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QUALIFICATION : <b>BACHELOR of MEDICAL LABORATORY SCIENCES</b>	
QUALIFICATION CODE: <b>08BMLS</b>	LEVEL: <b>6</b>
COURSE: <b>ANATOMICAL PATHOLOGY</b>	COURSE CODE: <b>ANP621S</b>
DATE: <b>JANUARY 2025</b>	SESSION: <b>1</b>
DURATION: <b>3 HOURS</b>	MARKS: <b>100</b>

**SECOND OPPORTUNITY / SUPPLEMENTARY: EXAMINATION QUESTION PAPER**

**EXAMINER:** Ms Belinda Roselin Tsauses

**MODERATOR:** Ms Ndeshipewa Hamatui-Valombola

**INSTRUCTIONS:**

1. Answer all questions in the answer book.
2. Please write neatly and legibly.
3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.
4. No books, notes and other additional aids are allowed.
5. Mark all answers clearly with their respective question numbers.

**PERMISSIBLE MATERIALS:**

1. None.

**ATTACHMENTS**

1. None.

**This question paper consists of 7 pages including this front page**

## QUESTION 1: MULTIPLE CHOICE QUESTIONS

[10 MARKS]

Evaluate the statements in each numbered section and select the most appropriate answer or phrase from the given possibilities. Fill in the appropriate letter next to the number of the correct statement/phrase in your ANSWER BOOK. [10]

1.1 The \_\_\_\_\_ is the neck of the uterus, the lower, narrow portion where it joins with the upper part of the vagina. (1)

- a) Internal os.
- b) External os.
- c) Cervix.
- d) Endometrium.

1.2 A \_\_\_\_\_, also known as the germinal epithelium, surrounds the ovary. (1)

- a) Mesothelium.
- b) Stratified squamous mucosa.
- c) Columnar mucinous epithelium.
- d) None of the above.

1.3 In the \_\_\_\_\_, the stroma is composed of many small fibroblastic cells along with scattered lymphocytes, macrophages, and blood vessels. (1)

- a) Vagina.
- b) Fallopian tubes.
- c) Ovaries.
- d) Uterus.

1.4 Epithelial cells can be described by their \_\_\_\_\_ and \_\_\_\_\_: (1)

- a) Structure; function.
- b) Morphology; staining properties.
- c) Nucleus; cytoplasm.
- d) None of the above.

1.5 The term \_\_\_\_\_ is used to describe a finely granular chromatin pattern. (1)

- a) Vesicular.
- b) Pyknotic.
- c) Bland.
- d) None of the above.

1.6 In Pap staining, the intensity of nuclear staining can be described as: (1)

- a) Hyperchromatic.
- b) Normochromatic.
- c) Hypochromatic.
- d) All of the above.

1.7 In cervical smears or Liquid Based Cytology (LBC) slides, \_\_\_\_\_ generally present as discrete single cells. (1)

- a) Endometrial cells.
- b) Intermediate squamous cells.
- c) Superficial squamous cells.
- d) Endocervical cells.

1.8 What type of cytology sample is used during cytocentrifugation? (1)

- a) Biopsy.
- b) Conventional smear.
- c) LBC.
- d) None of the above.

1.9 These tumors do not necessarily turn into malignant tumors: (1)

- a) Precancerous lesions.
- b) Carcinoma in - situ.
- c) Benign.
- d) None of the above.

1.10 Reparative changes can be atypical and mimic \_\_\_\_\_, because when undergoing repair cells are depleted of normal glycogen content \_\_\_\_\_ may have nuclear atypia. (1)

- a) Pre-cancerous lesions.
- b) Cancerous lesions.
- c) Benign changes.
- d) Carcinoma in - situ.

**QUESTION 2: TRUE/FALSE QUESTIONS**

**[10 MARKS]**

Evaluate the statements and select whether the statement is true or false. Write the word 'True' or 'False' next to the corresponding number in your ANSWER BOOK.

Correct each false statement by only replacing the incorrect word(s) with the correct word(s). [10]

- 2.1 EndoPaps refer to the process of collection by inserting a brush through the endocervical canal and sampling areas of the cervix.
- 2.2 The microscope concentrates small numbers of cells suspended in fluids into a 6mm diameter cycle onto a glass slide for subsequent microscopic observation
- 2.3 The amount of material aspirated from a fine needle aspiration biopsy specimen is so small that it is almost impossible to fix the smear before air drying occurs.
- 2.4 EA-65 is a cytoplasmic stain that helps to differentiate adenocarcinomas of the endocervix (pink) from those of endometrium (blue).
- 2.5 In wet fixation, the cells should be exposed to air and the slide should remain submerged for a minimum of 15-30 minutes.
- 2.6 There are four (4) categories of fixation methods that are used in the cytology laboratory.

**SECTION B: SHORT ANSWER QUESTIONS****[33 MARKS]**

Please answer ALL of the questions in this section.

**QUESTION 3:****[17 MARKS]**

- 3.1 Name and describe four (4) different types of artefacts commonly seen in Cytology, including the cause. Present your answers in a table. (12)
- 3.2 Give a general cytological description of metaplastic cells. (5)

**QUESTION 4:****[16 MARKS]**

- 4.1 Briefly explain the significance of progesterone levels in the presence of navicular cells and common conditions in which they may be seen. (4)
- 4.2 To justify the importance of intermediate cells undergoing cytolysis, explain the process of cytolysis from a cytologic perspective and describe how these cells will look like on an LBC slide. Give your answers in point form. **(Seven (7) marks for explaining and one (1) mark for describing.)** (8)
- 4.3 With reference to your answer(s) in question 4.2, state the conditions under which the process of cytolysis will not take place. Give reason(s) for your answer(s). (4)



**SECTION C: LONG ANSWER QUESTIONS****[47 MARKS]**

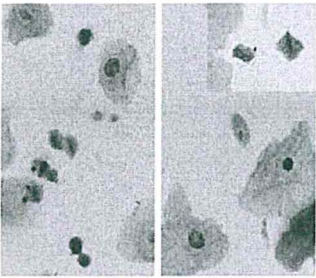
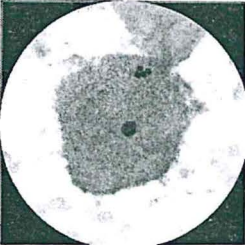
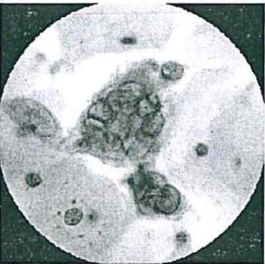
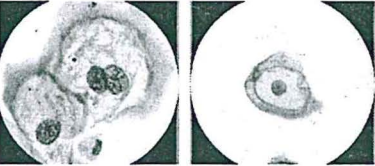
Please answer ALL of the questions in this section.

**QUESTION 5:****[20 MARKS]**

Identify the below infections seen on cytologic smears and describe their prominent cytological features as seen microscopically. Copy the table. **PRINT IN COLOUR.**

(One (1) mark for identification and four (4) marks for description per element.)

(20)

No.	Identification	Description (any four answers/infection)
5.1 		
5.2 		
5.3 		
5.4 		

**QUESTION 6:**

**[27 MARKS]**

6.1 Sketch a scenario to explain the process of metastasis in detail, using breast cancer as an example. Give your answers in point form. (15)

6.2 Discuss the concept of invasion of cancer cells. (12)

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**END OF QUESTION PAPER.**