

**UNIVERSITY OF ESWATINI
FACULTY OF HEALTH SCIENCES**

FINAL EXAMINATION

SECOND SEMESTER AUGUST, 2020

**TITLÈ OF PAPER : -PHARMACOTHERAPEUTICS ACROSS THE
LIFE SPAN**

COURSE CODE : GNS 606

TIME ALLOCATED : TWO HOURS

MARKS ALLOCATED : 60

INSTRUCTIONS:

- 1. ANSWER ALL QUESTIONS**
- 2. READ INSTRUCTIONS CAREFULLY**

***N.B. DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY
THE INVIGILATOR***

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Multiple Choice (1 Mark each)

Identify the choice that best completes the statement or answers the question.

___ 1. A laboratory result indicates that the peak level for a drug is above the minimum toxic concentration. This means that the:

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|---|--|
| 1 | Concentration will produce therapeutic effects |
| 2 | Concentration will produce an adverse response |
| 3 | Time between doses must be shortened |
| 4 | Duration of action of the drug is too long |

___ 2. Which of the following statements about bioavailability is true?

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|---|---|
| 1 | Bioavailability issues are especially important for drugs with narrow therapeutic ranges or sustained-release mechanisms. |
| 2 | All brands of a drug have the same bioavailability. |
| 3 | Drugs that are administered more than once a day have greater bioavailability than drugs given once daily. |
| 4 | Combining an active drug with an inert substance does not affect bioavailability. |

___ 3. Drug antagonism is best defined as an effect of a drug that:

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|---|---|
| 1 | Leads to major physiological and psychological dependence |
| 2 | Is modified by the concurrent administration of another drug |
| 3 | Cannot be metabolized before another dose is administered |
| 4 | Leads to a decreased physiological response when combined with another drug |

___ 4. Therapeutic drug levels are drawn when a drug reaches steady state. Drugs reach steady state:

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|---|--|
| 1 | After the second dose |
| 2 | After four to five half-lives |
| 3 | When the patient feels the full effect of the drug |
| 4 | One hour after IV administration |

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___ 5. Passive monitoring of drug effectiveness includes:

- 1 Therapeutic drug levels
- 2 Adding or subtracting medications from the treatment regimen
- 3 Ongoing provider visits
- 4 Instructing the patient to report if the drug is not effective

___ 6. Vitamin B₁₂ deficiency may lead to:

- 1 Hair loss
- 2 Insomnia
- 3 Dry scales on the scalp
- 4 Numbness and tingling of the hands

___ 7. Taylor is a 10-year-old child diagnosed with major depression. The appropriate first-line antidepressant for children is:

- 1 Fluoxetine
- 2 Risperidone
- 3 Sertraline
- 4 Citalopram

___ 8. Which of the following adverse effects may occur due to a dihydropyridine type calcium channel blocker?

- 1 Bradycardia
- 2 Hepatic impairment
- 3 Increased contractility
- 4 Edema of the hands and feet

9. Patient teaching related to amlodipine includes:

- 1 Increase calcium intake to prevent osteoporosis from a calcium blockade.
- 2 Do not crush the tablet; it must be given in liquid form if the patient has trouble swallowing it.
- 3 Avoid grapefruit juice as it affects the metabolism of this drug.
- 4 Rise slowly from a supine position to reduce orthostatic hypotension.

10. The choice of diuretic to use in treating hypertension is based on:

- 1 Presence of diabetes with loop diuretics being used for these patients
- 2 Level of kidney function with a thiazide diuretic being used for an estimated glomerular filtration rate higher than the mid-40mL/min range
- 3 Ethnicity with aldosterone antagonists best for those of African descent and older adults
- 4 Presence of hyperlipidemia with higher doses needed for patients with LDL above 130 mg/dL

11. Long-acting beta-agonists received a Black Box Warning from the U.S. Food and Drug Administration due to the:

- 1 Risk of life-threatening dermatological reactions
- 2 Increased incidence of cardiac events when LTBA's are used
- 3 Increased risk of asthma-related deaths when LTBA's are used
- 4 Risk for life-threatening alterations in electrolytes

12. Musa and his wife are traveling to Southeast Asia on vacation and he has come into the clinic to review his medications. He is healthy with only mild hypertension that is well controlled. He asks about getting a shot to prevent blood clots like his friend Buba did before international travel. The correct respond would be:

- 1 Administer one dose of low-molecular weight heparin 24 hours before travel.
- 2 Prescribe one dose of warfarin to be taken the day of travel.
- 3 Consult with a hematologist regarding a treatment plan for Musa.
- 4 Explain that Musa is not at high risk of a blood clot and provide education about how to prevent blood clots while traveling.

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13. Patients with pernicious anaemia require treatment with:

- 1 Iron
- 2 Folic acid
- 3 Epogen alpha
- 4 Vitamin B₁₂

14. Patients who are beginning therapy with vitamin B₁₂ need to be monitored for:

- 1 Hypertensive crisis that may occur in the first 36 hours
- 2 Hypokalemia that occurs in the first 48 hours
- 3 Leukopenia that occurs at 1 to 3 weeks of therapy
- 4 Thrombocytopenia that may occur at any time in therapy

15. Nonselective beta blockers and alcohol create serious drug interactions with insulin because they:

- 1 Increase blood glucose levels
- 2 Produce unexplained diaphoresis
- 3 Interfere with the ability of the body to metabolize glucose
- 4 Mask the signs and symptoms of altered glucose levels

16. Effects of oestrogen include:

- 1 Regulation of the menstrual cycle
- 2 Maintenance of bone density by increasing bone reabsorption
- 3 Maintenance of the normal structure of the skin and blood vessels
- 4 A and C
- 5 All of the above

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___ 17. Juakeem is a nasal methicillin resistant staphylococcus aureus (MRSA) carrier. Treatment to eradicate nasal MRSA is mupirocin. Patient education regarding treating nasal MRSA includes:

- 1 Take the oral medication exactly as prescribed.
- 2 Insert one-half of the dose in each nostril twice a day.
- 3 Alternate treating one nare in the morning and the other in the evening.
- 4 Nasal MRSA eradication requires at least 4 weeks of therapy, with up to 8 weeks needed in some patients.

___ 18. Instructions for the use of selenium sulfide shampoo to treat scalp seborrhea include:

- 1 Shampoo daily and rinse well.
- 2 Worsening of seborrhea for the first week is normal.
- 3 Seborrhea usually clears up after a few weeks of treatment.
- 4 Shampoo twice a week for 2 weeks, then weekly.

___ 19. Sarah is a 25-year-old female who is 8 weeks pregnant and has a urinary tract infection. What would be the appropriate antibiotic to prescribe for her?

- 1 Ciprofloxacin
- 2 Amoxicillin/clavulanic
- 3 Doxycycline
- 4 Trimethoprim-sulfamethoxazole

___ 20. Every antibiotic drug class has resistant organisms that influence prescribing decisions.

- 1 1
- 2 0

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___ 21. Patients who have angina, regardless of class, who are also diabetic, should be on:

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| 1 | Nitrates |
| 2 | Beta blockers |
| 3 | ACE inhibitors |
| 4 | Calcium channel blockers |

___ 22. Beta blockers are especially helpful for patients with exertional angina who also have:

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|---|-----------------|
| 1 | Arrhythmias |
| 2 | Hypothyroidism |
| 3 | Hyperlipidemia |
| 4 | Atherosclerosis |

___ 23. Medications are typically started for angina patients when:

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| 1 | The first permanent EKG changes occur |
| 2 | The start of intermittent chest pain symptoms |
| 3 | The events trigger a trip to the emergency department |
| 4 | When troponin levels become elevated |

___ 24. Common mistakes practitioners make in treating anxiety disorders include:

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|---|--|
| 1 | Switching medications after an 8- to 12-week trial |
| 2 | Maximizing dosing of antianxiety medications |
| 3 | Encouraging exercise and relaxation therapy before starting medication |
| 4 | Thinking a partial response to medication is acceptable |

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25. Treatment for mild intermittent asthma is:

- 1 Daily inhaled medium-dose corticosteroids
- 2 Short-acting beta-2-agonists (salbutamol) as needed
- 3 Long-acting beta-2-agonists every morning as a preventative
- 4 Antihistamine medication daily

26. To improve actual effectiveness of oral contraceptives women should be educated regarding:

- 1 Use of a back-up method if they have vomiting or diarrhea during a pill packet
- 2 Doubling pills if they have diarrhea during the middle of a pill pack
- 3 The fact that they will have a normal menstrual cycle if they miss two pills
- 4 The fact that mid-cycle spotting is not normal and the provider should be contacted immediately

27. Vanessa has been diagnosed with scabies. Her education would include:

- 1 She should apply the scabies treatment cream for an hour and wash it off.
- 2 Scabies may need to be retreated in a week after initial treatment.
- 3 All members of the household and close personal contacts should be treated.
- 4 Malathion is flammable and she should take care until the solution dries.

28. When the total daily insulin dose is split and given twice daily, which of the following rules may be followed?

- 1 Give two-thirds of the total dose in the morning and one-third in the evening.
- 2 Give 0.3 units per kg of premixed 70/30 insulin with one-third in the morning and two-thirds in the evening.
- 3 Give 50% of an insulin glargine dose in the morning and 50% in the evening.
- 4 Give long-acting insulin in the morning and short-acting insulin at bedtime.

29. Studies have shown that control targets that reduce the HbA1C to less than 7% are associated with fewer long-term complications of diabetes. Patients who should have such a target include:

- 1 Those with long-standing diabetes
- 2 Older adults
- 3 Those with no significant cardiovascular disease
- 4 Young children who are early in their disease

30. Gastro-oesophageal reflux disease may be aggravated by the following medication that affects lower oesophageal sphincter tone:

- 1 Calcium carbonate
- 2 Estrogen
- 3 Furosemide
- 4 Metoclopramide

31. Evidence is strong that the timing of heart failure interventions are best initiated when:

- 1 The person enters stage C
- 2 The person has functional disabilities
- 3 At the earliest indication
- 4 When stage IV is determined

32. A challenge faced with antiretroviral therapy (ART) is:

- 1 Patients abusing ART
- 2 Drug-resistant mutations of HIV
- 3 Reduction of transmissibility of HIV
- 4 Lack of efficacy data

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___ 33. Windeli is pregnant and has tested HIV positive. Which antiretroviral drug should be given first line in women who are pregnant?

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|---|---|
| 1 | 300 mg--Emtricitabine 200 mg--Efavirenz 600 mg daily |
| 2 | Abacavir 600 mg daily- Lopinavir/ritonavir 800/200 mg daily |
| 3 | Atazanavir 300 mg-ritonavir 100 mg daily |
| 4 | Darunavir/ritonavir 800/100 mg daily |

___ 34. Phenotype assays are used to measure _____ of antiretroviral therapy.

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|---|---------------------------------|
| 1 | Effectiveness |
| 2 | Genotype |
| 3 | Sensitivity |
| 4 | Hypersensitivity susceptibility |

___ 35. Beta blockers treat hypertension because they:

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| 1 | Reduce peripheral resistance |
| 2 | Vasoconstrict coronary arteries |
| 3 | Reduce norepinephrine |
| 4 | Reduce angiotensin II production |

___ 36. When starting a patient with hypothyroidism on thyroid replacement hormones patient education would include:

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| 1 | They should feel symptomatic improvement in 1 to 2 weeks. |
| 2 | Drug adverse effects such as lethargy and dry skin may occur. |
| 3 | It may take 4 to 8 weeks to get to euthyroid symptomatically and by laboratory testing. |
| 4 | Because of its short half-life, levothyroxine doses should not be missed. |

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37. Ongoing monitoring is essential after treating for an STI. The patient should be re-screened for STI's in:

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| 1 | 4 weeks |
| 2 | 3 to 6 weeks |
| 3 | 3 to 6 months |
| 4 | 1 year |

38. In addition to antimicrobial therapy, patients treated for *Trichomonas* infection should be educated regarding:

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|---|---|
| 1 | Necessity of treating sexual partner simultaneously |
| 2 | Abstaining from intercourse until both partners are treated |
| 3 | Need for retesting in 3 months due to high reinfection rate |
| 4 | All of the above |

39. Goals when treating tuberculosis include:

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| 1 | Completion of recommended therapy |
| 2 | Negative purified protein derivative at the end of therapy |
| 3 | Completely normal chest x-ray |
| 4 | All of the above |

40. A child that may warrant watchful waiting instead of prescribing an antibiotic for acute otitis media includes patients who:

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| 1 | Are low risk with temperature of less than 39°C |
| 2 | Have reliable parents with transportation |
| 3 | Are older than age 2 years |
| 4 | All of the above |

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41. Nicole is a 4-year-old female with a febrile urinary tract infection (UTI). She is generally healthy and has no drug allergies. Appropriate initial therapy for her UTI would be:

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| 1 | Azithromycin |
| 2 | Trimethoprim/sulfamethoxazole |
| 3 | Amoxicillin/clavulanic acid |
| 4 | Ciprofloxacin |

42. Topical corticosteroids are prescribed cautiously in young children because:

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|---|--|
| 1 | They may cause an intense hypersensitivity reaction |
| 2 | Of hypothalamic-pituitary-adrenal axis suppression |
| 3 | Corticosteroids are less effective in young children |
| 4 | Young children may accumulate corticosteroids, leading to toxic levels |

43. A patient who has been taking isoniazid (INH) has a new prescription for pyridoxine. She is wondering why she needs this medication. The nurse explains that pyridoxine is often given concurrently with the isoniazid to prevent which condition?

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| 1 | Hair loss |
| 2 | Renal failure |
| 3 | Peripheral neuropathy |
| 4 | Heart failure |

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___ 44. The nurse is discussing adverse effects of anti-tubercular drugs with a patient who has active tuberculosis. Which potential adverse effect of anti-tubercular drug therapy should the patient report to the prescriber?

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| 1 | Gastrointestinal upset |
| 2 | Headache and nervousness |
| 3 | Reddish-orange urine and stool |
| 4 | Numbness and tingling of extremities |

___ 45. A patient with an eye injury requires an ocular examination to detect the presence of a foreign body. The nurse anticipates that which drug will be used for this examination?

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|---|--------------------|
| 1 | Phenylephrine |
| 2 | Fluorescein sodium |
| 3 | Atropine sulfate |
| 4 | Chloramphenicol 1% |

___ 46. When reviewing the health history of a patient who will be receiving antacids, you recall that antacids containing magnesium need to be used cautiously in patients with which condition?

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|---|----------------------|
| 1 | Peptic ulcer disease |
| 2 | Renal failure |
| 3 | Hypertension |
| 4 | Heart failure |

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___ 47. A woman is traveling to a country where she will be at high risk for malarial infection. What should you tell her regarding prophylactic therapy with hydroxychloroquine?

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|---|---|
| 1 | Hydroxychloroquine is better absorbed and has fewer adverse effects if taken on an empty stomach. |
| 2 | The drug is started 3 weeks before exposure but can be discontinued once she leaves the area. |
| 3 | The medication is taken only when she observes mosquito bites because it can have toxic effects if taken unnecessarily. |
| 4 | The drug is usually started 1 to 2 weeks before traveling to endemic areas and is continued for 4 weeks after leaving the area. |

___ 48. When considering the various types of contraceptive drugs, you are aware that which type most closely duplicates the normal hormonal levels of the female menstrual cycle?

- | | |
|---|--------------|
| 1 | Monophasic |
| 2 | Biphasic |
| 3 | Triphasic |
| 4 | Short acting |

___ 49. The nurse practitioner is teaching a review class to nurses about diabetes mellitus. Which statement by the nurse is correct?

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|---|--|
| 1 | Patients with type 2 diabetes will never need insulin. |
| 2 | Oral antidiabetic drugs are safe for use during pregnancy. |
| 3 | Pediatric patients cannot take insulin. |
| 4 | Insulin therapy is possible during pregnancy if managed carefully. |

50. A patient, newly diagnosed with hypothyroidism, has received a prescription for thyroid replacement therapy. The nurse will instruct the patient to take this medication at which time of day?

- a. In the morning
- b. With the noon meal
- c. With the evening meal
- d. At bedtime

Short Answer

Please keep your answers succinct, write legibly and label accordingly.

I. (10 Marks)

You diagnose Make Thandi with new onset diabetes mellitus type II as her random blood sugars have been greater than 11.1 mmol/L on three separate occasions.

Outline her diabetic treatment plan including what first line medication for diabetes you plan to prescribe.

II. HG is a 30 year old female who comes to you complaining of burning on urination and frequency. She has no medication allergies.

a. What is the first line drug for a urinary tract infection? **(2 Marks)**

b. What education will you give her concerning this medication regimen? **(3 Marks)**

III. a. You diagnose JV a 25 kg child with Otitis media. You prescribe Amoxicillin 90 mg/kg/day for 5 days what is his twice daily dose? **(2 Marks)**

b. What instructions will you give the mother concerning his medication regime? **(3 Marks)**