymyxin	*Penicillium notatum*.(1)
8. Bacitracin	*Streptomyces venezuelae*. (5)
9. Griseofulvin	*Streptomyces griseus*. (2)
10. Nystatin	*Bacillus subtilis*. (8)
11. Cycloserine	*Streptomyces rimosus*. (4)

A	B
1. Cyclophosphamide	Chelate copper ion-(3)
2.Vinblastine	Pyrimidine analogs-(5)
3. Bleomycin	5 alpha reductase inhibitor(7)
4. Methotrexate	Gn RH analogs---(8)
5. 5- Fluorouracil	Aromatase inhibitor-(11)
6. Crisantapase	Tamoxifen---(9)
7. Finasteride	Flutamide---(10)
8.Goserelin	Alkylating agent---(1)
9. Anti estrogen	Folate antagonist-(4)
10. Anti androgen	Asparaginase enzyme preparation(6)
11. Formestane	*Vinca rosea* -------(2)

VII. Answer the following:

1.Classify anticancer drugs.

A). Alkylatingf agent: a)Nitrogen mustard. eg.Cyclophosphamide. b)Aziridines derivatives.-eg.carboquone. c)Alkyl sulfonates eg. Busulfan d)Nitrosoureas. eg Lomustin e) Triazenes-eg.decarbazine

B). Antimetabolites: a)Pyrimidine analogs. eg.5- Flurouracil b)Purine analogs. eg.Mercaptopurine c) Folic acid analogs.eg. Methotrexate

C). Natural products: a)Alkaloids.eg.Vincristine b) Antibiotics.eg. Actinomycin -D c) Enzymes.eg. L-Asparaginase.d) Podophylum toxin.eg.Etoposide e) Biological response modifiers.eg. Alpha interferon.

D). Hormones: a)Adreno corticosteroids eg. prednisone .b) Progestin .eg. Hydroxy progesterone c)Estrogen. eg. Diethyl stilbesterol.d) Anti estrogen. eg.Tamoxifen. e)Androgen. eg. Testosterone propionate. f)Anti androgen.eg. Flutamide. g)Gonadotropin releasing hormone analog. eg. Leuprolide

E). Radio active isotopes: Phosphorus eg. sodium phosphate 32 P, Iodine eg. I 131 , Radium gold Au 198.

F) .Others: a)Substituted ureas. eg.Hydroxyurea. b)Methyl hydrazine derivatives, eg. procarbazine c)Adreno cortical suppressants.eg. Mitotane .d) Platinum co-ordination complex. eg. Cisplastin

2. What are the methods by which antiviral drugs inhibit virus? a). Interfere adsorption, penetration and uncoating. b) Combine with viral genetic material and prevent transcription or translation of genetic information. c) Block the formation of functional viral specific protein. d). Combine with newly synthesized virus directed protein and reduce its enzymatic or structural function.

3. Give two example for chromosomal mechanism by which bacteria become resistant to drugs. Modification of target enzymes-Sulfonamide target enzyme is tetrahydropteroic acid synthetase .It lost its affinity for its substrate PABA and so organism continue to grow in medium. Tetracycline sensitive cells accumulate tetracycline but resistant cells can not accumulate the same.

4.Classify antifungal drugs: <u>One classification</u>: I. Old type .a)Mercury preparation-mercuric iodide ointment b) Copper preparation- copper sulphate 1% solution c) Sulphur preparation-monosulfiram d)Organic acids-Benzoic and salicylic acid e) Dyes-rosaniline dyes. II. New type-Dichlorophen, salicylanilide derivatives, antibiotics, fatty acid derivatives-undecylenic acid

5. <u>Another classification</u>: 1) Inhibitors of fungal nucleic acid-Flucytosine. 2.) Inhibitors of fungal mitosis-Griseofulvin. 3) Inhibitors of ergosterol synthesis pathway- ketoconazole. 4) Inhibitors of fungal membrane stability- Amphotericin –B. 5) Inhibitors of fungal wall synthesis-caspofungin. 6) Iodides-Potassium iodide. 7) Miscellaneous a)Organic acid-Benzoic acid b) Fatty acid- Propionic acid c) Dyes-Gentian violet d) Phenolic compound-Phenol e) Hydroxy quinolins- Quiniodochlor f) Thiocarbamates- Tolnaftate g) Sulphu rcompound- Monosulfiram h) Copper compound-Copper sulphate.

6.<u>Another one</u>: I.Antifungal antibiotics; a)Polyenes-amphotericin, nystatin.b) Heterocyclic benzofurans-griseofulvin. II. Antimetabolites-flucytosine. III. Azoles: a) Imidazoles-ketoconazole, miconazole. b) Triazoles-fluconazole, terconazole. IV.allylamines-terbinafine, naftifine. V. Iodides-sodium iodide, potassium iodide. VI. Miscellaneous.a) Organic acids-salicylic acid and benzoic acid b) Fattyacid salts-propionates and undecylenates. c) Dyes- gentian violet d) Phenols and phenolic ethers- phenol, thymol e) Hydroxyl quinol- clioquinol. f) Thiocarbamate- tolnaftate. g) Sulphur and its preparation-sulphur, monosulfiram. h)Copper preparation—copper sulphate, copper naphthenate. i)Others- sodium thiosulphate, hexitidine, selenium sulphide, dichlorophen

7. What are the two classes of antiviral drugs? 1) Which inhibits viral as well as host cell activity. eg. Actinomycin –D, Puromycin. 2) Which inhibits selectively virus and has minor effect on host cells.

8. What are the important factors affecting LD 50.—Species of animal, route of administration, age, sex, climate, gastro intestinal content, physical state of the drug.

9.What is Intereferon: Proteinaceous substance released by mammalian cells helps other cells to resist viral infection. Suppress mRNA dependent polymerase brought in by virus or attenuate ribosomes so that they can not read viral RNA. It is species specific in action, topical and systemic viral infection can be antagonized. It is a glycoprotein produced in response to viral infection or immune stimulation. More than 5 types IF N, alpha, beta, omega etc. It modulate oncogene expression.

10.Interleukins are proteins produced by T and B cells. More than 17 types, regulate interaction between lymphocytes and other leucocytes. Stimulate or suppress cell division and differentiation, stimulation or suppression of immune system, growth factor of cells, regulate leucocyte function,

11. What are the principles to be observed for the efficient use of fungicide? 1) Fungicides capable of penetrating the barrier (Thick hard crust ,lesions by ring worm) can be used Eg. Fatty acids.2) Adjuvant drugs which soften and aid exfoliation of keratin (Keratolytic) such as salicylic acid can be used along with fungicide. 3) Vehicle which aid penetration are helpful eg.Animal fats. 4) Oral and parenteral administration may replace topical application. 5) In all cases of topical application- removal of the barrier of scab- scrubbing and cleaning the area with detergent is essential.

12. What are the old type of antimycotic drugs? 1) Mercury preparation 2) Iodine preparation 3) Copper preparation 4) Sulphur preparation 5) Benzoic and Salicylic acid 6) Rosaniline dyes.

13. What are the new type of antimycotic drugs? 1) Dichlorophen.2) Fatty acid derivatives 3) Salicylanilide and its derivatives 4) Antibiotics.

14. No drug can be called as a chemotherapeutic agent against cancer Why? Because it is having some action on host cell also .

15. Ketoconazole is ineffective during achlorhydria /antacid therapy / H2 blockers. Why? Ketoconazole is converted in to a drug in an acidic environment in to salt form in stomach- in the above conditions the conversion in to salt and absorption from G.I tract will not happen.

16. A dog with meningitis is to be treated with tetracycline compound. Oxytetracycline, Tetracycline, and Chlortetracycline is available .Which one will you select and Why?. Tetracyclin is be selected because it can cross the blood brain barrier more readily than the others.

VIII.Write short notes on

1.Mechanism of action of streptomycin ---a) inhibit protein synthesis- act on ribosomes and inhibits incorporation of amino acid in peptide chain in 30 S unit. Terminal respiration is reduced. Disturb the permeability of bacterial cell membranes- increase outward permeability

of nucleotide, potassium, amino acid etc. Denaturation of DNA. Several unwanted materials got accumulated in cell membrane.

2.Miscoding of protein synthesis in bacteria by streptomycin--- Inhibits the incorporation of aminoacid in peptide chain. It acts on 30S unit(fraction .10) of ribosomes which is a subunit of 70S- codon for phenyl alanin is mistaken for isoleucine and it is incorporated ((UUU codon is red as AUU). Streptamine part is essential for this.

3.Nitrofurans---Synthetic compound- wide range of antimicrobial action- mostly active against Gm-ve, Gm+ve is also susceptible- slightly soluble in water- static and cidal- Effective against pseudomonas, E-coli, and other bacteria resistant to other antibiotic. Employed as antifungal, anti protozoal agent also. Action is inhibited slightly by pus, blood, milk and tissue debris .It inhibit the enzymatic oxidation process (pyruvate)

4.Toxicity of streptomycin---When given i/v acute toxicity-irreversible lowering of B.P., neuromuscular blocking(non depolarizing),Neostigmine can reverse it. Restlessness, laboured respiration, unconsciousness, coma, nausea, vomition, fever, skin eruption, headache, cardio vascular depression-which can be reversed by calcium administration. Continued administration can cause toxicity to 8^{th} cranial nerve-vestibular apparatus-partial deafness. Destruction of gut flora, vit. K deficiency and kidney damage.

5. Trimethoprim---Synthetic anti bacterial-light yellow- bitter- rapid absorption orally-excreted via kidney. It blocks the production of tetrahydrofolic acid from dihydrofolic acid and by reversibly inhibiting the enzyme tetrahydro folate reductase. The binding is stronger for bacterial enzymes than for the corresponding mammalian enzyme. Effective against common urinary pathogens except pseudomonas. Toxicity-(large dose for long duration) haemopoieses is interfered , teratogenicity, bone marrow suppression.

6..Anti metabolites in cancer therapy--- Compounds that compete with normal metabolites necessary for cell functions and regulation. They are all inhibit DNA synthesis. They are highly cell cycle specific with 'S' phase being most sensitive stage. G.I. and Bone marrow toxicity is seen. Eg. Folic acid analog- Methotrexate.

7.Methotrexate- Is a folic acid analog used in cancer therapy especially lympho-reticular and mammary carcinoma, chorio carcinoma, canine transmissible venereal tumours. It compete with or displace folic acid from its normal role of functioning as an essential link in the formation of pyramidine and purine all are toxic to bone marrow.

8. Alkylating agents as antineoplastic compounds: These agents undergo chemical reactions that generate highly reactive electrophilic carbonium ion that readily form covalent linkage with various nucleophilic substances such as biologically important moieties as phosphate, amino, sulfhydryl carboxy and imidazole group. Eg. Nitrogen mustard, Mechlorethamine, cyclophosphamide, Neoplastic tissues are more affected.

9. Mechanism of antifungal action of Nystatin: It binds with a sterol moiety present in the membrane of sensitive fungi-binding causes change in permeability allowing leakage of

potassium – inhibit endogenous respiration and glucose utilization-intracellular protein synthesis is impaired by interference with phosphate utilization -- accelerate degeneration of ATP.

10. How ionizing radiation affects the water molecules. Ionizing radiation cleave the water molecules in to hydrogen , hydroxyl and hydroperoxy radicals as well as the ions . These act as oxidizing and reducing agents causing production of H2O2, H2S- inactivate sulphydril group of enzymes –Amino acids may deaminate to form ammonia.

11.What are the principles to be observed in Chloramphenicol treatment? Never use it for any minor infection . If we suspect typhoid start with chloramphenicol. Daily dose and duration should be fixed- not exceed 10 days. Check the blood picture every 3-4 days.

12.Ototoxicity of aminoglycoside antibiotics : these group of antibiotics causes progressive destruction of vestibular and cochlear sensory cells- individual sensory hairs fuse together in to a giant hair in vestibular organ-loss of hair cell in the cochlea- damage progress from base to cochlea (base high frequency sound and apex low frequency sound) .Early toxicity is reversible by calcium –late degeneration of auditory nerve. It also interfere with active transport system essential for the maintenance of the ionic balance of the endolymph- causes impairment of electrical conduction.

13.Interferon:-Low mol.wt.-Glyco protein in response to viral infection (RNA)– can inhibit some other virus. have antiviral, immuno modulatory, antiproliferative effect. bacterial exotoxin, polyanion- alpha, beta and gama interferon,. Type-I (**α** and **β**) interact with cell surface receptor. Type-II produce by T cells interact with separate receptors. Receptor combination produce protein which combat viral infection. - **α** 2a and α 2b currently available- binds to tyrosine kinase receptors of virus and blocks viral replication at various steps. Binds to cell surface receptors and inhibit viral penetration or uncoating or methylation of messenger RNA, translation of viral protein, viral assembly and release not absorbed orally – Intramuscular or subcutaneous- useful in hairy cell leukaemia, genital warts, hepatitis-B, papilloma virus.

14.Principles of antifungal treatment: Fungicide capable of penetrating the barrier must be used, Adjuvant which soften and aid exfoliation of keratin (keratolytics) such as salicylic acid can be used along with fungicide-vehicle which aid penetration are helpful(animal fats, alcohol)-oral and parenteral administration may replace topical application-in topical application removal of barriers of scab, scrubbing, cleaning of the area with detergent is essential.

15.Mono clonal antibodies: Immunoglobulins produced by cell cultures selected to react with antigen specially expressed on cancer cells. It activate hosts immune mechanism and complement mediated lysis or attack by killer cells.

16.Hormones as anti neoplastic agents: Hormones are useful because of their Lympholytic action and their ability to reduce mitosis in lymphocytes. Greater value in the treatment of

acute leukemia in children, and malignant lymphoma. Drug resistance may develop. Estrogen, progesterone, testosterone are used. Prostate , mammary glands, endometrial tissues depend on hormones for their growth , function, and morphological integrity. Change in the hormonal environment affect these.

17.Radio active isotopes: Agents which emits Alpha, Beta and Gamma rays –convert atom of various compounds to ions –Gamma has short wave length equivalent to X-ray, so the property are shared by X- ray. Initiate chemical change in medium through which they pass. Initiate death of cell, inhibit cell division, reduce cellular functional activities, mutational change in germ cells-cleave water molecule hydrogen, hydroxyl, hydroperoxy radicals as well as their ions which acts as oxidizing and reducing agents. Success of the treatment depend on many factors. Must have high uptake of radioactive materials by the organ to be treated, Must be a high rate of turnover of exchangeable radioactive atom in the tissues, half life must be sufficiently short so that normal tissue must not be affected. Eg. Ra 226, I 131, Gold 198, Co 60.

18.Classify antiviral drugs.—I. Inhibitors of viral attachment and penetration—gamma globulin. II. Inhibitors of viral nuclic acid synthesis-Purine analogue Acyclovir, and pyramidine analogue Zidovudine. III.Inhibitors of viral assembly-Amantadine. IV. Immunomodulators-Interferon. V. Miscellaneous agent-Thiosemicarbazone, antibiotic Rifampicin.

Another classification: I. Inhibitors of viral attachment and penetration-Gamaglobulins. II. inhibitors of viral nuclic acid synthesis a) Purine analogues-acyclovir, ganciclovir. b) Pyramidine analogues-zidovudin, cytarabin. c) Pyrophosphate analogues-foscarnet. III.Inhibitors of viral assembly-amantadine, rimantadine. IV. Immunomodulators: a) Interferons-interferon-alpha. b)I nterferon inducers- polyriboinosinic acid, inosine. V. Miscellaneous agents: a) Antibiotics-rifampicin, dactinomycin. b) Thiosemicarbazone-methisazone c) Others-suramin, levamisole, ribozymes.

19..Anti cancer antibiotics: Actinomycin-D, dunomycin, Puromycin, Mitamycin-C, streptonigrin.-Explain individual agents.

20.Macrolide group of antibiotics: erytyhromycin, oleandomycin, speramycin, tylosin-contain lactone ring-Explain

21. Polpeptide antibiotics: polymyxun, tyrothricin, colistin, gramicidin, bacitracin-Explain

IX.**Choose the correct answers from the given ones and give your explanation for the same.**

1.Bacterial resistance due to drug inactivating enzymes is important for all the following antibiotics except A)Penicillin G B)Ampicillin C)Gentamicin D) Tetracycline E) Cephalexin.

Answer is (D) Bacterial resistance to tetracyclines is usually due to decreased uptake or active transport of drug out of the bacterial cell. Resistance to penicillin G, ampicillin, and cephalexin is due to beta-lactamase production. Gentamicin is enzymatically inactivated by resistant bacteria, which acetylate, phosphorylate, or adenylate the drug.

2.Transferable drug resistance , which involves transfer of multiple –drug resistant genes via pili, has been observed clinically in Gram(–) infections of the A) urinary tract B) intestinal tract C) respiratory tract D)skin.

Answer is (B) Infectious or transferable drug resistance may occur in Gram(-) bacteria, which reproduce by conjugation and has been observed clinically in enteric infections caused by salmonella, shigella, or E. Coli.

3.The primary reason for using mixture of sulfonamide in cattle is A) to decrease the likelihood of bacterial resistance since most of the organisms would be sensitive to one of the sulfonamides in the mixture even if resistant to the others. B) to decrease the rate of acetylation since each sulfonamide competes for enzyme. C) to provide a broad spectrum of antimicrobial action. D) to reduce the renal toxicity based on the law of independent solubility E) to allow the formulation of neutral solutions.

Answer is (D) The renal toxicity of sulfonamide is due to their precipitation in neutral or acid urine. Because of their independent solubility, mixtures of sulfonamides provide greater solubility for a given concentration. Bacterial resistance , metabolism, spectrum of activity , or neutrality of solutions are minimally affected by mixtures.

4. Trimethoprim or ormetoprim combined with a sulfonamide results in all of the following Except A) a sequential blockade of folate synthesis in susceptible bacteria. B) a decreased ability of sulfonamides to produce keratoconjunctivitis sicca (KCS) C) a decrease in the rate of development of resistant bacteria. D) an extended antibacterial spectrum. E) an increased inhibition of purine and DNA synthesis in susceptible bacteria.

Answer is (B) The ocular toxicity of sulfonamides, especially the sulfapyrimidines, is not reduced by combination with trimethoprim or ormetoprim. Potentiated sulfonamides have an extended spectrum and reduced rate of development of bacterial resistance via a sequential blockade of folate, purine, and DNA synthesis.

5. The fluoroquinolones , Enrofloxacin, and marbofloxacin A) have an antibacterial spectrum, which is limited to Gram(-)pathogens, especially anaerobes. B) are used primarily for enteric infections since they are not absorbed from the gut. C) are useful for respiratory , skin, and urinary tract infections in puppies. D) are bactericidal via inhibition of DNA gyrase.

Answer is (D) The fluoroquinolones are bactericidal by inhibiting bacterial DNA gyrase, which results in degradation of replicating DNA . They are broad spectrum but anaerobes tend to resistant. They are absorbed orally. They should not be administered to puppies because they may produce erosion of articular cartilage in growing dogs.

6. Considering the pharmacology of the penicillin G and the first generation cephalosporins , all of the following are true Except : A) They inhibit peptidoglycan cross-linking in the third stage of bacterial cell wall synthesis. B) Bacterial resistance is most commonly due to beta lactamase production. C) Tissue penetration of cephalosporin is superior to penicillin G and thus they are preferred for antibiotic prophylaxis in surgery. D) They are eliminated primarily by hepatic metabolism and biliary excretion of conjugated drug. E) Nephrotoxicity is more likely to occur with high or prolonged dosage of cephalosporins.

Answer is (D) Penicillins and cephalosporins are eliminated by renal mechanisms of glomerular filtration and active tubular secretion. Their mechanism of action and inactivation by resistant bacteria are similar. Tissue penetration and nephrotoxicity are greater for the cephalosporins.

7. The antibacterial activity of amoxicillin may include penicillinase- producing organism if it is combined with A) phenethicillin. B) Enrofloxacin. C) penicilloic acid. D) ampicillin. E) clavulanic acid.

Answer is (E) Clavulanic acid inhibits Beta-lactamase and prevents inactivation of amoxicillin by otherwise resistant organisms. Phenethicillin, Enrofloxacin, or ampicillin do not inhibit penicillinase. Penicilloic acid is a degradation product of penicillinase action, which acts as an antigenic determinant in penicillin allergy.

8. Two semisynthetic penicillins that are effective against *Pseudomonas* spp. are A) methicillin and ampicillin. B) ampicillin and amoxicillin. C) amoxicillin and ticarcillin. D) ticarcillin and piperacillin. E) ticarcillin and oxacillin.

Answer is (D)Piperacillin and ticarcillin are antipseudomonal penicillins used alone or in combination with gentamicin, tobramycin,or clavulanate in severe infections caused by these organisms. Methicillin and oxacillin are penicillinase stable and ampicillin and amoxicillin are broad spectrum but are not effective against *Pseudomonas* spp.

9. The aminoglycoside antibiotics such as amikacin and gentamicin A)are lipid soluble and distribute widely in tissues including CNS. B) are not effective against Gram(-) anaerobes because their uptake by bacteria is oxygen linked. C) are bacteriostatic at therapeutic concentrations. D) are well absorbed orally if they are enteric coated to protect them from gastric acid.

Answer is (B) The uptake of aminoglycosides by bacteria includes an energy-dependent step(EDP1)which is oxygen –linked. Since aerobes do not use oxygen, the uptake of aminiglycosides is minimal. Aminoglycosides are highly polar and poorly lipid soluble. They are bactericidal and are not absorbed orally.

10.Adverse reactions to the aminoglycoside antibiotics include all of the following Except: A) neuromuscular blockade. B) myelosuppression and anaemia C) nephrotoxicity. D) ototoxicity-auditory E) ototoxicity- vetibular

Answer is (B) Aminoglycosides do not produce myelosupression. Nephrotoxicity and ototoxicity are most likely in patients with impaired renal function. Neuromuscular blockade occurs rarely and is reversed by calcium.

11. Tetracyclines are broad spectrum and bacteriostatic by a mechanism of action that involve A) binding to the 30S ribosome to inhibit the addition of aminoacids to the growing peptide chain. B) binding to phospholipids in bacterial cell membranes to increase permeability. C)binding to the 50S ribosome to inhibit peptidyl transferase. D) inhibition of DNA gyrase.

Answer is (A) Tetracyclins inhibit bacterial protein synthesis by binding to the 30S ribosome of bacteria and preventing attachment of aminoacyl tRNA to the ribosome and thus block the addition of aminoacid to protein synthesis. Polymixin B disrupts bacterial cell membranes and fluoroquinolones inhibit DNA gyrase. Chloramphenicol binds to the 50S ribosome and inhibits peptidyl transferase.

12. Tylosin A) inhibits the first step of cell wall synthesis and thus is bactericidal in growing bacteria B) may produce anaemia by blocking iron uptake in erythroblast. C) antibacterial spectrum includes mycoplasma. D) is usually effective in organisms resistant to erythromycin.

Answer is (C) Tylosin is a macrilide antibiotic effective against Gram (+) pathogens and mycoplasmal infections. It is also active against some Gram(-) bacteria, including Pasteurella and Haemophilus spp. It inhibits protein synthesis by binding to 50 S ribosomes like other macrolides including erythromycin and thus cross-resistance would be expected.

13. Clindamycin A) is primarily active against gram(-) pathogens. B) is used in equine enteric infections since it is a poorly absorbed enteric macrolide. C) distribution is generally limited to the ECF. D) is frequently effective in staphyloccal osteomyelitis.

Answer is (D) Clindamycin is active against Gram(+)aerobes and anaerobes and has an excellent penetration of soft tissues and bones, which render it effective in staphylococcal osteomyelitis. It is contraindicated in horse because it suppresses colonic flora and produce a severe , often fatal diarrhea.

14. You are presented with an aged cat with *Haemobartonella* infection but also with impaired renal function. A tetracycline that may be safely administered is A) chlortetracycline. B) doxycycline. C) oxytetracycline. D) tetracycline.

Answer is (B)Tetracyclins are effective in treating *Haemobartonella* infection, but are excreted by the kidney and are nephrotoxic if there is pre-existing renal disease. Doxycycline however, is excreted primarily by the intestine and could be safely administered to this patient.

15. An antibiotic that is combined with erythromycin for treating *Rhodococcus equi* infections in foals is A) spectinomycin B) vancomycin C) rifampin D) tylosin

Answer is (C) Rifampin is bactericidal for mycobacteria and Gram(+) pathogens. It is combined with erythromycin for R.equi infection. Spectinomycin is an aminocyclitol used for enteric and respiratory disease. Vancomycin is a reserve antibiotic for methicillin-resistant staphylococcal infections. Tylosin is macrolide similar to erythromycin.

16. Which of the following therapies is not correct? A) Metronidazole – anaerobic infection of the pelvis in cats B) Lincomycin –swine dysentery C) Florfenicol—bovine respiratory disease D) Tetracycline –psittacosis in birds E) Chloramphenicol—mycoplasmal pneumonia in swine

Answer is (E)Chloramphenicol used in food-producing animals is illegal because of the potential danger of residue-induced aplastic anaemia in humans.

17. Three antibiotic used topically or orally but not parenterally (primarily because of nephrotoxicity) are A) Streptomycin, kanamycin, bacitracin B) polymixin B, bacitracin, neomycin C) bacitracin, tiamulin, polymixin B. D) neomycin, gentamicin, rifampin.

Answer is (B) Bacitracin, neomycin, and polymixin B are used topically or as non absorbable oral antibiotics. They are too nephrotoxic for systemic use. Bacitracin is bactericidal against Gram(+) organisms and neomycin and polymixin B are bactericidal against Gram(-) bacteria.

18. Weekly monitoring of renal function (e.g. BUN) is necessary in antifungal therapy with A) amphoterecin B. B) ketoconazole. C) flucytosine. D) griseofulvin.

Answer is (A) Amphotericin B is nephrotoxic and renal function must be monitored weekly during long –term therapy for systemic mycoses

19. All of the following statements concerning griseofulvin are true Except: A) oral absorption is increased by dietary fat. B) distribution is to keratin precursor cells. C) its action is rapid and fungicidal. D) it inhibits mitosis in dermatophytes (ring worms).

Answer is (C) Griseofulvin's action is fungistatic and its action is slow as it inhibits fungal growth in keratin precursor cells. Infected cells are slowly shed and replaced with uninfected cells. Oral absorption is increased by fat . it inhibits mitosis by binding to microtubules to prevent spindle formation.

20. All the following statements concerning ketoconazole are true Except: A) it is more effective than flucytosine since it penetrates the CNS more completely B) it inhibits ergosterol synthesis in both systemic mycotic infections and candidiasis (yeast infection). C) cortisol and testosterone synthesis in mammals is inhibited at high doses. D) it must be administered for 3-6 months in therapy for systemic mycoses.

Answer is (A) Flucytosine is an antifungal that penetrates the CNS and CSF well. It is used with amphotericin B in the treatment of meningeal cryptococcosis . Ketoconazole does not penetrate the CNS well.ketoconazole inhibits ergosterol synthesis in fungi and , at

high doses, steroid synthesis in mammals. Long- term therapy is required for mycotic infection.

X.Write Essays on.

1.What are aminoglycoside antibiotics? Explain the mechanism of action and toxicity.

2.Explain in detail Antiviral drugs.

3. Explain in detail chemotherapeutic agents for the treatment of cancer.

4.Explain the anti fungal agents used in veterinary practice.

5.Classify antineoplastic drugs and explain in detail antimetabolites.