



QUALIFICATION : <b>BACHELOR of MEDICAL LABORATORY</b>	
QUALIFICATION CODE: <b>08BMLS</b>	LEVEL: <b>6</b>
COURSE: <b>ANATOMICAL PATHOLOGY 2B</b>	COURSE CODE: <b>ANP621S</b>
DATE: <b>NOVEMBER 2023</b>	SESSION: <b>1</b>
DURATION: <b>3 HOURS</b>	MARKS: <b>100</b>

### FIRST OPPORTUNITY: EXAMINATION QUESTION PAPER

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#### 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.

#### ATTACHEMENTS

1. None.

**This paper consists of 5 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 Heterolysis is a cytoplasmic degenerative change that refers to: (1)

- a) The lysis of the cytoplasm due to enzymes derived from bacteria besides Döderlein bacilli.
- b) The condensation of the cytoplasm causing intense red staining.
- c) The cessation of osmotic cell regulation, causing water influx and nuclear swelling.
- d) None of the above.

1.2 Karyorrhexis refers to: (1)

- a) The rupturing of the nucleus into fragments.
- b) The loss of water causing the dead nuclei to shrink and become hyperchromatic.
- c) The process of chromatin particles adhering to the inner nuclear membrane.
- d) None of the above.

1.3 Actinomycosis involving the female genital tract has been increasing since the advent of: (1)

- a) Oral contraceptives.
- b) Intra-uterine devices.
- c) Condoms.
- d) All of the above.

1.4 The squamocolumnar junction (SCJ) is where: (1)

- a) The cervix meets the vagina.
- b) The cervix meets the endometrium.
- c) The normal squamous cells meet the inflammatory cells.
- d) The ectocervical epithelium meets the endocervical epithelium.

1.5 Metaplastic cells are commonly also referred to as: (1)

- a) Glandular epithelial cells.
- b) Atypical cells.
- c) Spider cells.
- d) Fenestrated cells.

1.6 The cervical mucus becomes highly viscous, forming a buffer that prevents the entry of microorganisms (and sperm) to the vagina after ovulation in the: (1)

- a) Follicular phase.
- b) Proliferative phase.
- c) Menstrual phase.
- d) Secretory phase.

1.7 Metaplasia refers to: (1)

- a) The transformation of one type of mature epithelium to another.
- b) The presence of abnormal cells within a tissue or organ.
- c) An increase in the number of cells in an organ or tissue as a result of cell proliferation.
- d) None of the above.

1.8 Anaplasia refers to: (1)

- a) The process where cells are extremely abnormal but have not yet invaded nearby tissue.
- b) The loss of the mature or specialized features of a cell or tissue, as in malignant tumours.
- c) The transformation of one type of mature epithelium to another.
- d) None of the above.

1.9 Inflammation of the “neck of the womb” is called: (1)

- a) Cervicitis.
- b) Endometriosis.
- c) Vaginitis.
- d) Candidiasis.

1.10 The function of estrogen is to: (1)

- a) Stimulate the growth of external genitalia.
- b) Stimulate the growth of internal sexual organs and maintains them in a functional state.
- c) Establish the female pattern of body fat deposition, bone growth, and body hair.
- d) All of the above.

**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. [10]

2.1 Reparative changes can be atypical and mimic pre-cancerous lesions. (1)

2.2 Nuclear features tell us where cell finds itself on the road of transformation or carcinogenesis. (1)

2.3 Well differentiated cells are highly proliferative. (1)

2.4 Navicular cells are boat-shaped malignant epithelial cells seen in Pap smear of early menopausal women. (1)

2.5 Endometrial cells are larger than the endocervical cells. (1)

2.6 In the proliferative phase, increasing levels of estrogen promote secretion of thin, watery mucus, which allows the passage of sperm into the uterus at the time of ovulation. (1)

2.7 Atypia is a term referring to cells appearing slightly abnormal. (1)

2.8 Adenomas are benign tumours that grow in fibrous tissue. (1)

2.9 The columnar cells are constantly changing into squamous cells in the transformation zone of the cervix. (1)

2.10 The epithelial lining of the cervix includes the stratified squamous epithelium on the ectocervix and simple columnar (glandular) epithelium lining the endocervix. (1)



**SECTION B: SHORT ANSWER QUESTIONS****[35 MARKS]**

Please answer ALL of the questions in this section.

**QUESTION 3:****[15 MARKS]**

- 3.1 Draw a neatly labelled diagram depicting the principle of cytocentrifugation. (5)
- 3.2 Explain three (3) differences between liquid-based cytology and conventional smears. (6)
- 3.3 Name the 4 main steps in the Papanicolaou staining procedure in the correct order. (Note: No marks will be awarded if the order is incorrect.) (4)

**QUESTION 4:****[20 MARKS]**

- 4.1 Tabulate the difference between the following normal squamous epithelial cells based on the distinct cytological features of the nucleus, cytoplasm and the NCR.
- a) Superficial cells (3)
  - b) Intermediate cells (3)
  - c) Parabasal cells (3)
- 4.2 What is the cytological description of Leptothrix on a Pap stain? (5)
- 4.3 Outline six (6) essential alterations in cell physiology that characterizes malignancy. (6)

**SECTION C: LONG ANSWER QUESTIONS****[45 MARKS]**

Please answer ALL of the questions in this section. Give all your answers in point form.

**QUESTION 5:****[15 MARKS]**

Give a description of cytological characteristics and the maturation index as a result of cyclic hormonal changes in the female genital tract. Make reference to the three (3) different stages of menopause. (15)

**QUESTION 6:****[15 MARKS]**

Discuss the pathogenesis of cervical cancer from a cytological perspective. (15)

**QUESTION 7:****[15 MARKS]**

Describe the action of the Döderlein bacilli on the relevant squamous epithelial cells during cytolysis. (15)

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**END OF QUESTION PAPER**