POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION IN MD (OBSTETRICS& GYNAECOLOGY)
FEBRUARY/APRIL 2026

Date:- 6th April 2026 **Time:-** 1.00 p.m. - 4.00 p.m.

Answer all six (06) questions.
Answer each question in a separate book.

SHORT ANSWER QUESTIONS

1. There are four ligaments attached to the uterus.

1.1. Describe their embryological origin and their attachments to the uterus and pelvis. (50 marks)

1.2. Briefly describe the contents of each of these ligaments. (20 marks)

1.3. Which of the four ligaments offer significant support to the uterus and will have stretched if a woman develops a procidentia (third degree uterovaginal prolapse)? (10 marks)

1.4. An 80-year-old woman with postmenopausal bleeding for two years is found to have a mass in the right groin, which on biopsy turns out to be an endometrial malignancy.
Describe the lymphatic drainage of uterus and cervix. Explain how the tumour has spread to that location. (20 marks)

2. A 25-year-old healthy pregnant woman at 35 weeks of pregnancy has mild bipedal oedema especially in the evening. Her serum creatinine is 0.5 mg/dL (reference range 0.6 - 1.1 mg/dL). Other examination findings are normal.

2.1. Explain the physiological basis of these changes during pregnancy. (60 marks)

2.2. Describe the physiological changes in her ureters and bladder, and their clinical importance. (40 marks)

Contd..../2-

STRUCTURED ESSAY QUESTIONS

3.

3.1. Describe the metabolic response to surgery. (35 marks)

3.2. A 53-year-old woman with type 2 diabetes mellitus for five years and a BMI of 28 kg/m^2, undergoes an elective total abdominal hysterectomy for perimenopausal bleeding.

Outline how poorly controlled diabetes mellitus influences the metabolic response to surgery. (15 marks)

3.3. Outline the process of healing in a clean surgical wound. (30 marks)

3.4. Three days after surgery she developed fever, pain, and redness at the wound site. On the fourth day, a purulent discharge was noted at the surgical wound.

State the pathogenesis of the development of each of the above-mentioned clinical symptoms and signs of the patient. (20 marks)

4.

4.1. A 56-year-old postmenopausal woman underwent cytoreductive surgery for an ovarian cancer. Histology reveals an epithelial ovarian carcinoma.

4.1.1. List two (02) types of oncological drugs used in first-line treatment of above condition, with one (01) example for each category. (10 marks)

4.1.2. Outline the mechanism of action of each drug mentioned in 4.1.1. (20 marks)

4.1.3. Describe the term "targeted therapy" in ovarian cancer treatment, giving an example. (15 marks)

4.2. A 23-year-old woman at 28 weeks of gestation was found to have a blood pressure of 150/100 mmHg.

4.2.1. Name three (03) antihypertensive agents from different drug classes that are safe for use during pregnancy and outline their mechanism of action. (20 marks)

She developed an eclamptic seizure and was commenced on $MgSO_4$ infusion.

4.2.2. Outline the mechanism of action of $MgSO_4$ in achieving its therapeutic goal. (15 marks)

4.2.3. Outline four (04) clinical parameters, giving reasons that you would observe in this woman, in order to prevent important side effects of $MgSO_4$. (20 marks)

Contd..../3-

5. A 38-year-old woman presents to the gynaecology clinic with a 2-year history of secondary amenorrhoea. She reports generalized fatigue and diffuse bone pain. She recently sustained a low-impact fracture of the distal radius following a minor fall.
She has no history of chronic illness or long-term medication use.

Laboratory investigations are as follows:

	Patient value	Reference range
Serum calcium	11.0 mg/dL	(8.5 - 10.5)
Serum phosphate	2.0 mg/dL	(2.5 - 4.5)
Intact PTH	160 pg/mL	(15 - 65)
Follicle Stimulating Hormone (FSH)	56 IU/L	(3 - 10)
Serum prolactin	235 mIU/L	(85 - 500)

5.1. What are the probable diagnoses? (10 marks)

5.2. Outline the pathophysiological mechanisms underlying the increased bone fragility in this patient. (50 marks)

5.3. Describe the basis for her elevated FSH level. (15 marks)

5.4. Outline the pathophysiological basis for the preservation of bone mineral density in women with higher BMI. (25 marks)

6.

6.1. A postgraduate trainee is planning to conduct a case-control study for his dissertation. He is concerned about different types of bias that could affect his research project.

6.1.1. Define bias in the context of medical research. (10 marks)

6.1.2. Mention the impact of bias on the outcome of a research project. (05 marks)

The following types of bias commonly affect observational studies including case-control studies:

(a) Selection bias

(b) Information Bias

(c) Confounding bias

6.1.3. Name two (02) measures you would take to eliminate each of (a), (b) and (c). (30 marks)

Contd...../4-

6.2. Due to the non-availability of an adequate number of cyto-screeners, a multi-center study is conducted in Sri Lanka to evaluate whether visual inspection of the cervix with acetic acid (VIA) could be used as the primary screening tool for cervical cancer. Colposcopy and biopsy is used as the confirmatory test.

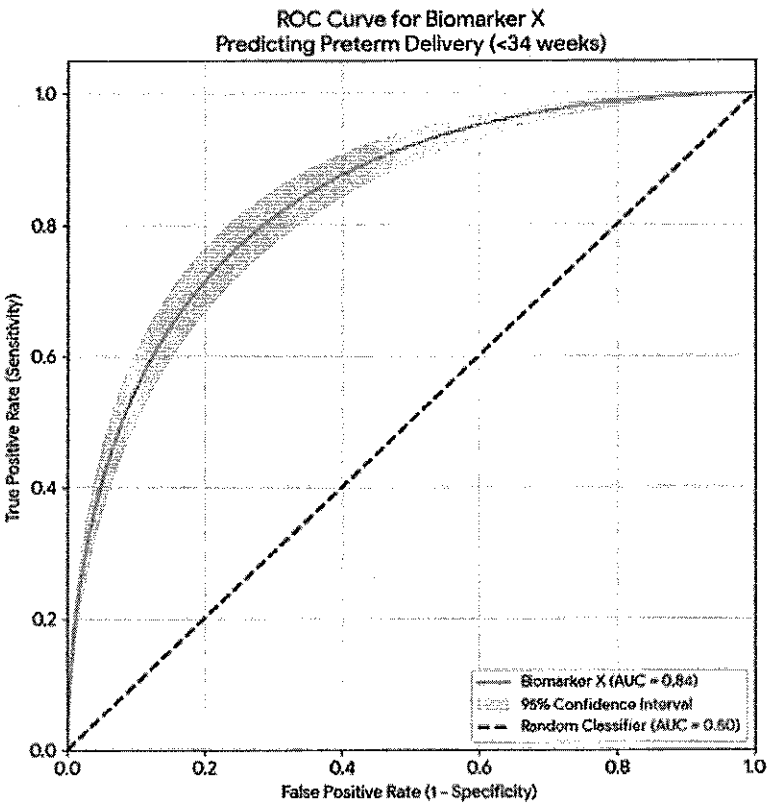
Within a study population of 1000 women, 20 are found to be positive for cervical intraepithelial neoplasia (CIN 2+) on cervical biopsy, out of which 16 become positive on VIA as well. Among the 980 women without CIN 2+, 882 are tested negative on VIA.

6.2.1. Construct a two by two (2×2) contingency table and give the formulae for the sensitivity, specificity, positive predictive value (PPV), and Negative predictive value (NPV) of VIA for detecting CIN 2+ (You do not have to calculate the actual value). (25 marks)

6.2.2. Explain giving reasons, the desirable level of sensitivity and specificity for any screening test for a disease, such as cervical cancer. (10 marks)

Contd.....5/-

6.3. A research team has developed a novel serum biomarker (Biomarker X) to predict spontaneous preterm delivery before 34 weeks of gestation in asymptomatic women presenting for routine antenatal care at 20 weeks. In a prospective cohort study of 1,000 women, the biomarker was measured, and the respective pregnancy outcomes were recorded. The statistical analysis has produced the following receiver-operating characteristic (ROC) curve.



AUC: 0.84 (95% CI: 0.79–0.89)

Interpret the results in the ROC curve and comment on the usefulness of the biomarker X for predicting pre-term labour before 34 weeks of gestation. (20 marks)