

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**FACULTY OF APPLIED SCIENCES**

**DEPARTMENT OF RADIOGRAPHY**

**MSc IN ULTRASOUND PART 1**

**THE PELVIS AND OBSTETRICS ULTRASOUND I**

**SRU 5103**



**First Semester Examination Paper  
November 2024**

This examination paper consists of 5 pages

**Time Allowed: 4 hours**  
**Total Marks: 125**  
**Special Requirements: None**  
**Examiner's Name: Dr. J. Tityiwe**

**INSTRUCTIONS**

**ANSWER ALL QUESTIONS. EACH QUESTION CARRIES 25 MARKS.**

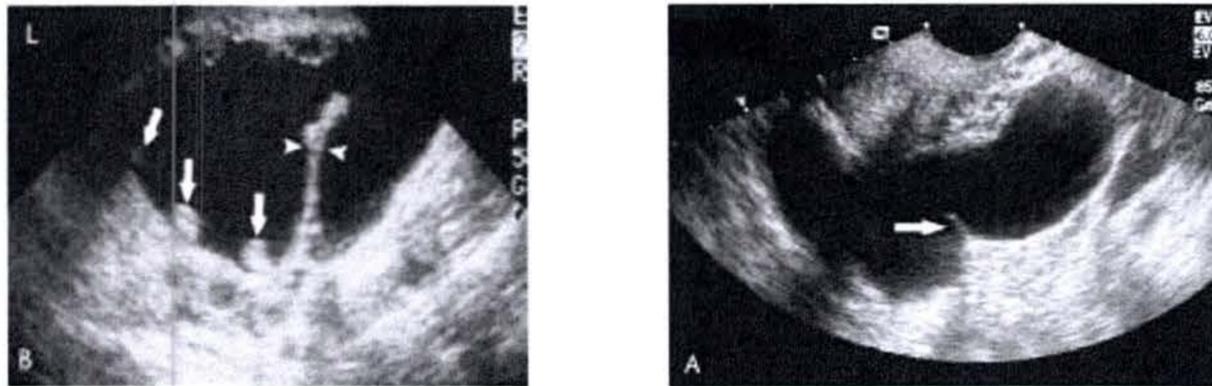
**MARK ALLOCATION**

<b>QUESTION</b>	<b>MARKS</b>
1.	25
2.	25
3.	25
4.	25
5.	25
<b>Maximum possible mark</b>	<b>125</b>

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1. A 22-year-old woman is referred to the ultrasound imaging department with a request for a pelvic ultrasound scan with an indication for Lower abdominal pain (LAP), and ultrasound findings in **figure 1** were obtained in the right and left adnexa regions.



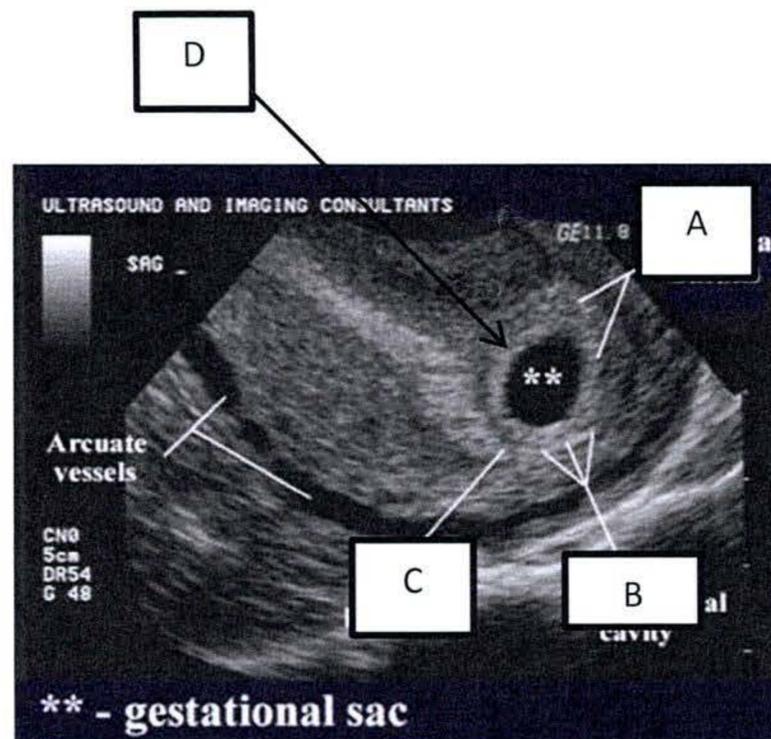
**Figure 1**

**A**

**B**

#### Pelvic adnexae regions

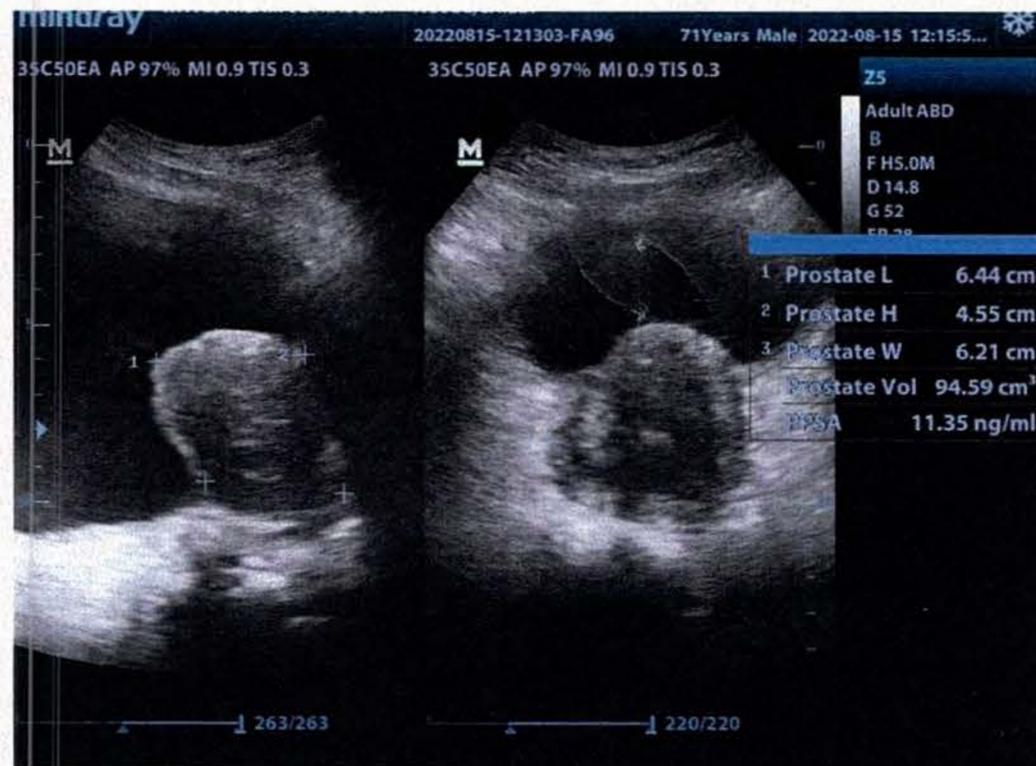
- a) Identify and justify the pathological conditions shown in **figure 1**. [6]
  - b) Discuss the stages of the menstrual cycle and the accompanying sonographic manifestations for each stage. [10]
  - c) With the aid of diagrams, explain the sonographic appearances and associated complications of the following;
    - i) Subseptus uterus, [3]
    - ii) Uterine Didephys, [3]
    - iii) Asherman's syndrome. [3]
2. **Figure 2** shows the image of a true gestational sac in early pregnancy at 6 weeks.
    - a) Label the constitutes of the early pregnancy sign in **figure 2** and justify why it is a true gestational sac. [6]



**Figure 2 Early pregnancy sign**

- b) Discuss the sonographic appearances which may suggest early pregnancy failure. [15]
- c) Explain the relevance of the visualisation of a corpus luteal cyst during first trimester pregnancy. [4]
3. A 34 year old female patient is referred to the ultrasound department with an indication of hyperemesis gravidarum at 12 weeks pregnancy. A urine based pregnancy test is positive and the ultrasound images in **figure 3** were obtained.





**Figure 4 Male pelvis**

- a) Identify and justify the diagnosis of this patient shown in **figure 4**. [5]
  - b) Explain the complications which may arise in this patient if this condition continues in chronic form. [8]
  - c) Justify the scanning technique and parameters to be undertaken to diagnose this patient. [8]
  - d) Compare and contrast between the ultrasound appearances of chronic and acute prostatitis. [4]
5. A 16 year old female patient presents to the ultrasound department with an indication of LAP, LBP and amenorrhea 8/40 weeks and a and the scan image in **figure 5** was obtained.



**Figure 5 left adnexa**

- a) Identify and justify the diagnosis shown in **figure 5**. [5]
- b) Explain the complications which may incur incase of a misdiagnosis of **figure 5** findings. [4]
- c) Discuss process of successful placentation during implantation stage. [10]
- d) Differentiate between the sonographic appearances for missed miscarriage and threatened miscarriage. [6]

**End of Examination**