CANDIDATE NUMBER.....

AFRICA UNIVERSITY
A United Methodist-Related Institution

"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

NOVEMBER 2024

LECTURER: DR 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: Apoptosis has the following features
A. cell shrinkage
B. no acute inflammatory cells surrounding apoptosis
C. there may be single cell loss or affect clusters of cells
D. It is seen in pathologic processes only

Question 2: Diabetic foot is an example of
A. Dry gangrene
B. Wet gangrene
C. Gas gangrene
D. Necrotising inflammation

Question 3: The most common cause/s of arterial thromboemboli is/are:
A. Cardiac thrombi
B. Aortic aneurysm
C. Pulmonary veins
D. Aortic atherosclerotic plaques

Question 4: Venous emboli are most often lodged in
A. Intestines
B. Kidneys
C. Lungs
D. Heart

Question 5: Connective tissue in scar is formed by the following types of fibrillar collagen
A. Type II, III, IV
B. Type I, III, V
C. Type I, II, V
D. Type III, V, VII

Question 6: The following adhesion molecules play a significant role in rolling of PMNs over endothelial cells
A. Selectins
B. Integrins
C. Opsonins
D. Immunoglobulin molecules

Question 7: The following malignant tumours frequently spread through Haematogenous route:
A. Bronchogenic carcinoma
B. Renal cell carcinoma
C. Follicular carcinoma thyroid
D. Seminoma testis

Question 8: Atherosclerosis is predominantly a disease of
A. Intima
B. Media
C. Adventitia
D. Entire vessel wall

Question 9: The following lipid has highest association with atherosclerosis:
A. Triglycerides
B. Low-density lipoproteins
C. Very-low density lipoproteins
D. High density lipoproteins

Question 10: Metastasis to the following tissues occur early in prostatic carcinoma:
A. Vertebrae
B. Obturator lymph node
C. Lungs
D. Brain

Question 11: Areas of intratubular germ cell neoplasia are frequently found in seminiferous tubules adjacent to the following tumours
A. Seminoma
B. Spermatocytic seminoma
C. Embryonal carcinoma
D. Immature teratoma

Question 12: In an undescended testis, the following tumour develops most often:
A. Seminoma
B. Teratoma
C. Choriocarcinoma
D. Yolk sac tumour

Question 13: The following vulval lesion/s can progress to vulval carcinoma:
A. Stromal polyp
B. Papillary hidradenoma
C. Squamous hyperplasia
D. Lichen sclerosis

Question 14 : High risk HPV types implicated in cervical intraepithelial lesions are:
A. 6 and 11
B. 5 and 8
C. 16 and 18
D. 19 and 22

Question15: The most common histologic type/s of cervical cancer is/are
A. Well-differentiated keratinising squamous cell carcinoma
B. Moderately-differentiated non-keratinising squamous cell carcinoma
C. Small cell undifferentiated carcinoma
D. Adenocarcinoma

Question16. Chocolate cyst of the ovary is
A. Haemorrhagic corpus luteum
B. Ruptured luteal cyst
C. Endometriotic cyst
D. Ruptured follicular cyst

Question 17: The pathogenicity of the tubercle bacillus is due
A. Ability to multiply within macrophages.
B. Delayed hypersensitivity reaction against the bacteria.
C. Direct toxic effect on host cells.
D. Necrosis caused by expanding granulomas.

Question 18: The commonest site for endometriosis are:
A. Hernial sacs
B. Vulva
C. Ovaries
D. Vagina

Question19: Bilaterality of following ovarian tumours are most common in:
A. Benign serous tumours
B. Malignant serous tumours
C. Benign mucinous tumours
D. Brenner tumour

Question 20: The following are associated with EB virus infection
A. Burkitt's lymphoma.
B. Carcinoma of the cervix uteri.
C. Infectious mononucleosis.
D. Nasopharyngeal carcinoma.

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SECTION B: [20 MARKS]

Answer all questions on separate answer sheets provided

1. Write short notes on
    a) apoptotic process in cell injury. [5]
    b) chronic inflammation. [5]
    c) benign prostatic hyperplasia.[5]
2. List advantages and disadvantages of conventional Pap smear. [5]

SECTION C: [75 marks]

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

1. Discuss prostatic adenocarcinomas. [25]
2. Discuss inflammatory biomarkers and their clinical significance. [25]
3. Discuss cervical squamous cell carcinoma [25]
4. A 25-year-old woman delivers a healthy baby at 39 weeks of gestation. Six hours later, the mother develops severe shortness of breath and appears cyanotic. Despite resuscitation, she dies 2 hours later. A section of lung at autopsy is shown in **Figure 1**

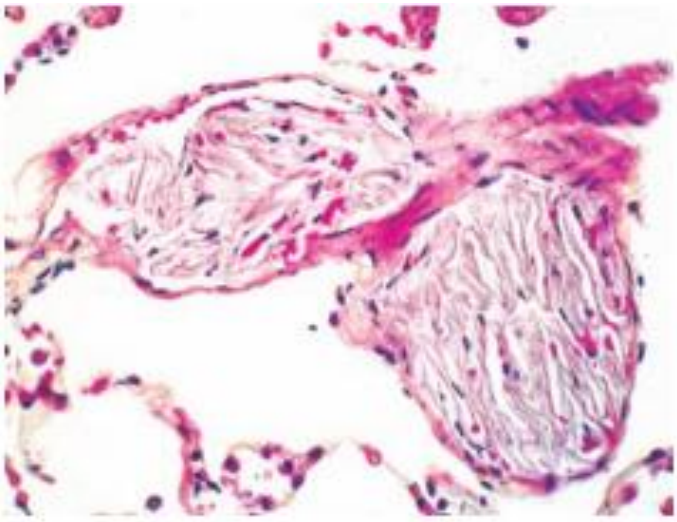

Figure 1

a) The pathologic findings in Figure 1 can be associated with any of the following diagnosis: Amniotic fluid embolism, Cardiogenic shock, Maternal-fetal histoincompatibility, Metastatic squamous cell

carcinoma and Pulmonary thromboembolism. Which of these is the most likely diagnosis for the patient? Support your answer. [10]

b) If the patient described above had survived the acute episode of cyanosis and shock, she would have been at risk for developing any of the following life-threatening complications: Bacterial endocarditis, Disseminated intravascular coagulation, Fat embolism, Neurogenic shock and Septic shock. Which of these is the most likely life threatening complication to occur in the patient? Support your answer. [15]

5. An 80-year-old woman with a history of hypertension is rushed to the emergency room complaining of chest pain of 1-hour duration. Physical examination discloses bilateral pitting leg edema, hepatosplenomegaly, and rales at the bases of both lungs. The patient is apprehensive and sweating. The patient loses consciousness and dies of a cardiac arrhythmia. Microscopic examination of the lungs at autopsy is shown in Figure 2

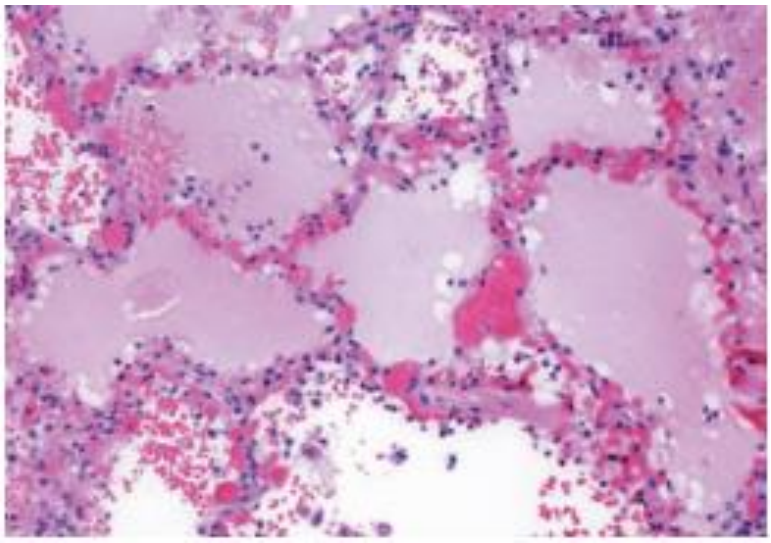

Figure 2

a) One of the following hemodynamic processes can explain this pathologic finding: Decreased capillary permeability, Decreased intravascular oncotic pressure, Increased intravascular hydrostatic pressure, Increased intravascular oncotic pressure and vasoconstriction of precapillary arteriole. Choose the best hemodynamic process and justify your answer. [12]

b) Describe the pathophysiological process that had led to oedema in that patient in question 5 [13]