

CANDIDATE NUMBER.....



AFRICA
UNIVERSITY
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“Investing in Africa’s Future”

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS DEGREE

NSLS405: HISTOPATHOLOGY

END OF SECOND SEMESTER FINAL EXAMINATIONS

JUNE 2025

LECTURER: PROF MAIBOUGE SALISSOU

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
 2. Answer **all** questions in sections A on the question paper.
 3. Answer **all** questions in section B on separate answer sheets provided.
 4. Answer any **3** questions in section C on separate answer sheets provided
 5. The mark allocation for each question is indicated at the end of the question
 6. Credit will be given for logical, systematic and neat presentations in sections B and C
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SECTION A : MULTIPLE CHOICE [40 MARKS]

- **Answer all questions by indicating the correct response using a T for TRUE or F for FALSE for each statement in all the questions**
- **Each correct response is allocated half a mark and each question carries 2 marks**

Question 1: The following ultra-structural features are believed to allow for the increased permeability of the vascular endothelium in acutely inflamed tissue?

- a). Cytoplasmic micro-pinocytotic vesicles.
- b). Gaps in endothelial tight junctions.
- c). Gaps in the basement membrane.
- d). Increase in number of phagolysosomes.

Question 2: The following are characteristics feature of gangrene

- a). Digestion of dead tissue by saprophytic bacteria.
- b). Digestion of living tissue by saprophytic bacteria.
- c). Gas production in dead tissue.
- d). Necrosis of tissue caused by bacterial toxins.

Question3: The pathogenicity of the tubercle bacillus are due to the following

- a). Ability to multiply within macrophages.
- b). Delayed hypersensitivity reaction against the bacteria.
- c). Direct toxic effect on host cells.
- d). Effective antibody response. .

Question 4: The following are associated with thrombosis?

- a). Activation of the coagulation mechanism.
- b). Endothelial damage
- c). Formation of platelet aggregates.
- d). Thrombocytopenia.

Question5: The following are feature of amyloid

- a). Extracellular fibrillar material.
- b). Filaments of 75 nm diameter.
- c). Intracellular protein.
- d). Present initially in the wall of small blood vessels.

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Question 6: The following are involved in the aetiology of systemic hypertension

- a) Arteriolosclerosis
- b) Chronic glomerulonephritis.
- c). Conn's syndrome.
- d). Pheochromocytoma.

Question 7: The following are the commonest tumour in bone

- a). Benign chondroblastoma.
- b). Chondrosarcoma.
- c). Giant cell tumour.
- d) Secondary carcinoma

Question 8: The following are true of prostatic carcinoma

- a). Acid phosphatase level raised in serum.
- b). Alkaline phosphatase detected in tumour cells.
- c). Metastases are osteoplastic.
- d). Microacinar adenocarcinoma.

Question 9: Immune system in the body is activated by:

- a). Cell adhesion molecules
- b). Cytokines
- c). G-protein receptors
- d) Ion channels

Question 10: Which of the following genes are proapoptotic:

- a). p53
- b). Bcl-2
- c). RB
- d). Bax

Question 11: For causation of oedema by decreased osmotic pressure, the following factor are most important:

- a). Fall in albumin as well as globulin
- b). Fall in globulin level
- c). Fall in albumin level
- d) . Fall in fibrinogen level

Question 12 Transudate differs from exudate in having the following

- a). No inflammatory cells
- b). Low glucose content
- c). Low protein content
- d). Low specific gravity

Question 13: The infarct of following organ is invariably hemorrhagic:

- a). Infarct kidney
- b). Infarct spleen
- c). Infarct lung
- d). Infarct heart

Question 14: Milroy's disease is:

- a). Cerebral oedema
- b). Pulmonary oedema
- c). Hereditary lymphoedema
- d). Postural oedema

Question15: In an undescended testis the risk of developing a testicular malignancy is increased to average of:

- a). 20 fold
- b). 25 fold
- c) 30 fold D. 35 fold
- d) All above

Question16: In an undescended testis, the following tumour develops most often:

- a). Seminoma
- b). Teratoma
- c) Choriocarcinoma
- d). Yolk sac tumour

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Question 17: Granulomatous orchitis is the term used for inflammation of testis due to following etiology:

- a). Tuberculosis
- b) Sarcoidosis
- c). Autoimmune
- d). Leprosy

Question 18: Seminoma has the following characteristics:

- a). Benign tumour
- b). Borderline tumour
- c). Malignant tumour
- d). locally aggressive tumour

Question 19. Spermatocytic seminoma differs from classic seminoma in the following:

- a). It occurs in older age (past 6th decade)
- b). Tumour cells are pleomorphic
- c). The stroma lacks lymphocytic infiltrate
- d) The tumour has worse prognosis

Question 20: AFP levels are elevated in 100% cases of following type of germ cell tumour:

- a). Seminoma
- b). Embryonal carcinoma
- c). Yolk sac tumour
- d). Choriocarcinoma

SECTION B: [20 MARKS]

Answer all questions on separate answer sheets provided

1. Briefly describe the following
 - a) Embolism. [5]
 - b) Granulomatous inflammation. [5]
 - c) seminomas.[5]
2. List sequence of events in healing by secondary intention. [5]

Answer any 3 questions from this section on separate answer sheets provided

1. Discuss prostatic adenocarcinomas. [25]
2. Discuss how a tumour spreads. [25]
3. Discuss cervical squamous cell carcinoma [25]
4. A 38-year-old man presents with a 10-month history of a painless testicular mass. Physical examination reveals a small nodule of the left testis. The mass cannot be transilluminated and appears to be solid on ultrasound examination. A testicular biopsy is shown in the figure 1 below.

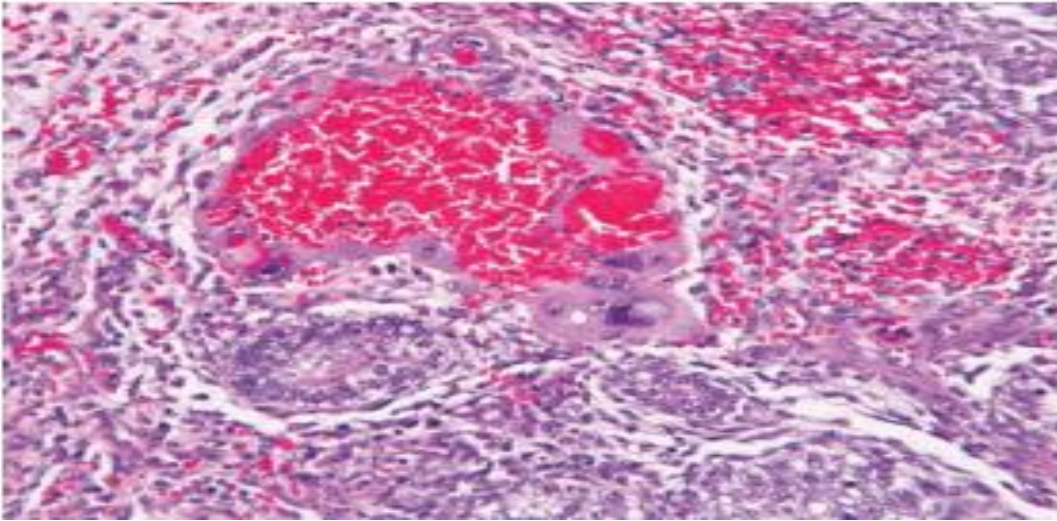


Figure 1

- a) In the testicular biopsy shown in Figure 1, the multinucleated giant cells in this neoplasm are derived from which of the following cell types listed below? (2 marks)
 - i Chondrocytes
 - ii Leydig cells
 - iii Oligodendrocytes
 - iv Smooth muscle cells
 - v Trophoblastic cells
- b) Justify your answer on the chosen option and explain why other options were excluded (8 marks)
- c) Discuss the histopathology and tumour markers of the subtype of the testicular tumour that the patient above was diagnosed with. (15 marks)

5. A 36-year-old woman is evaluated for an abnormal Pap smear. A cervical biopsy shows atypical squamous cells throughout the entire thickness of the epithelium, with no evidence of epithelial maturation (shown in Figure 2). The basal membrane appears intact.

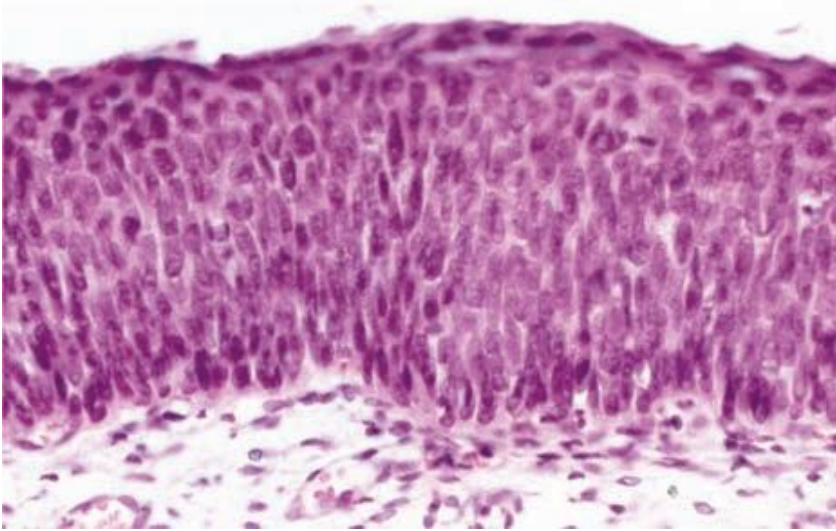


Figure 2

a) What is the appropriate diagnosis among options listed below? (2 marks)

- i Clear cell adenocarcinoma
- ii Invasive squamous cell carcinoma
- iii Mild dysplasia (cervical intraepithelial neoplasia [CIN]-1)
- iv Severe dysplasia (CIN-3)
- v Squamous metaplasia of the transformation zone

b) Justify your answer and explain why others remaining option were excluded (8 marks)

c) Conventional Pap smear was used to establish a final diagnosis for the patient above hence what could be the advantage and disadvantage of this Pap smear technique when compared to liquid based cytology (15 marks).