

UNIVERSITI SAINS MALAYSIA

PEPERIKSAAN PERTAMA
PROGRAM SARJANA FARMASI
1993/94

NOVEMBER 1993

FCP 553.40 : PHARMACOTHERAPEUTICS III

(3 HOURS)

This examination consists of **two sections** and 48 printed pages.

Section A consists of 100 multiple choice questions.

Section B consists of **two (2)** long questions.

Answer **ALL** questions.

Answers to Section A must be entered into the scripts provided.

...2/-

INDEX NUMBER : _____

Section A

Mark (/) all answers on the opposite space corresponding to a correct or most appropriate answer for each question. Each question has only once correct or most appropriate answer or statement.

1. Which of the following statements regarding the use of antibiotics in endocarditis is true?

- (a) Prophylaxis antibiotic therapy should be continued until 5 years fever free.
- (b) Combination antibiotics therapy is preferred than single drug therapy.
- (c) Treatment of endocarditis should be continued up to six weeks to prevent relaps.
- (d) Empiric therapy should be given in all patient with fever of unknown origin.

2. Which of the following statements regarding the selection of antibiotics in the management of endocarditis is true?

- (a) The antibiotics should be able to penetrate into myocardium.
- (b) The antibiotics should be a bactericidal agent.
- (c) The antibiotics should have high MBC : MIC ratio.
- (d) The antibiotics should have wide spectrum of activity.

...3/-

INDEX NUMBER : _____

3. Which of the following antibiotics has higher penetration into blood brain barrier?
- (a) Antibiotics with low PKa.
 - (b) Antibiotics that are ionised at physiologic pH.
 - (c) Antibiotics with high lipid solubility at physiologic pH.
 - (d) Antibiotics with low molecular weight.
4. Which of the following statements regarding the selection of antibiotics in the management of meningitis is true ?
- (a) The antibiotics should have high MBC : MIC ratio.
 - (b) The antibiotics should have high CSF : Plasma concentration ratio.
 - (c) The antibiotics should be able to penetrate into inflamed meninges.
 - (d) The antibiotics should be a bactericidal agent.
5. Which of the following antibiotics is not an appropriate selection for the empiric management of meningitis in 60 year old man?
- (a) Chloramphenicol.
 - (b) Gentamicin.
 - (c) Cefuroxime.
 - (d) Penicillin G.

...4/-

INDEX NUMBER : _____

6. Which of the following factors will increase the risk of penicillin nephrotoxicity?

- (i) Concurrent probenecid therapy.
- (ii) Renal impairment.
- (iii) Obstructive liver disease.
- (iv) Concurrent chloramphenicol (CMC) therapy.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

7. Which of the following statements regarding the use of imipenem are true?

- (i) Pseudomonas aeruginosa may develop resistant during therapy.
- (ii) It is useful against infections due to multiple organisms.
- (iii) It is the drug of choice in the management of Bacteroides fragilis infections.
- (iv) Combination with penicillin G will produce synergistic effect against staphylococcus infection.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...5/-

INDEX NUMBER : _____

8. Which of the following conditions will increase the coagulation problems associated with penicillin use?

- (i) Concurrent renal failure.
- (ii) Concurrent use with aspirin.
- (iii) Concurrent use with vitamin K.
- (iv) Concurrent use with erythromycin.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

9. Which of the following infections is best treated with vancomycin?

- (i) Staphylococcus epidermidis resistance to cloxacillin.
- (ii) Staphylococcus aureus resistance to cloxacillin.
- (iii) Pseudomembranous colitis.
- (iv) Multiple resistance staphylococcus aureus.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...6/-

INDEX NUMBER : _____

10. Which of the following statements regarding chloramphenicol are true?

- (i) It has a high protein binding capacity.
- (ii) IV chloramphenicol succinate has a lower bioavailability than oral capsul.
- (iii) It is stored in the fatty tissues.
- (iv) Penetration across blood brain barrier is excellence.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

11. Which of the following conditions represent the adverse reaction of chloramphenicol?

- (i) Gray baby syndrome.
- (ii) Aplastic anaemia.
- (iii) Tubular necrosis.
- (iv) Tative dyskinesia.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...7/-

INDEX NUMBER : _____

12. Which of the following statements regarding the use of quinolones are true?

- (i) It can cause cartilage deformation in neonate.
- (ii) It is very effective in the treatment of gonorrhoea.
- (iii) It's IV preparation is vesicant.
- (iv) It is the drug of choice in the management of pseudomembranous colitis.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

13. Which of the following statements regarding the CSF concentration of antibiotics are true?

- (i) CSF concentration of CMC is equal to the blood concentration 2 hours after administration.
- (ii) CSF concentration of ampicillin is dependent on the condition of blood brain barrier.
- (iii) CSF concentration of vancomycin is higher with oral administration compared to IV administration.
- (iv) Intraventricular route will give higher CSF concentration compared to other routes.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...8/-

INDEX NUMBER : _____

14. Which of the following statements regarding the use of cephalosporins in penicillin allergic patients are true?

- (i) First generation cephalosporins are the best alternative.
- (ii) About 15 percent of the patients will develop cross allergic.
- (iii) It is only advisable to use for patients with nonanaphylactic type of penicillin allergy.
- (iv) The choice of cephalosporins is based on the sensitivity test.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

15. Which of the following statements regarding the use of vancomycin are true?

- (i) Oral vancomycin is very useful in the management of pseudomembranous colitis.
- (ii) Vancomycin nephrotoxicity is aggravated with concurrent use of aminoglycosides.
- (iii) Vancomycin is the antibiotic of choice in the treatment of infection caused by multiple organisms.
- (iv) Vancomycin IV has higher bioavailability than vancomycin oral.

...9/-

INDEX NUMBER : _____

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

16. Which of the following statements regarding the use of combination antibiotic therapy are true?

- (i) Combination should produce additional or synergistic effects.
- (ii) The combined antibiotics should not have similar adverse reaction.
- (iii) The combined antibiotics should not have similar mechanism of action.
- (iv) Combination should be based on the sensitivity result.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

17. Which of the following statements regarding third generation cephalosporins are true?

- (i) Penetration to CSF is better than the first and second generation cephalosporins.
- (ii) It has a higher activity against gram negative(-ve) organisms.
- (iii) Its spectrum of activity covers all type of gram positive (+ve) and negative (-ve) organisms.
- (iv) Third generation cephalosporins have higher tendency of inducing hematologic disorders than the first generation.

...10/-

INDEX NUMBER : _____

- (a) (i) and (ii) only.
 - (b) (i), (ii) and (iii) only.
 - (c) (i), (ii), (iii) and (iv)
 - (d) (ii) and (iv) only.
18. Which of the following statements regarding the use of imipenem is true?
- (a) Combination with cephalosporins may reduced its effectiveness.
 - (b) Imipenem is the only drug which posses post-antibiotic effect.
 - (c) Imipenem is very useful in MRSA.
 - (d) Combination with antipseudomonal penicillin can prevent the development of resistance during treatment.
19. Which of the following statements regarding the use of sulphonamide are true?
- (i) It can achieve therapeutic concentration in the middle-ear.
 - (ii) It can induce hemolysis in patient with G6PD deficiency.
 - (iii) Folic acid deficiency will increase its risk of hematologic side effects.
 - (iv) Should be taken with plenty of water to avoid renal failure.
- (a) (i) and (ii) only.
 - (b) (i), (ii) and (iii) only.
 - (c) (i), (ii), (iii) and (iv)
 - (d) (ii) and (iv) only.

...11/-

INDEX NUMBER : _____

20. Which of the following statements regarding the use of aztreonam is true?
- (a) It is usefull as a single agent in the treatment of urinary tract infection (UTI).
 - (b) Combination with penicillin V will produce synergistic effect against streptococcus infection.
 - (c) Aztreonam is active against MRSA.
 - (d) Aztreonam is metabolized in the liver and the kidney.
21. Which of the following antivirals can be used in the treatment of herpes encephalitis in pediatrics?
- (i) Acyclovir.
 - (ii) Ganciclovir.
 - (iii) Vidarabine.
 - (iv) Zidovudine.
- (a) (i) and (iii) only.
 - (b) (ii) and (iv) only.
 - (c) (i) ,(ii) and (iii) only.
 - (d) (iv) only.
22. Which of the following adverse effects can occur with parenteral acyclovir therapy?
- (a) Increase in blood urea nitrogen.
 - (b) Sedation and numbness.
 - (c) Disorientation.
 - (d) Fever and chill.

...12/-

INDEX NUMBER : _____

23. Which of the following statements regarding acyclovir is/are true?

- (i) Dosage adjustment is not needed in renal failure patient.
- (ii) It is readily hemodialyzable.
- (iii) It does not enter the cerebrospinal fluid of a healthy person.
- (iv) It is available in tablet, suspension and parenteral forms.

- (a) (i) and (iii) only.
- (b) (ii) and (iv) only.
- (c) (i), (ii) and (iii) only.
- (d) (iv) only.

24. Which of the following statements regarding zidovudine is/are true?

- (i) It reduced mortality rate in AIDs patients.
- (ii) It is effective in the treatment of herpes simplex encephalitis.
- (iii) The daily oral dose is between 500 to 1500 mg/day.
- (iv) It is only available in parenteral form.

- (a) (i) and (iii) only.
- (b) (ii) and (iv) only.
- (c) (i), (ii) and (iii) only.
- (d) (iv) only.

...13/-

INDEX NUMBER : _____

25. Which of the following statements regarding herpes encephalitis is true?
- (a) Breathlessness and bradycardia are the common symptoms.
 - (b) No significant difference in mortality rate between acyclovir-treated group with non treated group.
 - (c) Vidarabine therapy is contraindicated in pediatrics.
 - (d) It has a high mortality rate.

Question number 26 to 29 refer to the following case.

AB, 45 year old man was diagnosed as having a candida infection at his femur bone. The doctor plans to start amphotericin B therapy immediately. AB's renal and cardiovascular functions are within normal range.

26. What is the appropriate initial dose of amphotericin B upon a succesful test dose?
- (a) 1 mg/day.
 - (b) 50 mg/day.
 - (c) 10 mg/kg/day.
 - (d) 0.25 mg/kg/day.
27. What is the appropriate infusion time for Amphotericin B therapy?
- (a) 4 to 6 hours.
 - (b) 10 to 30 minutes.
 - (c) Bolus.
 - (d) 2 to 5 minutes.

...14/-

INDEX NUMBER : _____

28. Which of the followings is the most common adverse effect of amphotericin B therapy?

- (a) Dsyphoria.
- (b) Numbness.
- (c) Breathlessness.
- (d) Azotemia.

29. After AB had received total cummulative dose of 300mg, the doctor asked the pharmacist whether the dose is sufficient to treat AB's candidiasis. Which of the followings is the best answer the pharmacist should give?

- (a) Risk of irreversible toxicity increase if total commulative dose exceeded 300 mg.
- (b) Generally this infection would need total cummulative dose in the range of 100 to 300 mg.
- (c) Amphotericin B administration can be stopped immediately if AB become afebrile.
- (d) The effective treatment for deep-seated candida infections need a range of total cummulative dose of 1 to 4 gram.

30. Which of the following antifungals produce synergistic activity when combine with amphotericin B in treating cryptococcal meningitis?

- (a) Flucytosine.
- (b) Ketoconazole.
- (c) Fluconazole.
- (d) Itraconazole.

...15/-

INDEX NUMBER : _____

31. Which of the following antifungals demonstrates a good cerebrospinal fluid penetration?
- (a) Ketoconazole.
 - (b) Fluconazole.
 - (c) Itraconazole.
 - (d) Amphotericin B.
32. Combination of ranitidine with would decrease oral absorption of this antifungal.
- (a) ketoconazole.
 - (b) fluconazole.
 - (c) amphotericin B.
 - (d) flucytosine.
33. Gynecomastia is an adverse effect associated with.....
- (a) ketoconazole.
 - (b) fluconazole.
 - (c) amphotericin B.
 - (d) flucytosine.
34. Amphotericin B is not administered orally because it.....
- (a) has serious metabolic adverse effects.
 - (b) is not soluble in water.
 - (c) is poorly absorbed.
 - (d) cause renal failure.

...16/-

INDEX NUMBER : _____

35. Which of the following statements regarding flucytosine pharmacokinetic is true?
- (a) It's serum concentration does not change after hemodialysis.
 - (b) It has a longer half-life than amphotericin B when use in patients with normal renal function.
 - (c) It's penetration into most body sites and fluids is poor.
 - (d) It demonstrates little protein binding.
36. Which of the following tests is not affected by estrogen containing drugs?
- (a) Thyroid stimulating hormone concentration (TSH).
 - (b) Plasma thyroxine-binding globulin (TBG) concentration.
 - (c) T₃U, resin value.
 - (d) Total Thyroxine level.
37. Which of the following is/are the mechanism(s) of action of iodides in the treatment of hyperthyroidisme ?
- (i) It blocks the organification of thyroid hormones in the thyroid gland.
 - (ii) It blocks the release of thyroid hormones from thyroid gland.
 - (iii) It blocks the peripheral action of thyroid hormone.
 - (iv) It decreases the vascularity of the gland.

...17/-

INDEX NUMBER : _____

- (a) (i) and (iii) only
- (b) (ii) and (iv) only
- (c) (i), (ii) and (iii) only
- (d) (iv) only.

38. Which of the following thyroid preparations has the least predictable potency ?

- (a) Liothyronine.
- (b) Thyroid USP
- (c) Levothyroxine
- (d) Liotrix

39. Drug interference with thyroid function test could be caused by the following mechanisms except.....

- (a) by altering peripheral thyroid hormone metabolism.
- (b) by affecting concentration of binding proteins in the serum .
- (c) by interfering the activity of thyroid hormone on cells.
- (d) by inhibiting thyroid hormone synthesis in the thyroid gland.

...18/-

INDEX NUMBER : _____

40. The proposed antiemetic mechanism(s) of metoclopramide is it

- (i) decreases vestibular input to the vomiting center.
- (ii) increases the motility of the stomach and small intestine.
- (iii) decreases cortical input to the chemoreceptor trigger zone (CTZ)
- (iv) blocks dopaminergic receptors in the CTZ thus decreases the input to the vomiting center.

- (a) (i) and (iii) only.
- (b) (ii) and (iv) only
- (c) (i), (ii) and (iii) only
- (d) (iv) only.

41. Which of the following statements regarding diarrhea therapy is true?

- (a) Antibiotics is generally reserved for patients with diarea associated with fever and bloody or purulent stool.
- (b) Solid food should be stopped for at least 24 hours especially for children below 2 years old.
- (c) The antibiotic of choice for treating diarea caused by *Clostridium difficile* is Doxycycline 200mg daily for 3-5 days.
- (d) Antibiotics should be started in children having acute diarea since it would hasten the recovery.

...19/-

INDEX NUMBER : _____

42. Chronic-lipoid pneumonia is an adverse effect of
- (a) liquid paraffin.
 - (b) lactulose.
 - (c) bisacodyl
 - (d) danthron.
43. The most common form of diarrhea encountered is
- (a) osmotic diarrhea.
 - (b) secretory diarrhea.
 - (c) motor activity diarrhea.
 - (d) exudative diarrhea.
44. Which of the following drug used in the treatment of hypercortisolism requires a period of 4 - 5 weeks in order to exert its effect?
- (a) Cyproheptadine
 - (b) Mitotan
 - (c) Metyrapone
 - (d) Aminoglutethimide
45. Gastrointestinal problems are the major adverse effect of.....
- (a) cyproheptadine
 - (b) mitotan
 - (c) metyrapone
 - (d) aminoglutethimide.

...20/-

INDEX NUMBER : _____

46. Which of the following drugs is not effective in aborting acute attacks of gout?
- (a) Indomethacin.
 - (b) Probenecid.
 - (c) Fenoprofen.
 - (d) Naproxen.
47. Which of the following conditions has a low risk for the development of hyperuricemia?
- (a) A 18 year old student being treated for acute leukemia.
 - (b) A 54 year old woman receiving hydrochlorothiazide for her hypertension.
 - (c) A 75 year old man on a high-protein diet.
 - (d) A 75 year old housewife who consumes 6-8 aspirin tablets daily for recurrent headaches.
48. Which of the following statements regarding NSAID's is not true?
- (a) All are highly protein bound.
 - (b) All are superior to aspirin in terms of their antiinflammatory effect.
 - (c) All have the potential to cause gastrointestinal bleeding.
 - (d) All show wide intra- and interpatient variability in response.

...21/-

INDEX NUMBER : _____

49. Which of the following risk factors is not associated with NSAID's gastrointestinal adverse effects?

- (a) Gender.
- (b) Age
- (c) Duration of therapy.
- (d) Concomitant steroid therapy.

50. Which of the following drugs is not associated with hyperuricemia?

- (a) Theophylline.
- (b) Cyclosporin.
- (c) Isoniazid.
- (d) Ethambutol.

51. In which of the following conditions is probenecid uricosuric therapy contraindicated?

- (a) Patient with a creatinine clearance of less than 30 ml/min.
- (b) Patients who had been classified as over-excretors of uric acid (more than 1000 mg/day).
- (c) Patients with a history of renal stones.
- (d) All of the above conditions are correct.

...22/-

INDEX NUMBER : _____

52. Which of the following statements regarding the clinical use of allopurinol is true?

- (a) There is no difference in the efficacy either given as a 300 mg daily single dose or as a 100 mg. three times a day doses.
- (b) Long-term use of allopurinol is associated with the formation of cataracts.
- (c) The dose of allopurinol should be adjusted in patients with a creatinine clearance of 25 ml/min.
- (d) The therapy should be initiated with the full dose to achieve a good therapeutic effect.

53. Which of the following sulphasalazine adverse effects is not a dose-related reactions?

- (a) Nausea and vomiting.
- (b) Pancreatitis.
- (c) Leukopenia.
- (d) Megaloblastic anemia.

54. Which of the following drugs significantly affect the sulfasalazine activity?

- (a) Cholestyramine.
- (b) Digoxin.
- (c) Ferrous sulphate.
- (d) Oral hypoglycemic agents.

...23/-

INDEX NUMBER : _____

55. Which of the followings is the drug of choice to induce remission in a patient with severe ulcerative colitis?

- (a) Sulphasalazine.
- (b) Sulfapyridine.
- (c) 5-aminosalicylic acid.
- (d) Prednisolone.

56. Which of the following statements regarding NSAID's is true?

- (a) Diclofenac has the longest half-life among the commonly used NSAID's.
- (b) Naproxen causes a CNS side-effects in up to 50% of patients taking more than 750 mg per day.
- (c) The therapeutic activity of sulindac may be affected in patients suffering from severe hepatitis.
- (d) A life threatening skin reactions such as Stevens-Johnson syndrome is associated with high-dose, long-term indomethacin therapy.

57. Which of the following NSAID's is considered safe in patients having mild renal failure?

- (a) Fenoprofen.
- (b) Sulindac.
- (c) Tolmetin.
- (d) Indomethacin.

...24/-

INDEX NUMBER : _____

58. Which of the following drugs increases the risk of allopurinol hypersensitivity reactions when administered concurrently?
- (a) Azathioprine.
 - (b) Captopril.
 - (c) Phenytoin.
 - (d) Theophylline.
59. Which of the following features is not the classical presentation of ulcerative colitis?
- (a) Chronic diarrhea.
 - (b) Rectal bleeding.
 - (c) Peptic ulceration.
 - (d) Abdominal pain.
60. Which of the following features is not associated with Crohn's disease?
- (a) The involvement of an inflammatory process confined to the mucosal layer of the colon and rectum.
 - (b) Inflammation which is characteristically transmural with deep ulceration, adhesion and fistula formation.
 - (c) The classical symptom triad that includes abdominal pain, diarrhea and weight loss.
 - (d) Infections and intra-abdominal abscess are the most common complication.

...25/-

INDEX NUMBER : _____

61. Which of the following drugs are used in the treatment of SLE?

- (i) Corticosteroids.
- (ii) Azathioprine.
- (iii) Cyclophosphamide
- (iv) Primaquine

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

62. Which of the following features are not found in SLE?

- (i) Raised serum complements.
- (ii) Leukocytosis.
- (iii) Raised C-reactive protein.
- (iv) Anticardiolipin antibodies.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...26/-

INDEX NUMBER : _____

63. Which of the following organs are affected by SLE?

- (i) Brain
- (ii) Heart.
- (iii) Lung
- (iv) Kidney

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

64. Which of the following drugs cause SLE like syndrome?

- (i) Hydralazine.
- (ii) Procainamide.
- (iii) Gentamicin
- (iv) Carbamazepine.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...27/-

INDEX NUMBER : _____

65. Which of the following statements regarding SLE are true?

- (i) There is a female preponderance.
- (ii) There is an increase in incidence of SLE in relatives of patients with insulin dependent diabetes.
- (iii) Anti DNA antibody is specific for SLE.
- (iv) Captopril can produce SLE-like syndrome.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

66. Which of the followings are the cause(s) of liver cirrhosis?

- (i) Alcohol.
- (ii) Hepatitis B infections.
- (iii) Methotrexate.
- (iv) Oral contraceptive pills.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...28/-

INDEX NUMBER : _____

67. Which of the following are the precipitating factors for hepatic encephalopathy.

- (i) Diuretic therapy.
- (ii) Beta-blockers.
- (iii) Neomycine.
- (iv) Morphine.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

68. Which of the following steps could be employed in the management of patients with hepatic encephalopathy?

- (i) Diazepam is used for sedation.
- (ii) Calorie intake is reduced.
- (iii) Frusemide is useful in reducing cerebral edema.
- (iv) Protein restriction is necessary.

- (a) (i) and (ii) only.
- (b) (i), (ii) and (iii) only.
- (c) (i), (ii), (iii) and (iv)
- (d) (ii) and (iv) only.

...29/-

INDEX NUMBER : _____

69. The diagnostic microbiology lab can assist the clinician in diagnosing infectious disease by providing the following informations except

- (a) culture and isolation of the organism.
- (b) antibiotic sensitivity test.
- (c) detection of antibody.
- (d) detection of antigen.

70. Which of the followings is not a cause of failure in isolating the causative organism from a specimen?

- (a) Viral infection.
- (b) Incorrect diagnosis.
- (c) Inproper transport medium.
- (d) Inadequate specimen.

71. The followings test can aids in therapy of infectious disease except.....

- (a) MIC
- (b) MBC
- (c) serum bactericidal test.
- (d) sterility test.

...30/-

INDEX NUMBER : _____

72. Which of the following statements is not true?

- (a) An antibiotic can be sensitive in vitro but resistant in vivo.
- (b) An antibiotic can be sensitive in vivo but resistant in vitro.
- (c) A bacteria is generally susceptible to an antibiotic if the peak serum level of the drug is at least four times higher than its MIC.
- (d) A virus is generally susceptible to an antimicrobial if the peak serum level of the drug is at least four times higher than its MBC.

73. Which of the following statements is not true?

- (a) MIC is the lowest drug concentration that prevent visible growth of the test organism under a standard set of condition.
- (b) MBC is the lowest drug concentration that result in complete killing of test organism.
- (c) Antibiotic disc diffusion test is most useful for fastidium and slow growing bacteria.
- (d) Serum bactericidal test is the highest dilution of serum that result in complete killing of the organism.

74. Which of the followings is not a mechanism of resistance of microorganism towards antimicrobial agents?

- (a) Alteration of the transport mechanism and cell penetration.
- (b) Alteration of the antibiotic target sites.
- (c) Alteration of the metabolic pathways within the cell.
- (d) Producing transposons.

...31/-

INDEX NUMBER : _____

75. An organism acquired resistance to antimicrobial agent by the following ways except.....
- (a) mutation.
 - (b) interferon-mediated.
 - (c) chromosomal-mediated.
 - (d) plasmid-mediated.
76. Plasmid-mediated resistance can be transferred from cell to cell by the following ways except.....
- (a) mutation.
 - (b) transformation.
 - (c) transduction.
 - (d) conjugation.
77. The following measures can reduce the emergence of anti-microbial resistance except.....
- (a) rational prescribing of antibiotic.
 - (b) patients are treated on clinical grounds rather than only on bacteriology reports.
 - (c) good hospital hygiene and nursing practice.
 - (d) the use of the most potent and expensive drug.
78. Emergence of resistance to antimicrobial can result in the followings except.....
- (a) increase morbidity and mortality.
 - (b) increase surgical intervention.
 - (c) increase use of potent and costly antibiotics.
 - (d) limit the cross infection.

...32/-

INDEX NUMBER : _____

79. Which of the followings is the most common cause of nosocomial infection ?

- (a) Urinary tract infection.
- (b) Nosocomial pneumonia.
- (c) Postoperative wound infection.
- (d) Bacteremia.

80. Which of the following statements regarding the treatment of primary peritonitis is not true ?

- (a) Empiric antimicrobial therapy is generally aimed at the most likely pathogens, primarily E.coli and other gram-negative enteric bacteria.
- (b) Ampicillin or a first-generation cephalosporin plus an aminoglycoside is an appropriate initial treatment.
- (c) Polymorphonuclear cell counts of less than 250/mm³ is a suitable endpoint to stop antibiotic therapy.
- (d) Single-agent therapy with cefotaxime is not effective in the treatment of spontaneous bacterial peritonitis.

81. Which of the following etiologies is often associated with spontaneous bacterial peritonitis ?

- (a) Nephrosis.
- (b) Anemia.
- (c) Malignancy.
- (d) Congestive heart failure.

...33/-

INDEX NUMBER : _____

82. Which of the following side effects is not common with metronidazole administration ?
- (a) Nausea and vomiting.
 - (b) Ataxia and vertigo.
 - (c) Metallic taste.
 - (d) Dark urine.
83. Which of the following antibiotics is not an alternative to a single-agent therapy of secondary peritonitis ?
- (a) Moxalactam.
 - (b) Imepenem.
 - (c) Cefoxitin.
 - (d) Erythromycin.
84. Which of the following organisms has been implicated as a possible cause of chronic gastritis and peptic ulcer disease ?
- (a) Campylobacter jejuni.
 - (b) Escherichia coli.
 - (c) Campylobacter pylori.
 - (d) Giardia lamblia.

...34/-

INDEX NUMBER : _____

85. A gastric ulcer patient requires close follow up to document complete ulcer healing because.....
- (a) perforation into intestine is common
 - (b) spontaneous healing of the ulcer may occur in 30% to 50% of cases
 - (c) there is a risk of the ulcer being cancerous
 - (d) weight loss may be severe in gastric ulcer patients.
86. When administered at the same time, antacids can decrease the therapeutic efficacy of which of the following drugs?
- (a) Sucralfate
 - (b) Ranitidine
 - (c) Cimetidine
 - (d) All of the above.
87. Which of the following statements regarding antacid therapy for duodenal ulcer or gastric ulcer is not true?
- (a) Antacids may be used to heal the ulcer but are ineffective in controlling ulcer pain.
 - (b) Antacids neutralize the acid and decrease the activity of pepsin.
 - (c) Calcium carbonate should be avoided because it causes acid rebound and induces constipation.
 - (d) Antacid used alone for ulcer therapy, should be administered 1 hour and 3 hours after meals as well as at bedtime

...35/-

INDEX NUMBER : _____

88. Which of the followings is not a part of the comprehensive management strategy in treating peptic ulcer disease?
- (a) Decrease caffeine ingestion.
 - (b) Eat only bland foods.
 - (c) Stop smoking.
 - (d) Avoid the use of milk as a treatment modality.
89. Which of the following drugs is not effective for the treatment of gastric ulcer ?
- (a) Propantheline.
 - (b) Omeprazole.
 - (c) Cimetidine.
 - (d) Antacids.
90. Which of the following antibiotics is use for chemoprophylaxis of rheumatic heart disease ?
- (a) Doxycycline.
 - (b) Isoniazid.
 - (c) Penicillin.
 - (d) Spiramycin.
91. Which of the following durations is appropriate for antimicrobial treatment of endocarditis ?
- (a) One to two weeks.
 - (b) Three to six weeks.
 - (c) Six to seven months.
 - (d) Seven to ten days.

...36/-

INDEX NUMBER : _____

92. The average incidence of aminoglycoside induced nephrotoxicity is

- (a) 10-15 %
- (b) 1 - 2 %
- (c) > 30 %
- (d) < 1 %

93. Which of the following antibiotics is significantly removed by hemodialysis ?

- (a) Cloxacillin.
- (b) Cefoperazone.
- (c) Metronidazole.
- (d) Gentamicin.

94. Which of the followings is the most serious frequent side-effect of quinine ?

- (a) Hypoglycemia.
- (b) Nausea.
- (c) Tinnitus.
- (d) Cardiovascular effects.

...37/-

INDEX NUMBER : _____

95. Which of the following statements regarding antimalarial therapy is true ?
- (a) Mefloquine is not effective against multi-drug resistant *P.falciparum*.
 - (b) Oral halofantrine is poorly absorbed from gastrointestinal tract
 - (c) Chloroquine is no longer used to treat malaria in the tropical region
 - (d) Sulfadoxine-pyrimethamine combination should preferably be given in late pregnancy malarial infection.
96. Which of the following drugs should be avoided in the management of cerebral malaria ?
- (a) Clindamycin.
 - (b) Doxycycline.
 - (c) Tetracycline.
 - (d) Corticosteroids.
97. Which of the following clinical conditions indicates a poor prognosis of severe malaria ?
- (a) Deep coma.
 - (b) Absent corneal reflexes.
 - (c) Retinal haemorrhages.
 - (d) Age of more than three years.

...38/-

INDEX NUMBER : _____

98. Which of the following laboratory values indicates a poor prognosis of severe malaria ?
- (a) Haemoglobin less than 7.1 gm%
 - (b) Blood glucose level less than 6.0 mmol/L
 - (c) Urea 10-20 mmol/L
 - (d) Venous lactic acid less than 6 mmol/L
99. Which of the following regimens is appropriate for the empiric therapy of endocarditis?
- (a) Ampicillin 400 mg/kg/day p.o + gentamicin 80 mg IV tds.
 - (b) Ampicillin 200 mg/kg/day IV q 6 hourly + gentamicin 80 mg IV q 8 hourly.
 - (c) Ampicillin 1 gm IVq 6 hourly + gentamicin 80 mg IV q 8 hourly.
 - (d) None of the above is correct.
100. Which of the following statements regarding imipenem is true?
- (a) It is the drug of choice in the management of malaria.
 - (b) It is the drug of choice in the management of endocarditis.
 - (c) It is the drug of choice in the management of infection caused by multiple resistant organism.
 - (d) It is the drug of choice in the management infection caused by MRSA.

(50 Marks)

...39/-

Section B

Question 1

A. Mr. DD, a 45 year-old male lecturer came to the Outpatient Clinic complaining of severe pain at the base of his left great toe. The pain was noted about three days ago while competing in a golf tournament. Initially he attributed the pain to a sprain from his golf game. However, this morning he could not tolerate as the pain was very intense and constantly gnawing which did not abate with time.

PMH : Hypertension x 5 years.

Physical examination :

First metatarsophalangeal joint : warm and tender.
The periarticular area : erythematous and swollen.

Medication history :

Hydrochlorothiazide 50 mg OD.
Propranolol 40 mg. BID.

(i) The serum uric acid concentration of Mr. DD was found to be 10.5 mg/dl. Other laboratory tests were within normal limits. What therapeutic intervention would be most appropriate for Mr. DD at this time?

(5 Marks)

(ii) Does a long-term antihyperuricemic drugs need to be prescribed for Mr. DD at this time? (Give your reasons).

(5 Marks)

(iii) State the guidelines for using intravenous colchicine.

(3 Marks)

...40/-

- B. SK, a 32 year old female was admitted with a 3 month history of intermittent heat intolerance, sweat, palpitation, irritability, muscle weakness, weight lost despite increase in appetite, on and off nausea and vomiting and increase frequency of micturation.

Pertinent physical findings include enlarged thyroid, tremor, warm moist skin, and lid lag with stare. Available clinical parameters include the following:

pulse rate = 110/min
blood pressure = 130/90 mmHg
respiratory rate = 20/min
temperature = 37°C
hemoglobin = 12gm/dl
white blood cell = 6000/mm²
urine sugar = negative
urine pregnancy test = positif

Other laboratory findings include increase in TT₄, RT₃, FTI, RAIU, Anti-M and TgAb as well as a decrease in TSH. The diagnosis made was Graves disease and pregnancy.

- (i) Discuss the subjective and objective clinical data that are compatible with the diagnosis of SK's Graves disease.

(4 marks)

- (ii) Suggest with reasons the best choice of treatment for SK Graves disease. Also discuss your treatment plan and monitoring parameters needed in this treatment.

(5 marks)

...41/-

INDEX NUMBER : _____

- (iii) If SK is a 60 year old menopausal female and suffering from cardiac problems, would your treatment of choice differ? Discuss.

(3 marks)

Question 2

- A. B/o NH, 11 day old baby girl was admitted to Hospital USM with chief complaint of progressive abdominal distension and vomiting 3 hours after feeding.

HPI : B/o NH is a case of full term vaginal delivery (FTVD), who was delivered at home with body weight of 2 kg. The baby was noted to have abdominal distension and vomiting 3 hours after feeding since 2 days of life. She was referred to GHKB and was treated as an outpatient. However, she developed similar vomiting episodes last 2 days and subsequently was referred to Hospital USM.

ROS : Patient looked ill and dehydrated. BP : 110/120 mmHg, PR : 110/min, RR : 35/min and T : 38.5°C. Abdominal examination revealed abdominal distension with no organomegaly. Other systems were WNL.

Laboratory Results : Initial laboratory finding was as follows :

Na+ : 131 mM/l
K+ : 5.9 mM/l
Ca+ : 2.1 mM/l
WBC : 7×10^3 /mm³
Glucose: 3 mM/l
Urea : 1 mM/l

Other laboratoy values are pending

...42/-

Provisional Diagnosis :

Jejunal atresia and septicemia.

Plan : D5 1/5 NS 1& ml/hr.
 IV gentamicin 7.5 mg/kg/d q 12 hourly.
 IV ampicillin 125 mg/kg/d q 6 hourly.

(i) Explain the rational of using ampicillin in B/o NH.

(4 Marks)

Two days later the blood culture result showed growth of Pseudomonas Aeruginosa which was sensitive to carbenicillin, amikacin and ceftazidime. The antibiotic treatment was changed to the following combination;

 pipracillin 250 mg q 6 hourly
 amikacin 7.5 mg q 12 hourly.

(ii) Comment on the rational use of pipracillin and amikacin combination in the management of B/o NH?

(4 Marks)

Three days later B/o NH was still having high grade fever. Blood culture after 72 hours incubation showed the growth of Clostridium deficile.

(iii) Briefly explain the possible cause of B/o NH latest problem. Recommend an antibiotic therapy to overcome the problems.

(4 Marks)

...43/-

B. CS is a 60-year old Malay male patient in the Intensive Care Unit ,who underwent emergency resection of the large bowel. Ten days ago he developed acute respiratory distress syndrome and he was intubated throughout his entire post-operative course. With the exception of relative hypoxia and a rising serum creatinine, otherwise he was stable. On the eleventh day of hospitalization, CS suddenly became confused with the following vital signs:

BP 70/40 mmHg T : 40.0°C RR - 25/min PR - 120/min

Physical examination revealed that he has a sinus tachycardia with no murmurs. Rhonchi with decreased breath sounds bilaterally were heard on auscultation. The abdomen was distended and the patient complained of some new abdominal pain. There were no bowel sounds and stool was guaiac positive. The urine output from the foley catheter had been 10 ml/ hour for the last two hours and erythema around the central venous catheter site was noted.

The chest x-ray revealed bilateral lower lobe infiltrates and the urinalysis results were as follows;

- (a) Specific gravity-1.015
- (b) > 50 WBC/high power field
- (c) 2-5 RBC/high power field
- (d) Few casts.

Gram's stain of sputum showed numerous large gram-negative rods and moderate PMNs. Culture of the blood, sputum and urine are pending. Other laboratory values were as follows :

Na ⁺ : 131 mmol/L	K ⁺ 4.1 mmol/L	Cl ⁻ :110 mmol/L
HCO ₃ ⁻ : 16 mmol/L	Urea: 16 mmol/L	Creatinine:330 umol/L
RBS : 6.2 mmol/L	Albumin : 2.1 gm%	Hb :10.3 g%
WBC : 16,000/mm ³ (with a shift to the left).		

...44/-

- (i) What signs and symptoms observed in CS are consistent with infection ?
(2 marks)
- (ii) What are the most likely source of infection in this patient ?
(2 marks)
- (iii) What are the most likely infecting organisms in CS ?
(2 marks)
- (iv) Based on the pathogen(s) most likely to be infecting CS , what antibiotics should be empiricly selected ?
(2 marks)
- (v) Based on the selected empirical antimicrobial regimen in question (iv), what monitoring parameters are required to ensure clinical response and avoiding adverse reaction of antimicrobial agent(s).
(5 marks)

...45/-

Appendix

Normal Laboratory Values

1.	Ammonia	80 - 110 mcg/dl	or	47 - 65 umol/L
2.	Amylase	4 - 25 IU/ml		
3.	Billirubin			
	- Direct	0 - 0.2 mg/dl		0 - 3 umol/L
	- Indirect	0.2 - 0.8 mg/dl		30 - 14 umol/L
	- Total	0.2 - 1 mg/dl		30 - 17 umol/L
4.	CO ₂	20 -30 mEq/L		24 - 30 mMol/L
5.	pCO ₂	35 - 45 mmHg		
6.	Cl	100 - 106 mEq/L		100 - 106 mMol/L
7.	CpK	50 - 170 U/L		
8.	Creatinine (SCr)	0.6 - 1.5 mg/dl		60 - 130 umol/L
9.	Random blood sugar	70 - 110 mg/dl		3 - 10 umol/L
10.	Iron	50 - 150 mcg/dl		9.0 - 26.9 umol/L
11.	Lactic dehydrogenase	70 - 210 IU/L		
12.	Magnesium	1.5 - 2.0 mEq/L		0.8 - 1.3 mMol/L
13.	pO ₂	75 - 100 mmHg		
14.	pH	7.35 - 7.45		
15.	Acid phosphatase			
	Male	0.13 - 0.63 IU/ml		36 - 176 nmol/s ⁻
1/L	Female	0.101- 0.65 IU/ml		2.8-156 nmol s ⁻¹ /L
16.	Alkaline phosphatase	39 - 117 IU/L		
17.	Phosphorous	3.0 - 4.5 mg/dl		1.0 - 1.5 mMol/L
18.	Potassium (K+)	3.5 - 5.0 mEq/L		3.5 - 5.0 mMol/L
19.	Calcium (ca ²⁺)	8.5 - 10.5 mg/dl		2.1 - 2.6 mMol/L
20.	Sodium (Na+)	135 - 145 mEq/L		135 - 145 mMol/L
21.	Bicarbonate (HCO ₃ ⁻)	24 - 38 mEq/L		24 - 28 mMol/L

...46/-

22.	Protein		
-	Total	6.0 - 8.5 g/dl	60 - 85 g/L
-	Albumin	3.5 - 5.0 g/dl	35 - 50 g/L
-	Globulin	2.3 - 3.5 g/dl	23 - 35 g/L
-	Transferrin	200 - 400 mg/dl	2.0 - 9.0 g/L
23.	Transaminase (SGOT)	0 - 40 IU/L	0 - 0.32 $\mu\text{mol S}^{-1}/\text{L}$
24.	BUN	8 - 25 mg/dl	2.9 - 8.9 mMol/L
25.	Uric Acid	3 - 7 mg/dl	0.18 - 0.42 mMol/L
26.	Blood Pictures		
	Red blood cell (RBC)		
	Male	4.8 - 6.4 X $10^6/\text{mm}^3$	
	Female	4.2 - 5.4 X $10^6/\text{mm}^3$	
	White blood cell (WBC)	4.0 - 11.0 X $10^3/\text{mm}^3$	
	P	60 - 75%	
	L	20 - 40%	
	M	4 - 8%	
	B	0 - 1%	
	E	1 - 3%	
	Platelate (Pit)	200 - 400 X $10^3/\text{mm}^3$	
27.	ESR Male	0 - 10 mm/jam	(Wintrobe)
	Female	0 - 15 mm/jam	(Wintrobe)
28.	Hematocrit		
	Male	45 - 52%	
	Female	37 - 48%	
29.	Hemoglobine (Hgb)		
	Male	13 - 18 g/dl	
	Female	12 - 16 g/dl	
30.	Prothrombin time (PT)	75 - 100% nilai asas	
31.	APTT	25 - 37 saat	
32.	Creatinine Clearance (CrCI)	105 - 150 ml/min/1.73 m^2	
33.	TT ₄	3.0 - 7.5 mcg/dl	
34.	RT ₃ U	25 - 35%	
35.	FTI	1.3 - 4.2	

NORMAL HEMODYNAMIC VALUES AND DERIVED INDICES

Hemodynamic Parameters		Normal Value	Units
BP	S/D/M Blood Pressure Systolic/Diastolic/Mean	120/80/93	mm Hg
CO	Cardiac Output	4 - 6	Liters/min.
RAP	Right Atrial Pressure (Mean)	2 - 6	mm Hg
PAP	S/D/M Pulmonary Artery Pressure Systolic/Diastolic/Mean	25/12/16	mm Hg
PCWP	Pulmonary Capillary Wedge Pressure (mean)	5 - 12	mm Hg
CI	Cardiac Index	2.5 - 3.5	Liters/min/m ²
	$CI = \frac{CO}{\text{Body Surface Area}}$		
SV	Stroke Volume	60 - 80	ml/beat
	$SV = \frac{CO}{\text{Heart Rate}}$		
SVI	Stroke Volume Index	30 - 50	ml/beat/m ²
	$SVI = \frac{SVI}{\text{Body Surface Area}}$		
PVR	Pulmonary Vascular Resistance	< 200	dynes.sec.cm ⁻⁵
	$PVR = \frac{MPAP - PCWP}{CO} \times 80$		

...48/-

Hemodynamic Parameters	Normal Value	Units
TPVR	Total Peripheral Vascular Resistance	900 - 1400 dynes.sec.cm ⁻⁵
	$\text{TPVR} = \frac{\text{MBP} - \text{RAP}}{\text{CO}} \times 80$	
LVSWI	Left Ventricular Stroke Work Index	35- 80 gm-m/m ² /beat
	$\text{LVSWI} = (\text{MBP} - \text{PCWP}) (\text{SVI}) (.0136)$	

ooOoo