



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## UNIVERSITY EXAMINATIONS 2023/2024

FIRST YEAR, SECOND SEMESTER EXAMINATION FOR DEGREE OF MASTER OF  
SCIENCE IN NURSING

### NNM 7111: ADVANCED PATHOPHYSIOLOGY

**DATE: DECEMBER 2023**

**TIME: 3 HOURS**

**INSTRUCTIONS:** Answer all questions in the booklet provided

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#### SECTION A: 60 MARKS – ANSWER ALL QUESTIONS

1. Explain the pathogenesis of the following symptoms in patients with cerebral vascular accidents? (6 marks)
  - i. Aphasia
  - ii. Sudden weakness on one side of the body
  - iii. Confusion,
  - iv. Dizziness
  - v. Loss of balance
  - vi. Loss of sight
2. Explain three mechanisms of respiration? (6 marks)
3. Elaborate the four cellular adaptation mechanisms that occur after cell injury of any other form? (6 marks)
4. Briefly describe any three types of melanoma of the integumentary system? (6 marks)
5. Explain how hypoxia, Ischemia and Infarction influence cerebrovascular disease? (6 marks)
6. Explain the pathogenesis of heart failure? (6 marks)
7. Explain any three systemic manifestations of chronic kidney disease (6 marks)

8. Mrs.TP is a 35-year-old premenopausal woman who has been using combined oral contraceptives for 10 years. Explain three risk factors reduced by Mrs.TP as a result of contraceptive use? (6 marks)
9. Explain three basic nursing considerations in caring for patients with esophageal cancer? (6 marks)
10. Critique the importance of the following investigations in cervical cancer? (6 marks)
- Proctoscopy
  - Urinalysis
  - Full blood count
  - Colposcopy
  - Pap smear
  - Cystoscopy

### SECTION B – 40 MARKS: ANSWER ALL QUESTIONS

1. Mrs. AB is a 30-year-old woman with a BMI of 31kg/m<sup>2</sup>. She presents to the hospital emergency room following 90 minutes of chest pain. She describes the severity of her pain as 8 on a scale of 10. An hour and-a-half ago, she developed sharp and constant right-sided chest pain and right-sided midback pain. The pain became worse when she attempted to lie down or take a deep breath and improved a little when she sat down. She also experiences difficulty breathing which is sometimes fast with lower leg cramp, pitting edema and Swollen, painful veins

She denies having any fever, chills, or coughing up blood. She had an episode of deep vein thrombosis 2 years ago and treated with warfarin for 1 year. She has a 12 pack-year smoking history and currently smokes 1 pack per day. She does not take alcohol or any intravenous drug abuse. She occasionally takes caffeine

Na	141 meq/L	HCO <sub>3</sub>	27 meq/L	Hb	11.9 g/dL	WBC	5,300/mm <sup>3</sup>
K	4.3 meq/L	BUN	17 mg/dL	Hct	34.8%	PTT	25.0 sec
Cl	110 meq/L	Cr	1.1 mg/dL	Plt	306,000/mm <sup>3</sup>	PT	14.0 sec

### Electrocardiography

Sinus tachycardia

### **Lower Extremity Venous Duplex Ultrasonography**

Both right and left lower extremities show abnormalities of venous narrowing, prominent collateral vessels, and incompressibility of the deep venous system in the popliteal veins.

These findings are consistent with bilateral DVT.

### **V/Q Scan**

Perfusion defect at right base. Some mismatch between perfusion abnormality and ventilation of right lung, suggesting an intermediate probability for pulmonary embolus.

### **Pulmonary Angiogram**

Abrupt arterial cutoff in peripheral vessel in right base

- a) Explain five clinical manifestations that suggest a pulmonary embolus in this patient? Give reasons for your answer? (5 marks)
  - b) Explain five major risk factors of Mrs. AB that exposes her to pulmonary thromboembolism? (5 marks)
  - c) Give three significance of calculating international normalized ratio on patients started on Warfarin therapy? (3 marks)
  - d) Explain the seven characterized signs revealed that the patient's chest x-ray form will reveal? (7 marks)
2. CY is a significantly overweight, 48-year-old woman who had high blood sugar and cholesterol levels three years ago but did not follow up with a clinical diagnostic work-up. She had participated in the state's annual health screening program and noticed that her fasting blood sugar was 141mg/dL (normal 125mg/dL) and her cholesterol was 225mg/dL. However, she felt "perfectly fine at the time" and could not afford any more medications. Except for a number of "female infections," she has felt fine until recently.
- Today, she presents to the hospital complaining of her left foot that has been weak and numb for nearly three weeks and that the foot is difficult to flex. She denies any other weakness or numbness at this time. However, she reports that she has been very thirsty lately and gets up more often at night to urinate. She has attributed these symptoms to the extremely warm weather and drinking more water to keep hydrated. She has gained a total of 85 kilograms since her last pregnancy 14 years ago, she rarely exercises and admits to trying various diets for weight loss but with little success; She gave up on trying to lose weight and now eats a diet rich in fats and refined sugars

Recently, she has been awakened on several occasions with blurred vision and dizziness or lightheadedness upon standing but denies vertigo, head trauma, ear pain, ringing sensations in the ears, difficulty swallowing, and pain with swallowing

CY smokes 2 cigarettes a day (since age 14) and drinks 2 beers most evenings but has "never used illegal drugs of any kind. On general examination, she admits to recent onset of fatigue and denies chest pain, palpitations, cough, shortness of breath and wheezing.

- a) CY is diabetic type 2 patient. Explain any three blood chemistry test results that strongly support a diagnosis of diabetes? (6 marks)
- b) Explain any five risk factors that predisposes CY to type 2 diabetes mellitus? (10 marks)
- c) Describe four signs and symptoms that are associated with CY 's diabetes type 2 case and their pathogenesis? (4marks)