

UNIVERSITI SAINS MALAYSIA

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PROGRAM SARJANA FARMASI
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FCP 551 : PHARMACOTHERAPEUTIC I
(3 HOURS)

This examination consists of two sections.

Section A consists of 100 multiple choice questions.

Section B consists of two (2) long questions.

Answer ALL questions.

Answer to section A must be entered into the scripts provided.

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SECTION A

1. Which of the following statements is true?

- (A) Congestive cardiac failure (CCF) occurs when there is transient myocardial ischemia.
- (B) CCF results when the left, right or both ventricles fail to pump sufficient blood to meet the body's needs.
- (C) CCF occurs with chronic anemia because cardiac index is greatly diminished.
- (D) Digoxin is the drug of choice in the treatment of CCF.

2. Which of the following statements is true?

- (A) CCF occurs more commonly in the males.
- (B) CCF occurs more commonly in the young patient than the old.
- (C) The use of digoxin in CCF is associated with a reduced mortality rates.
- (D) Hyperthyroidism is an example of disease that can result in low output CCF.

3. Which of the following is not a determinant of cardiac workload?

- (A) Preload.
- (B) Contractility.
- (C) Heart size.
- (D) Subendocardial perfusion.

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4. Which of the following statements is false?

- (A) In heart failure an increase in preload is associated with a diminished cardiac output.
- (B) The preload of the heart will increase when cardiac output is reduced in heart failure.
- (C) Hypertension is one of the main causes of CCF.
- (D) The body compensates for the loss in cardiac function by decreasing heart size.

5. Which of the following statements is true?

- (A) Vasodilators are not used in CCF because they cause hypotension.
- (B) There is an abnormal retention of sodium by the kidneys in CCF.
- (C) Patients with CCF should not be allowed to have bedrest because it can cause venous thrombosis.
- (D) The goal in the use of the diuretic therapy in heart failure is to reduce body weight by 1-2 kg per day in adults.

6. Which of the following statements is true?

- (A) Potent diuretics usually act on the proximal tubules.
- (B) Thiazide diuretics act on the proximal portion of the ascending loop of Henle.

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- (C) Spironolactone is the preferred diuretic when renal function is very low.
- (D) Thiazide diuretics are useful because they do not cause overdiuresis.

7. Which of the following statements is true?

- (A) Digoxin is primarily eliminated in the liver.
- (B) Hypercalcemia can be caused by thiazide diuretics.
- (C) Hyperuricemia can be caused by frusemide.
- (D) Spironolactone can cause hyperkalemia.

8. Which of the following statements is true?

- (A) The action of frusemide in heart failure is independent of renal function.
- (B) The use of thiazide is preferred to the use of frusemide because thiazide causes less hypokalemia.
- (C) Captopril can reverse some of the secondary hyperaldosteronism associated with CCF.
- (D) Hydralazine is the preferred vasodilator in patients with CCF.

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Question 9 - 13 refer to the following case:

A 54 year old Malay man was admitted to the hospital for shortness of breath, reduced effort tolerance and paroxysmal nocturnal dyspnea. A STAT BUSE result was as follows:

Blood urea	12.2 mmol/L
Potassium	3.2 mmol/L
Sodium	122 mmol/L

As part of the management of the patient, the doctor ordered the following drugs:

- i. Digoxin 0.5mg stat.
- ii. Frusemide iv 40mg stat and BD.
- iii. Tab Potassium Chloride 600 mg BD.
- iv. Ampicillin IV 500 mg QID.

9. Which of the following statements is true regarding the above patient?

- (A) Frusemide should not be given IV in this patient because it can aggravate hypokalemia.
- (B) Potassium administration would result in hyperkalemia.
- (C) Thiazide would be the preferred diuretic in this patient.
- (D) The dose of digoxin is appropriate.

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10. Which of the following is the parameter of least importance for monitoring the above patient?

- (A) Haemoglobin.
- (B) White cell count.
- (C) Blood urea.
- (D) Serum potassium.

11. Which of the following drugs would be the best in terms of acutely managing the above patient?

- (A) Gentamicin.
- (B) Captopril
- (C) Propranolol.
- (D) Sodium nitroprusside.

12. Which of the following drugs is not indicated in the above patient?

- (A) Morphine.
- (B) Pethidine.
- (C) Theophylline.
- (D) Thiazide.

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13. Which of the following statements about this patient is false?

- (A) The patient should be fluid restricted.
- (B) Hypertonic saline solution is indicated for the treatment of hyponatremia.
- (C) ACE inhibitors may be useful to correct hypokalemia.
- (D) Diuresis can be induced by bed rest.

14. Which of the following is not important in deciding the route of frusemide administration in patients with CCF?

- (A) Cost.
- (B) Onset of action.
- (C) Amount of diuresis.
- (D) Bioavailability.

15. Which of the following statements regarding the use of digoxin in CCF is true?

- (A) There is a good correlation between plasma concentration and clinical effect.
- (B) Digoxin use is associated with reduced morbidity and mortality.
- (C) Digoxin can induce diuresis.
- (D) The risk of toxicity is increased by hyperkalemia.

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16. Which of the following statements is false?

- (A) Temporary sinus tachycardia is normal after vigorous exercise.
- (B) Atrial and ventricular muscle cells cannot produce ectopic activity.
- (C) Abnormal impulse formation is the cause of paroxysmal supraventricular tachycardia (SVT).
- (D) Treatment of arrhythmia are most often selected on an empirical basis rather than scientific basis.

17. Which of the following is not an antiarrhythmic drug?

- (A) Phenytoin.
- (B) Propranolol.
- (C) Mexilitene.
- (D) Nifedipine.

18. Which of the following statements is true?

- (A) Atrial fibrillation is associated with significant morbidity and mortality.
- (B) Lidocaine is the drug of choice in the treatment of atrial fibrillation.
- (C) The use of digoxin is contraindicated in atrial fibrillation.
- (D) Nifedipine given via the intravenous route is a suitable choice for atrial fibrillation.

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19. Which of the following statements is true?

- (A) Quinidine is mainly metabolised in the liver.
- (B) Procainamide is mainly eliminated in the kidney.
- (C) Verapamil can cause tachycardia.
- (D) Corneal microdeposition is a known side effect of bretylium.

20. Which of the following statements is false?

- (A) Verapamil is suitable for use in paroxysmal supraventricular tachycardia.
- (B) Digoxin is suitable for use in first degree atrioventricular block.
- (C) Quinidine syncope is sometimes called "torsade de pointes".
- (D) Prompt treatment is essential in ventricular fibrillation because it is universally fatal if persistent.

21. Which of the following statements is true?

- (A) For many patients without life threatening arrhythmias or major electrolyte disturbances, withholding digitalis is sufficient in the treatment of digitalis intoxication.
- (B) The major difference between digitoxin and digoxin is the route of administration.
- (C) Quinidine may reduce plasma digoxin concentration.
- (D) Sodium nitroprusside is contraindicated in heart failure.

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22. Which of the following is false about dopamine?

- (A) It acts by increasing myocardial contractility.
- (B) It can cause tachycardia.
- (C) Tolerance is known to occur with its prolonged use.
- (D) High doses can cause reduced renal perfusion.

23. Which of the following drugs is not known as a cause of CCF?

- (A) Prednisolone.
- (B) Adriamycin.
- (C) Indomethacin.
- (D) Paracetamol.

24. Which of the following is not an adverse drug reaction of procainamide?

- (A) Systemic lupus erythematosus.
- (B) Negative inotropy.
- (C) Proarrhythmic.
- (D) Photosensitivity.

25. Which of the following is not useful for increasing cardiac output in CCF.

- (A) Bed rest.
- (B) Fluid challenge.
- (C) Dobutamine.
- (D) Captopril.

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26. Which of the following is the least carcinogenic asbestos?

- (A) Chrysotile.
- (B) Crocidolite.
- (C) Tremolite.
- (D) Amosite.

27. Which of the following cell type is the most prominent component of early lesions in asbestosis?

- (A) Lymphocytes.
- (B) Macrophages.
- (C) Fibroblasts.
- (D) Neutrophils.

28. The incidence of bronchogenic carcinoma among smoking asbestos workers is increased by folds.

- (A) 5
- (B) 10
- (C) 30
- (D) 40.

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29. The clinical symptoms and radiographic features of asbestosis usually appear at least years after patients initial contact with asbestos.
- (A) 2
 - (B) 5
 - (C) 10
 - (D) 20
30. Which of the following is the most severely affected anatomic region in asbestosis?
- (A) The lung apices.
 - (B) The right middle lobe.
 - (C) The lower lobes.
 - (D) The portions of the lung abutting on the mediastinum.
31. Which of the following is a specific treatment of silicosis?
- (A) Antibiotics.
 - (B) Bronchodilators.
 - (C) Diuretics.
 - (D) Corticosteroids.

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32. Which of the following is/are observed in asbestosis but not in silicosis?

- (i) Prominent granulomatous lung response.
- (ii) Increased susceptibility to mycobacterium infection.
- (iii) Extensive damage to lung parenchyma.
- (iv) Increased risk to lung malignancy.

- (A) (i) and (iii) only.
- (B) (ii) and (iv) only.
- (C) (i) (ii) and (iii) only.
- (D) (iv) only.

33. Which of the following area of the lung is mostly affected in silicosis?

- (A) The upper lobes.
- (B) The middle lobes.
- (C) The lower lobes.
- (D) The portions of the lung abutting on the mediastinum.

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34. Aspirin induced bronchospasm by increasing the production of.....

..... (A) leukotrienes C4 and D4.

..... (B) IgG.

..... (C) IgE.

..... (D) Prostaglandin E.

35. The incidence of bronchospasm induced by iodine containing contrast media could be prevented by pretreatment with

..... (A) aminophylline.

..... (B) salbutamol.

..... (C) chlorpheniramine.

..... (D) indomethacin.

36. The most common drug that caused noncardiogenic pulmonary edema (NCPE) is intravenous.....

..... (A) hydrochlorothiazide.

..... (B) heroine.

..... (C) bleomycin.

..... (D) terbutaline.

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37. Which of the following statements regarding drug-induced hypersensitive lung disease is true?
- (A) Prognosis is very poor.
 - (B) Occurs after chronic drug exposure.
 - (C) Pulmonary function tests abnormalities are very specific.
 - (D) Chest radiograph shows diffuse acinar infiltrate and pleural effusion.
38. Which of the following mechanism is involved in carmustine-induced lung fibrosis?
- (A) Inhibition of glutathione reductase.
 - (B) Generation of superoxide anions.
 - (C) Induction of pulmonary inflammatory reaction.
 - (D) Increased collagen deposition.
39. Which of the following conditions predispose(s) patient to digitalis-induced arrhythmia?
- (i) Hypomagnesemia.
 - (ii) Hypercalcemia.
 - (iii) Hypokalemia.
 - (iv) Hyperuricemia.

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- (A) (i) and (iii) only.
- (B) (ii) and (iv) only.
- (C) (i), (ii) and (iii) only.
- (D) (iv) only.

40. Which of the following drug should be avoided in the treatment of digoxin-induced arrhythmia?

- (A) Procainamide.
- (B) Quinidine.
- (C) Lidocaine.
- (D) Phenytoin.

41. Which of the following type of ventricular arrhythmia is the earliest indication of digitalis toxicity?

- (A) Bradycardia.
- (B) Fibrillation.
- (C) Tachycardia.
- (D) Ectopic beats.

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42. The most important risk factor associated with increase risk of myocardial infarction in current oral contraceptive users is.....

- (A) smoking.
- (B) hyperlipoproteinemia.
- (C) diabetes mellitus.
- (D) hypertension.

43. Which of the following is contraindicated in the treatment of tricyclic antidepressant (TCA) overdose?

- (A) Sodium bicarbonate.
- (B) Procainamide.
- (C) Phenytoin.
- (D) Lidocaine.

44. In TCA overdose, cardiac arrest and death is most prominent within the first hours.

- (A) 12
- (B) 24
- (C) 36
- (D) 48

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45. The recommended dose of estrogen content in oral contraceptive pill is
- (A) 10mcg.
 - (B) 30mcg.
 - (C) 60mcg.
 - (D) 90mcg.
46. Which of the following statement regarding hypertension (HTN) is true?
- (A) The risk of cardiovascular complications are related to the level of systolic and diastolic blood pressure.
 - (B) The risk of cardiovascular complications are related to the duration of the diseases.
 - (C) The risk of cardiovascular complications are not related to the drug therapy.
 - (D) The risk of cardiovascular complications are related to the non-drug therapy.
47. Which of the following is the drug of choice in HTN with congestive heart failure?
- (A) Nitroprusside.
 - (B) Hydralazine.
 - (C) Diazoxide.
 - (D) Clonidine.

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48. Which of the following drug is used only in step IV in the management of HTN?
- (A) Hydrochlorothiazide.
 - (B) Clonidine.
 - (C) Guanithidine.
 - (D) Captopril.
49. Which of the following diuretic is not associated with alteration of lipid profile?
- (A) Hydrochlorothiazide.
 - (B) Chlortalidone.
 - (C) Spironolactone.
 - (D) Indapamide.
50. Which of the following adverse reaction of beta-blockers is associated with its lack of ISA?
- (A) Bronchoconstriction.
 - (B) Heart block.
 - (C) CNS.
 - (D) Cold extremities.

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51. Which of the following vasodilator is capable of causing priapism?
- (A) Prazosin.
 - (B) Hydrallazine.
 - (C) Nitroprusside.
 - (D) Diazoxide.
52. Which of the following vasodilator is useful in the management hypertension with renal failure?
- (A) Diazoxide.
 - (B) Hydrallazine.
 - (C) Nitroprusside.
 - (D) Clonidine.
53. Which of the following vasodilator act mainly on the veins?
- (A) Nitroprusside.
 - (B) Diazoxide
 - (C) Prazosine.
 - (D) Hydrallazine.

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54. Which of the following vasodilator is the most common cause of cyanide toxicity?

- (A) Hydrallazine.
- (B) Prazosin.
- (C) Diazoxide.
- (D) Nitroprusside.

55. Which of the following vasodilator is commonly associated with tachycardia?

- (A) Hydrallazine.
- (B) Prazosine.
- (C) Diazoxide.
- (D) Nitroprusside.

56. Which of the following vasodilator is associated with hyperglycemia?

- (A) Hydrallazine.
- (B) Prazosin.
- (C) Diazoxide.
- (D) Nitroprusside.

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57. Which of the following vasodilators is always associated with first dose postural hypotension?
- (A) Hydrallazine.
 - (B) Prazosin.
 - (C) Diazoxide.
 - (D) Nitroprusside.
58. Which of the following vasodilator have a strong association with systemic lupus erythematosus?
- (A) Hydrallazine.
 - (B) Prazosin.
 - (C) Diazoxide.
 - (D) Nitroprusside.
59. Sodium thiosulfate is usually given to prevent the adverse reaction of the following vasodilator?
- (A) Hydrallazine.
 - (B) Prazosin.
 - (C) Diazoxide.
 - (D) Nitroprusside.

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60. Which of the following vasodilator is contraindicated in a patient with angina?
- (A) Hydrallazine.
 - (B) Prazosin.
 - (C) Diazoxide.
 - (D) Nitroprusside.
61. Which of the following diuretic has a potassium retention effects?
- (A) Thiazide.
 - (B) Mannitol.
 - (C) Spironolactone.
 - (D) Frusemide.
62. Which of the following drugs is commonly used to close the patent ductus atriosus (PDA)?
- (A) Indomethacin.
 - (B) Naprosyn.
 - (C) Digoxin.
 - (D) Frusemide.

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63. Which of the following drug is the best choice in the prevention of rheumatic heart diseases?

- (A) Penicillin G.
- (B) Gentamycin.
- (C) Ceftazidime.
- (D) Co-trimoxazole

64. Which of the following drug is the best choice in the prevention of embolism in rheumatic heart disease?

- (A) Aspirin.
- (B) Naprosyn.
- (C) Piroxicam.
- (D) Indomethacin.

65. Which of the following bronchodilator is useful in apnea?

- (A) Solbutamol.
- (B) Bricanyl.
- (C) Theophylline.
- (D) Ipratropium Bromide.

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66. Which of the following antihypertensive drug is commonly associated with alteration of taste?

- (A) Enalapril.
- (B) Captopril.
- (C) Clonidine.
- (D) Methyldopa.

67. Which of the following antihypertensive drug is a potent inducer of sore throat?

- (A) Enalapril.
- (B) Captopril.
- (C) Clonidine.
- (D) Methyldopa.

68. Which of the following antihypertensive drug is not recommended in a young hypertensive man?

- (A) Enalapril.
- (B) Captopril.
- (C) Clonidine.
- (D) Methyldopa.

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69. Which of the following antihypertensive drug is used in hypertensive urgency?
- (A) Enalapril.
 - (B) Captopril.
 - (C) Clonidine.
 - (D) Methyldopa.
70. All of the following except decreases oxygen utilization by the myocardium.
- (A) anemia
 - (B) tachycardia
 - (C) decreased ventricular volume
 - (D) obstruction of the coronary arteries
71. All of the following are risk factors of atherosclerotic coronary artery disease except.....
- (A) smoking
 - (B) hypertension
 - (C) obesity
 - (D) hypertriglyceridemia

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72. Nitroglycerin results in all of the following. Which one is least likely to play a role in relieving pain of myocardial ischemia in routine use?

- (A) Venous dilatation
- (B) Arterial hypotension
- (C) Coronary artery dilatation
- (D) Tachycardia

73. Which of the following statement is/are true regarding Prinzmetal's angina?

- (i) It results from spasm of coronary arteries
 - (ii) It is often improved by digitalis and diuretics
 - (iii) It may occur with normal coronary arteries
 - (iv) It is associated with development of transient Q waves in the electrocardiogram.
-
- (A) (i) and (iii) only
 - (B) (ii) and (iv) only
 - (C) (i), (ii) and (iii) only
 - (D) (iv) only

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74. Which of the following is not related to the action of calcium channel blockers?

- (A) They have no effect on contractility
- (B) They reduces ventricular volume
- (C) They are primary venodilators
- (D) They reduces afterload

75. All of the following is/are bronchodilator except.....

- (i) ketotifen
 - (ii) beclomethasone valerate
 - (iii) cromolyn sodium
 - (iv) ipratropium bromide
-
- (A) (i) and (iii) only
 - (B) (ii) and (iv) only
 - (C) (i), (ii) and (iii) only
 - (D) (iv) only

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76. Which of the following combination is true ?

- (A) Ipratropium bromide - effective in chronic bronchitis
- (B) Theophylline - effective for the prevention of exercise induced asthma
- (C) Inhaled steroid - effective in acute asthmatic attack.
- (D) Inhaled cromolyn - effective in childhood asthma.

77. Which of the following is the agent of choice in patients with unstable angina ?

- (A) Sublingual nifedipine
- (B) Intravenous nitroglycerin
- (C) Intravenous propranolol
- (D) Oral diltiazem

78. Which of the following statement is/are true regarding cromolyn ?

- (i) It inhibit the early but not the late asthmatic response to inhaled antigen in atopic asthma.
- (ii) Maximum effect of cromolyn is usually seen 4-6 weeks of treatment.
- (iii) It possesses an extremely potent anti-inflammatory activity.
- (iv) Its use is limited for prophylaxis of asthma

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- (A) (i) & (iii) only
- (B) (ii) & (iv) only
- (C) (i), (ii) & (iii) only
- (D) (iv) only

79. Prolonged use of cromolyn with one of the agent listed below may decrease bronchial hyperactivity and prevent usual increase in bronchial hyperactivity seen in atopic asthma.

- (A) Steroid
- (B) Theophylline
- (C) Ipratropium
- (D) Beta-agonist

80. Which of the following aerosol corticosteroid possess the greatest relative topical potency ?

- (A) Beclomethasone-17,21-dipropionate
- (B) Flunisolide
- (C) Dexamethasone sodium phosphate
- (D) Budesonide

81. Which of the following aerosol corticosteroid is expected to give the most extensive systemic effects ?

- (A) Beclomethasone-17,21-dipropionate
- (B) Flunisolide
- (C) Dexamethasone sodium phosphate
- (D) Budesonide

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82. Which of the following responses will be affected by tolerance developed from long-term use of beta-adrenergic receptor agonists ?
- (A) Tremor
 - (B) Heart rate
 - (C) Lymphocyte and leukocyte cAMP levels
 - (D) All of the above
83. The pharmacological features of ipratropium bromide includes....
- (A) complete protection against histamine-induced bronchospasm.
 - (B) no protection against exercise-induced bronchial constriction
 - (C) more effective than beta-2-agonist in asthma
 - (D) none of the above
84. Which of the following effect have been reported to be associated with IV isoproterenol in severe asthmatics ?
- (A) Myocardial ischemia
 - (B) Myocardial infarction
 - (C) Death
 - (D) All of the above

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85. Anginal pain is classically terminated rapidly by....

- (A) lidocaine
- (B) quinidine
- (C) nitroglycerin
- (D) digitalis

86. The type of angina that most often occurs after the patient has experienced physical stress is called....

- (A) nocturnal angina
- (B) unstable angina
- (C) angina of effort
- (D) Prinzmetal's angina

87. The letter 'A' in the term SOAP stands for..

- (A) appropriate symptomatic information
- (B) action plan
- (C) all objective information
- (D) assessment of the problem

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88. Mr. AA is a 55 year-old man with problems of heart failure, diabetes (Type II), and hypertension.

Which of the following pharmacist's action plan is appropriate to assess digoxin therapy, assuming that Mr. AA's failure is becoming worse ?

- (A) P : observe patient for fatigue and signs of digoxin toxicity.
- (B) P : give more digoxin until the heart rate slows to 60
- (C) P : order digoxin serum concentration, serum potassium, and assess patient compliance.
- (D) P : no monitoring required

89. Which of the following is a major functions in clinical monitoring of drug therapy ?

- (A) Identification of actual or potential drug related problem.
- (B) Resolving actual drug related problem.
- (C) Preventing drug related problem.
- (D) All of the above.

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90. Which of the following describe the Pharmacist Workup of Drug Therapy (PWDT) ?
- (A) A format to specifically check prescribing error by doctors.
 - (B) A format to calculate the cost-effectiveness of a pharmacist activities.
 - (C) A format for documenting pharmacist clinical intervention and activities.
 - (D) A format for physical assessment of patients.
91. Which of the following is an example of drug related problem?
- (A) Too little of the correct drug.
 - (B) Patient non-compliance behaviour.
 - (C) Patient who smoke 2 pack a day on theophylline therapy.
 - (D) All of the above.
92. Which of the following is not true regarding the purpose of a pharmacist problem list ?
- (A) To ensure that physician has ordered all the necessary laboratory tests.
 - (B) To ensure that all medical problems are being addressed.
 - (C) To determine the appropriateness of the drug prescribed.
 - (D) To determine parameters for continued monitoring of drug therapy.

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93. Which analgesic is usually preferable in asthmatics who have mild pain ?

- (A) Ibuprofen
- (B) Aspirin
- (C) Paracetamol
- (D) Naprosyn.

94. Which inhaled agent causes oral candidiasis in some patients?

- (A) Salbutamol
- (B) Ipratropium
- (C) Triamcinolone
- (D) Cromolyn

95. Which inhaled beta agonist has the shortest duration of action?

- (A) Salbutamol
- (B) Terbutaline
- (C) Metaproterenol
- (D) Isoproterenol

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96. Which therapeutic agent is the first choice in the emergency room treatment of asthma ?

- (A) Nebulized atropine sulfate.
- (B) Inhaled cromolyn
- (C) Inhaled beta-2 agonist
- (D) Oral theophylline

97. Which therapeutic agent should be considered if inhaled beta-2 agonist are not sufficient in the treatment of out-patient asthmatic ?

- (A) Oral prednisolone
- (B) Oral theophylline
- (C) Inhale cromolyn
- (D) Oral nifedipine

98. Which of the following dosing time is appropriate for alternate day steroid therapy ?

- (A) 6-8 AM
- (B) 6-8 PM
- (C) 1-3 PM
- (D) 10-11 AM

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99. What is the usual theophylline half-life (in hours) in children of aged 1 - 9 years ?

..... (A) 12 hr.

..... (B) 10 hr.

..... (C) 8 hr.

..... (D) 4 hr.

100. Which of the following is true regarding the purpose of early steroid therapy for chronic asthma ?

..... (A) To abort the inflammatory process.

..... (B) To decrease bronchial hyperactivity.

..... (C) To regulate the pulmonary beta-2 receptors.

..... (D) To facilitate the tapering of theophylline dose.

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SECTION B

Question 1

A 54 year old Malay man presented to the clinic with the following complaints:

1. Shortness of breath.
2. Bilateral ankle swelling.
3. Lightheadedness.

Past medical history was significant for hypertension, diabetes mellitus and ischemic heart disease. The patient denied any history of rheumatic heart disease or thyroid disease. He however admitted to smoking a pack of cigarettes for the past 30 years.

Physical examination:

BP 130/80 mmHg ; Pulse : 140 beats/min.
Respiration 18/minute ; temperature 37.1°C.
Chest was clear but cardiac examinations revealed an irregularly rhythm without murmurs or gallops. JVP was slightly elevated.
A pitting edema was noted bilaterally on the ankles
Electrocardiogram revealed atrial fibrillation and chest X-ray was consistent with mild CCF.

- A. Define atrial fibrillation. What was the patient history that could have led this patient to have atrial fibrillation.

(2 marks)

- B. Define your goals in treating this patient?

(3 marks)

...39/-

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C. What other history is to be elicited in this patient to gauge whether or not he is a candidate for drug treatment to restore and maintain normal sinus rhythm?

(10 marks)

D. If it is so decided that the patient be treated, what are your alternatives? Explain.

(10 marks)

Question 2

VA is a 67 years old chinese man was admitted to HUSM for the stabilization of his blood pressure.

HPI MVA is a known hypertensive patient since last 45 years. He was admitted on and off to HUSM for uncontrolled hypertension.

MEDICATIONS Hx

- | | | | | |
|----|----------------------|------|---|--------|
| 1. | HCTZ i b.d. | 1948 | - | 1980 |
| 2. | Propranolol i tds. | 1956 | - | 1986. |
| 3. | Atenolol i tds | 1986 | - | today. |
| 4. | Prazosin 0.5 mg b.d. | 1988 | - | 1990 |
| 5. | Prazosin 1 mg b.d. | 1990 | - | today. |

On examination : BP 180/130, P:95 RR:25 T : 37.5

Ros:

HEENT : Blurring of vision with (R) cataract removed 1989.

...40/-

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CHEST : A/E : good.
Lung : Crepitation both sides with
 dullness at base of both lung.
CVS : DRNM
Abd : L:1 S:1 K⁰
Ext. : Numbness of fingers and toe.
Others : WNL.

Laboratory finding :

Na : 135 K : 3.5 U : 17 Glucose : 5.5
SrCr :
Others not done.
Provisional diagnosis : Uncontrolled HTN.
 Renal insufficiency.

Management : Continue previous treatment.

A. Comment on the current treatment of Mr. V.A.

(10 Marks)

B. The doctor wants to start ACE inhibitor therapy in Mr. V.A.

- (i) Briefly discuss the advantages and disadvantages of ACE inhibitor in the treatment of HTN with renal insufficiency.
- (ii) Recommend a suitable drug regimen from the group of ACE inhibitor for the management of his problems.

(15 Marks)

Appendix

Normal Laboratory Values

1.	Ammonia	80-110 mcg/dl	or	47-65 umol/L
2.	Amylase	4-25 IU/ml		
3.	Bilirubin			
-	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

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 umol s ⁻¹ /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 /mm ³	
	Female	4.2-5.4 x 10 ⁶ /mm ³	
	White blood cell (WBC)	4.0-11.0 x 10 ³ /mm ³	
	P	60-75%	
	L	20-40%	
	M	4-8%	
	B	0-1%	
	E	1-3%	
	Platelite (Plt)	200-400 x 10 ³ /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 (CrCl)	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	

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NORMAL HEMODYNAMIC VALUES AND DERIVED INDICES

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
	$SVI = \frac{SV}{\text{Body Surface Area}}$		
PVR	Pulmonary Vascular Resistance	< 200	dynes.sec.cm ⁻⁵
	$PVR = \frac{MPAP - PCWP}{CO} \times 80$		
TPVR	Total Peripheral Vascular Resistance	900-1400	dynes.sec.cm ⁻⁵
	$TPVR = \frac{MBP - RAP}{CO} \times 80$		
LVSWI	Left Ventricular Stroke Work Index	35-80	gm-m/m ² /beat
	$LVSWI = (MBP - PCWP) (SVI) (.0136)$		