

UNIVERSITI SAINS MALAYSIA

**PEPERIKSAAN PERTAMA
PROGRAM SARJANA FARMASI
SEMESTER I 1992/93**

12 NOVEMBER 1992

FCP 555: PHARMACOTHERAPEUTICS IV

(2 HOURS)

This Examination consists of **two sections**.

Section A consists of 50 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)

1. Which of the following is/are true regarding non-drug treatment of increased intracranial pressure (ICP)?

- (i) elevation of patient reduces ICP by shifting the cerebrospinal fluid (CSF) to the lumbar region
- (ii) oxygen therapy reduces ICP by constricting cerebral blood vessel
- (iii) prevention of fever by antipyretic can prevent further increase in ICP
- (iv) reduction of BP to the hypotensive level decreases the ICP by shifting the CSF to the periphery.

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

2. Which of the following is/are true regarding increased ICP secondary to vasogenic edema?

- (i) it is due to the increased cerebral blood flow with normal blood pressure
- (ii) it is secondary to the leak in the blood-brain barrier
- (iii) results in increased tissue lactate
- (iv) result in a failure of the ATP-dependent sodium pump.

INDEX NUMBER: _____

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

3. Which of the following is/are true regarding therapy(ies) of migraine?

- (i) the use of vasoconstrictive agents to reduce pulsatile cerebral blood flow
- (ii) the use of analgesic to relieve pain
- (iii) the use of beta-blockers to alleviate pain
- (iv) the use of calcium channel blockers to induce vasoconstriction.

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

4. Prophylaxis for migraine

- (i) is indicated in patients with two or more attacks per month.
- (ii) is for the prevention of a migraine headache
- (iii) with lithium carbonate represents the best choice for menstrual migraine.
- (iv) with nonsteroidal antiinflammatory drug represents the best choice for cyclic migraine.

INDEX NUMBER: _____

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

5. Which of the following statements regarding migraine hypothesis is/are true?

- (i) The vascular hypothesis describes migraine as a sequence of constrictions and dilatation of the intra and extra cranial arteries.
- (ii) Thromboxane A₂ alters the shape and aggregating properties of platelets.
- (iii) the central nervous system (CNS) hypothesis describes migraine as a consequence of stress.
- (iv) platelet aggregation is the most common cause of migraine.

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

6. Which of the following is true regarding the reason for the neurotransmitter abnormality in Parkinson's disease?

INDEX NUMBER: _____

- (a) there is loss of putamenal neurons
- (b) there is loss of substantia nigra neurons
- (c) there is degeneration of the subthalamic nucleus
- (d) there is degeneration of the lateral nucleus of the thalamus.

7. A patient is treated for Parkinson's disease with Sinemet^R (combination of L-dopa and carbidopa) for 12 months at a dose of eight 25/100 tablets per day. The wife reports that he is continually grimacing and moving his neck and facial muscles. He is also involuntarily protruding his tongue. Which of the following actions is appropriate?

- (a) Increase the dose of Sinemet^R
- (b) Decrease the dose of Sinemet^R
- (c) Administer supplemental diphenhydramine hydrochloride
- (d) Administer supplemental trihexyphenidyl hydrochloride.

8. Which of the following is/are standard therapy(ies) for idiopathic Parkinsonism?

- (i) Amantidine
- (ii) Thalamotomy
- (iii) Anticholinergics
- (iv) Neuroleptics

INDEX NUMBER: _____

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

9. Which of the following is/are the major adverse effect(s) of levodopa?

- (i) Hyperactivity
- (ii) Anorexia
- (iii) Insomnia
- (iv) Hypotension.

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

10. Which of the following statements is/are true ?

- (i) Anticholinergic agents may act synergistically with levodopa to decrease tremor
- (ii) Phenothiazine and butyrophenone can antagonize the therapeutic effect of levodopa
- (iii) MAOI should not be administered concurrently with levodopa because it can cause a hypertensive crisis

INDEX NUMBER: _____

(iv) Reserpine can cause psychosis if administered concomitantly with levodopa.

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

11. Which of the following is/are true regarding typical extrapyramidal disorders?

- (i) They are characterised by involuntary movement
- (ii) They disappear during sleep
- (iii) They are exacerbated by stress
- (iv) They are characterised by weakness

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

12. Which of the following phenothiazines is the least likely to cause tardive dyskinesia?

- (a) Chlorpromazine
- (b) Fluphenazine
- (c) Prochlorperazine

INDEX NUMBER: _____

..... (d) Thioridazine.

13. Which of the following is/are true regarding alteration of neuromuscular junction by acetylcholine (ACh) antibodies in myasthenia gravis?

- (i) there is a complement-mediated destruction of end-plate membrane folds
- (ii) there is a reduction in the number of ACh receptors in the end plate
- (iii) there is a direct blocking of ACh binding
- (iv) release of ACh from the motor nerve terminal is prevented.

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

14. Which of the following acetyl cholinesterase inhibitor(s) is/are not used in the treatment of myasthenia gravis?

- (i) Neostigmine bromide
- (ii) Pyridostigmine bromide
- (iii) Ambenonium chloride
- (iv) Edrophonium chloride.

INDEX NUMBER: _____

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

15. Which of the following treatments is/are used as short-term therapy for myasthenia gravis in a patient prepared for surgery?

- (i) Glucocorticoid
- (ii) Cyclosporine
- (iii) Azathioprine
- (iv) Plasmapheresis.

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

16. By how much of the waking hours dose should the dosage of anticholinesterase be reduced to in a severe myasthenia gravis patient who requires anticholinesterase during sleep?

- (a) 90%
- (b) 70%
- (c) 50%
- (d) 30%.

INDEX NUMBER: _____

17. Which of the following is true regarding treatment of major depression?

- (a) Alprazolam is as effective as tricyclic antidepressants (TCA's)
- (b) Trazodone is more effective than imipramine but has serious anticholinergic effect
- (c) TCA's are usually less effective compared to monoamine oxidase inhibitors (MAOI's) in elderly patients.
- (d) Major depression with psychotic symptoms is less responsive to TCA's alone compared to depression without psychotic symptoms.

18. Which of the following is true regarding TCA's?

- (a) The therapeutic effects are mediated by their stimulation of the norepinephrine or serotonin reuptake
- (b) It is effective and recommended in the treatment of generalized anxiety disorder
- (c) TCA's combined with MAOI's are the drugs of choice in phobic disorders
- (d) Maprotiline should be avoided in patients with history of seizure.

19. Which of the following is true regarding adverse effect

INDEX NUMBER: _____

of TCA?

- (a) Trazodone is more hepatotoxic compared to isocarboxide
- (b) The most serious cardiovascular complication at therapeutic concentration is orthostatic hypotension
- (c) The secondary amine TCA's are more likely to cause sedation than tertiary amine TCA's
- (d) Trazodone is more anticholinergic compared to the tertiary amines.

20. Which of the following antidepressants is appropriate in depressed patients with a history of seizure?

- (a) Doxepin
- (b) Imipramine
- (c) Trimipramine
- (d) Desipramine.

21. Which of the following antidepressants is least likely to cause sedation?

- (a) Trazodone
- (b) Imipramine
- (c) Protriptyline
- (d) Doxepine.

INDEX NUMBER: _____

26. Which of the following is true regarding schizophrenic thought disorder?

- (a) there is pressure of speech
- (b) there is hallucination
- (c) there is illusion
- (d) there is a thought block.

27. In which of the following is impairment of memory a prominent feature?

- (a) schizophreniform disorder
- (b) paranoid disorder
- (c) dementia
- (d) major depression.

28. Which of the following is the drug **of choice** in the treatment of catatonic schizophrenia?

- (a) chlorpromazine
- (b) trifluoperazine
- (c) perphenazine
- (d) thioridazine.

29. Which of the following is/are true regarding side effect of anti-Parkinson drug?

INDEX NUMBER: _____

- (a) there is exacerbation of glaucoma
- (b) there is postural hypotension
- (c) there is abnormal T waves on ECG
- (d) there is a decreased libido.

30. In which of the following is delusion known to be present?

- (i) mania
- (ii) neurotic depression
- (iii) major depression
- (iv) hypochondriasis.

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

31. Which of the following is/are sub-types of schizophrenia?

- (i) Schizoid
- (ii) Disorganized
- (iii) Schizotypal
- (iv) Undifferentiated.

INDEX NUMBER: _____

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

32. Which of the following is/are etiologic theories of schizophrenia?

- (i) dopamine Theory
- (ii) biogenic Amines Theory
- (iii) double Bind Theory
- (iv) somatic behaviour Theory.

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

33. Which of the following is/are groups of anti-psychotic drugs?

- (i) Benzamide
- (ii) Diphenylbutylpiperidine
- (iii) Thioxanthenes
- (iv) Triazolopyridine.

- (a) (i) and (ii) only

INDEX NUMBER: _____

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

34. Which of the following is/are paranoid disorder(s)?

- (i) paranoia
- (ii) acute paranoid disorder
- (iii) paraphrenia
- (iv) paranoid schizophrenia.

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

35. Which of the following describe(s) flight of idea?

- (a) there is a loss of coherent goal-directed thinking
- (b) there is an accelerated tempo of thinking
- (c) there is a sudden discontinuation of chains of thought
- (d) there is an obscure associations of thought.

36. Which of the following constitutes a biological symptom of depression?

INDEX NUMBER: _____

- (a) early insomnia
- (b) irritability
- (c) poor concentration
- (d) psychomotor retardation.

37. Which of the following is likely regarding the pre-morbid personality of a patient with affective disorder, bipolar type ?

- (a) schizoid
- (b) narcissistic
- (c) cyclothymic
- (d) compulsive.

38. How long after starting treatment with lithium should the first sample for lithium blood level be taken?

- (a) 2 days
- (b) 3 days
- (c) 4 days
- (d) 5 days.

39. Which of the following is/are true regarding features of mania?

- (i) there is an elevated mood
- (ii) there is an irritability

INDEX NUMBER: _____

(iii) there is a pressure of speech

(iv) there is paranoid ideation.

..... (a) (i) and (ii) only

..... (b) (i), (ii) and (iii) only

..... (c) (i), (ii), (iii) and (iv)

..... (d) (ii) and (iv) only.

40. Which of the following amine(s) is/are deficient in depression according to biogenic amines hypothesis of depression?

(i) Acetylcholine

(ii) Noradrenaline

(iii) γ - Aminobutyric Acid

(iv) Dopamine.

..... (a) (i) and (ii) only

..... (b) (i), (ii) and (iii) only

..... (c) (i), (ii), (iii) and (iv)

..... (d) (ii) and (iv) only.

41. Which of the following is/are long-term side effect(s) of lithium?

(i) hypothyroidism

(ii) slurred speech

(iii) weight gain

INDEX NUMBER: _____

(iv) tremor.

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

42. Which of the following are drug(s) of choice in elderly patients with prostate hypertrophy?

- (i) Alprazolam
- (ii) Imipramine
- (iii) Dothiepin
- (iv) Maprotiline.

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

43. Which of the following is/are likely if a patient fails to respond to a maximum dose of tricyclic antidepressants?

- (i) there is resistance to the specific tricyclic antidepressants.
- (ii) there is poor drug compliance
- (iii) a wrong choice of drug is given

INDEX NUMBER: _____

(iv) there is insufficient time for drug to act.

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

44. Which of the following is the drug of choice for obsessive compulsive disorder?

- (a) imipramine
- (b) clomipramine
- (c) maprotiline
- (d) doxepine.

45. Which of the following behavioral therapy is commonly used in the treatment of phobia?

- (a) Response prevention
- (b) Anxiety management training
- (c) Token economy
- (d) Systemic desensitization.

46. Which of the following is a cardiovascular symptom of anxiety?

- (a) dyspepsia

INDEX NUMBER: _____

- (b) palpitation
- (c) paraesthesia
- (d) tremor.

47. Which of the following is a commonly used short-acting hypnotic drug commonly in Hospital USM?

- (a) nitrazepam
- (b) alprazolam
- (c) flurazepam
- (d) midazolam.

48. Which of the following is the most common compulsive behaviour?

- (a) ritual
- (b) checking
- (c) cleaning
- (d) counting.

49. Which of the following drugs is/are used in the treatment of generalized anxiety disorder?

- (i) Diazepam
- (ii) Propranolol
- (iii) Amitriptyline
- (iv) Haloperidol.

INDEX NUMBER: _____

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

50. Which of the following is/are true regarding phobia?

- (i) the fear is out of proportion to the demand of the situation
- (ii) the fear cannot be explained or reasoned away
- (iii) the fear leads to an avoidance of the feared situation
- (iv) the fear is within control of the patients.

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

(50 marks)

...24/-

SECTION (B)

1. A 33 year old female clerk with an excellent work record complained of easy fatigability and irritability and became a frequent absentee 3 months prior to presentation. She complained of frequent bouts of abdominal problem but denied a personal or family history of mental illness. On examination she exhibited a fine tremor and a pulse rate of 100/min. A provisional diagnosis of generalized anxiety disorder was made and the plan was to institute benzodiazepine

(A) Describe anxiety in relation to this patient.

(4 marks)

(B) List 6 other symptoms of generalized anxiety disorders.

(3 marks)

(C) Based on the benzodiazepine receptor theory explain the patophysiology of anxiety.

(4 marks)

(D) Which benzodiazepine would you recommended for S.A. and give your reasons for the selection.

(5 marks)

(E) Discuss possible adverse drug reactions from benzodiazepine therapy.

(5 marks)

(F) List your approach to patient education for this patient.

(4 marks)

2. A 30 year female weighing 40 kg was admitted to the hospital with head injury following a motor vehicle accident. She sustained lost of consciousness but there were no eye, ear, nose and throat (EENT) bleeding, fits or vomiting.

Review of system:

General : unconscious, left-sided hemiplegia

Vital signs: Temperature 38 C BP 140/70, PR 100 beats/min

CVS: Normal heart sounds

Chest: clear

Abdomen: NAD

Skin/muscle: NAD

Neuro/mental : Unconscious, (L)-side hemiplegia

EENT: Papilledema,

(R)-eye dilated and unreactive to light,

(L)-eye reactive 2 mm.

Allergies:

Not known

Provisional Diagnosis :

MVA with head injury

Plan:

VS q 4 hourly

ABG q 4 hourly

BUSE q 4 hourly

Treatment:

I.V. Mannitol 75 cc of 20% solution q 8 hourly

I.V. Phenytoin 500 mg loading dose, followed by 300 mg
daily

(A) What is the indication for the use of phenytoin in this patient?

Comment on the appropriateness with respect to the indication.

(5 marks)

(B) Discuss on the controversy regarding the relationship between blood level of phenytoin and its effectiveness in this condition.

(5 marks)

(C) Comment on the dosing of phenytoin in this patient

(3 marks)

(D) After a week, papilledema still persisted. Give a possible explanation for this.

(3 marks)

(E) Compare and contrast other alternatives available for the management of her papillaedema.

(5 marks)

(F) Phentobarbital was later prescribed. Comment on the use of phentobarbital therapy in this patient.

(4 marks)

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