



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)
MAIN CAMPUS
UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR
FOURTH YEAR, FINAL QUALIFYING EXAMINATIONS
FOR THE DEGREE OF
BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

COURSE CODE: BSP 433b

**COURSE TITLE: BASIC PAPER II
DATE: WEDNESDAY 27TH JANUARY 2021**

TIME: 9.00-12.00 NOON

INSTRUCTIONS TO CANDIDATES

Answer all Questions

Sec A: Pathology

Sec B: General Surgery

Sec C: Pharmacology

Sec D: General Medicine

Sec E: Research methods biostatistics and Epidemiology

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 12 Printed Pages Please Turn Over.



SECTION A PATHOLOGY

PART A MULTIPLE CHOICE QUESTIONS

1. Virchow's triad includes the following EXCEPT
 - a) Stasis
 - b) Endothelial injury
 - c) Platelet aggregation
 - d) Hypercoagulability
2. The most common site for thrombosis is
 - a) Vein
 - b) Artery
 - c) Heart
 - d) Capillary
3. The first stage in inflammation is
 - a) Vasodilation
 - b) Stasis
 - c) Vasoconstriction
 - d) Diapedesis
4. Edema is due to
 - a) Lymphatic obstruction
 - b) Increased plasma proteins
 - c) Decreased hydrostatic pressure
 - d) None of the above
5. Which one of the following is not a characteristic of neurogenic shock?
 - a) Warm peripheries
 - b) Low pulse pressure
 - c) Failure to respond to fluid therapy
 - d) None of the above
6. Edema is caused by a fall in plasma protein below
 - a) 5%
 - b) 10%
 - c) 15%
 - d) 20%
7. The most common peripheral circulating lymphocyte is
 - a) Neutrophils
 - b) Eosinophils
 - c) Macrophages
 - d) T-cells
8. Active hyperemia is associated with
 - a) Cyanosis
 - b) Arteries and arteriole dilation

- c) Inflammatory mediators
 - d) Blood flow to all parts of the body
9. Which of the following conditions can lead to disseminated intravascular coagulopathy (DIC)?
- a) Trauma
 - b) Cancer
 - c) Liver cirrhosis
 - d) All the above
10. The most common origin of pulmonary emboli is
- a) Deep leg veins
 - b) Superficial leg veins
 - c) Left ventricle
 - d) Major leg arteries
11. . The layer of the epidermis also known as the horny layer is Stratum
- a) Corneum
 - b) Granulosum
 - c) Spinosum
 - d) Basale
12. The primary purpose of neutrophils is
- a) Phagocytosis.
 - b) Vasodilation.
 - c) Vasoconstriction.
 - d) Collagen formation
13. During the hemostatic phase of healing, platelet binding to collagen occurs because of platelet attraction to
- a) Von Willebrand factor
 - b) Fibronectin
 - c) Thrombospondin
 - d) Fibrinogen
14. Chronic inflammation is most frequently associated with
- a) Sealed wound edges.
 - b) High levels of polymorphonuclear leukocytes.
 - c) Rapidly migrating wound edges.
 - d) Low levels of matrix metalloproteinases.
15. Autoimmunity refers to
- a) Immune reactions against self-antigens
 - b) Autosomal recessive diseases
 - c) Unresponsiveness to an antigen
 - d) Autosomal dominant diseases
16. A neoplasm, implies that the lesion can invade and destroy adjacent structures and spread to distant sites is referred to as
- a) Malignant
 - b) Benign

- c) Localized
 - d) Carcinoma
17. Which virus is linked to Burkitt's lymphoma?
- a) EPV
 - b) Cytomegalovirus
 - c) HPV
 - d) HIV
18. A 54-year-old previously healthy woman is hospitalized for pneumonia. On the 10th hospital day, she is found to have swollen and tenderness of her right leg, which has developed over the past 48 hours. Raising the leg elicits pain. An ultrasound examination reveals findings suggestive of femoral vein thrombosis. Which of the following conditions is most likely to have contributed the most to the appearance of these findings?
- a) Trousseau syndrome
 - b) Protein C deficiency
 - c) Immobilization
 - d) Pregnancy
19. A 62-year-old man has experienced substernal chest pain upon exertion with increasing frequency over the past 6 months. An electrocardiogram shows features consistent with ischemic heart disease. He has a total serum cholesterol of 262 mg/dL. By angiography, there is 75% narrowing of coronary arteries. In which of the following locations is a mural thrombus most likely to occur in this man
- a) Aorta
 - b) Left ventricle
 - c) Right atrium
 - d) Right ventricle
20. A 66-year-old man with Parkinson disease develops pleuritic chest pain. On exam, he has guarding over the right lower lung with dullness to percussion. A chest CT scan shows a focal, wedge-shaped pleural based area of hemorrhage in the right lower lobe. Which of the following is the most likely cause for his pulmonary lesion?
- a) Embolus
 - b) Atherosclerosis
 - c) Vasculitis
 - d) Thrombosis

Part B Short Answer Question

1. Describe the stages of wound healing marks)

- b).What is the roles of a physiotherapist in cardiothoracic surgery of a 60-year-old patient (2 Mks)
- c).What is the aims of a physiotherapist in post-operative patient who has undergone total hip replacement. (2Mks)
- d). Describe signs and symptoms present one day post bilateral total knee replacement (BTKR). (2Mks)

SECTION C PHARMACOLOGY

PART A MCQ

1. Which tissue has the greatest capacity to bio-transform drugs?
 - (a) Brain
 - (b) Kidney
 - © Liver
 - (d) Lung
2. **The initial distribution of a drug into tissue is determined chiefly by the _____?**
 - (a) Rate of blood flow to tissue
 - (b) Stomach emptying time
 - (c) Affinity of the drug for tissue
 - (d) Plasma protein binding of the drug
3. **All of the following carbohydrates are considered to be polysaccharides except**
 - (a) Heparin
 - (b) Starch
 - (c) Glycogen
 - (d) Maltose
4. **Which of the following factors is associated with an increased risk of noncompliance in the elderly?**
 - (a) Hypertension

- (b) Male gender
- (c) Living with a spouse in an isolated environment
- (d) Expensive medications

5. The principal difference between competitive and non-competitive inhibition is

- (a) Extent of receptor site blocking
- (b) Whether inhibition occurs
- (c) Extent of enzyme inhibition
- (d) Degree of agonism

6. Drug administered through which of the following routes is not likely to be subjected to first-pass metabolism:

- (a) Oral
- (b) Sublingual
- (c) Subcutaneous
- (d) Rectal

7. Majority of drugs cross biological membranes primarily by

- (a) Weakly basic drugs
- (b) Weakly acidic drugs
- (c) Strong electrolytes
- (d) Nonpolar drugs

8. Indicate the agent of choice in the emergency therapy of anaphylactic shock:

- a) Methoxamine
- b) Terbutaline
- c) Norepinephrine
- d) Epinephrine

9. Duration of H₂ blocker therapy is

- (a) 4 weeks
- (b) 6 weeks

SECTION B GENERAL SURGERY

PART A MCQs

GENERAL SURGERY MCQs

1. The main concerns after surgery are the risks of post-operative pulmonary complications and these can all be prevented if pain is managed and the patient is immobile, True or false? (1MK)
2. Which among these are risk factors associated with the risk of post-operative pulmonary complications (2MKS)
 - a. Gender of the patient
 - b. COPD and Asthma
 - c. Height of the patient
 - d. Obesity
 - e. Smoking
 - f. Age
 - g. Distal to thoracic diaphragm
 - h. Poor Nutrition
 - i. Type of surgery
 - j. Use of oxygen

Choose ONE category only

- A. All the above
- B. a,b,c,e,f,g,h,I,
- C. b,d,e,f,h,I,j.
- D. a,b,c,d,g,h,i.

3. Signs and symptoms of strangulated hernia includes EXCEPT (1MK)

- A) Nausea
- B) Fever
- C) Sudden pain that quickly intensifies
- D) A hernia that turns red purple or dark
- E) Inability to move your bowel or pass gas
- G) Profuse bleeding

4. THE FOLLOWING ARE COMPLICATION OF INGUINAL HERNIAL EXCEPT(2MK)

- A) Herniorrhaphy
- B) Pressure on surrounding tissue
- C) Incarcerated hernia.

D) Strangulation of the hernia.

5 .THE FOLLOWING ARE IMMEDIATE COMPLICATIONS OF SURGERIES EXCEPT(1MK)

- A. Shock.
- B .Joint stiffness
- C. Bleeding
- D .Wound infection
- E Deep vein thrombosis
- F. Pulmonary embolism
- G. Lung problems
- H .Urinary retention
- I .Reaction to anesthesia.

6). The following are benefits of seeing a patient pre operatively of elective total knee replacement (TKR) surgery EXCEPT (1MK)

- A] Improve muscle strength
- B] To Increase range of motion
- B) To improve joint space
- c) To assure and reassure the patient

7. The following are Signs & Symptoms Present Post Surgery EXCEPT(2MKS) PICK TWO ANSWERS

- A .Immobile
- B .Drowsiness
- C. Nausea
- D .Epistaxis
- E .diaphoresis
- F. Pain
- G Lung collapse .

PART B SHORT ANSWER QUESTIONS

Q 1.

a). What are the aims of a physiotherapist in post-operative patient for example Total hip replacement, major abdominal surgeries/ Ex-Lap; or cardiothoracic surgeries or Kidney transplant. (2MKS)

- (c) 8 weeks
- (d) 12 weeks

10. What is true of acid control therapy with H2 blockers?

- (a) It generally heals duodenal ulcers faster than gastric ulcers
- (b) It checks bleeding in case of bleeding peptic ulcer
- (c) It prevents gastroesophageal reflux
- (d) Both (a) and (b)

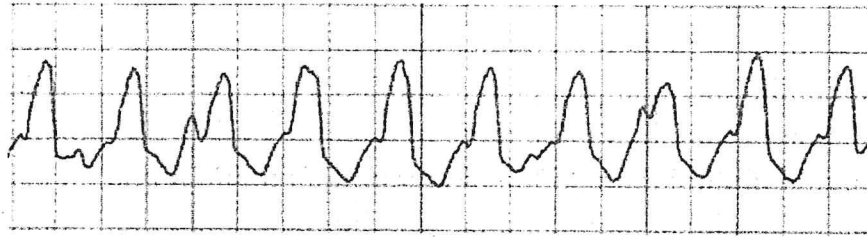
Part B Short Answer Questions

- a) Explain **four** drug safety measures that a health care worker should include during one to one health message with a client/patient on discharge **4 marks**
- b) Differentiate between drug side effects and drug adverse effects **4marks**
- c) Name two classification of anti-retro viral (ARVs) **2 marks**

SECTION D GENERAL MEDICINE

Part A mcqs

1. Pneumothorax is defined as
 - a) Presence of fluid in the pleural space
 - b) Prescence of air in the pleural space
 - c) Presence of pus in the plural space
 - d) Lung collapse due to puncture of the lungs
2. Which of the following is NOT a restrictive lung disease?
 - a) Sarcoidosis
 - b) Interstitial Pneumonia
 - c) Asthma
 - d) Tuberculosis
3. The following blood pressure values indicates grade I (mild) hypertension
 - a) 139/89 mmhg
 - b) 179/109mmhg
 - c) 159/99 mmhg
 - d) 120/80 mmhg
4. The ECG below represents



- a. Ventricular tachycardia
 - b. Atrial fibrillation
 - c. Atrial flutter
 - d. A-V node block
5. Neisseria Gonorrhoea is which type of organism
 - a) Bacteria
 - b) Virus
 - c) Fungi
 - d) Protozoa
 6. Which of the following is not a symptom of gonorrhoea?
 - a. Skin discoloration
 - b. Conjunctivitis
 - c. Burning sensation while urinating
 - d. Painful and swollen testicles
 7. Acute left heart failure presents with the following symptoms except
 - a) Orthopnea
 - b) Prostration
 - c) Sudden onset of dyspnea at rest
 - d) Pulmonary oedema
 8. Opportunistic infections in HIV/AIDS are due to
 - a) The ARVs increase chances of infections
 - b) HIV mutates into the disease that causes infection
 - c) HIV weakens the immune system
 - d) All the above
 9. HIV attacks and destroys which cells
 - a. CD4+
 - b. CD4-
 - c. Red blood cells
 - d. White blood cells
 10. Which of the following is not a direct transmission of an infection?
 - a) Sexually transmitted infection
 - b) Malaria from being bitten by mosquitoes
 - c) Ingestion of infectious material from dirty water
 - d) A and C

PART B: SHORT ANSWER QUESTION (SAQ)

Mihret is a 25-year-old woman who comes to you complaining that when she was cooking in her house this morning, she suddenly felt chest tightness wheezing and had difficulty breathing. This is the first time this has happened. She went outside into the fresh air and her breathing returned to normal within about 15 minutes. You asked her if she or any family members smoke tobacco and she say 'No'. You asked if there was smoke in the house from the cooking fire and Mihret said 'Yes, the house is always smoky when I am cooking'.

1. What condition do you suspect that Mihret has experienced? Explain your answer (3MARKS)
2. What could have caused it? (2MARKS)
3. What advice do you give her? (3MARKS)

SECTION E RESEARCH METHODS BIostatISTICS AND EPIDEMIOLOGY

PART A MCQ

1. What is a hypothesis?
 - A. A statement that the researcher wants to test through the data collected in a study.
 - B. A research question the results will answer
 - C. A theory that underpins the study
 - D. A statistical method for calculating the extent to which the results could have happened by chance.
2. Why does a researcher write a research proposal at the start of a study?
 - A. So they will not forget what they are doing during the study.
 - B. Apply for ethical approval and gain permission to access participants or sources of data.
 - C. To make sure they have not left any part of the study out when they are planning it.
 - D. So they can advertise for people to take part in the study.
3. Research process can be compared to which of the following?
 - A. A train timetable.
 - B. The spine of a skeleton.
 - C. The problem-solving process.
 - D. Clinical theories
4. Which one of the following is not a qualitative approach to research?
 - A. Grounded Theory
 - B. Ethnography
 - C. Philanthropy
 - D. Phenomenology
5. Which of the following is not a quantitative approach to research?
 - A. Survey
 - B. Randomized Control Trial
 - C. Quasi-experiment
 - D. Statistics
6. What does the term 'reliability' indicate?

- A. That the tool of data collection can be regarded as measuring accurately and consistently
 - B. We can trust that the research has being carried out to a high standard.
 - C. That the results are accurate.
 - D. That the researcher can be trusted.
7. What is a pilot study?
- A. A small scale study.
 - B. A study involving pilots.
 - C. A study to test the tool of data collection.
 - D. A study that is the first of its type.
8. Which section of a research proposal must researchers state the question to be investigated?
- A. Justification of the study
 - B. Research question
 - C. Purpose of the study
 - D. Methodology
9. Uniting various qualitative methods with quantitative methods can be called as.....
- A. Coalesce
 - B. Triangulation
 - C. Bipartite
 - D. Impassive
10. When planning to conduct social research, it is better to:
- A. Approach the topic with an open mind
 - B. Do a pilot study before getting stuck into it
 - C. Be familiar with the literature on the topic
 - D. Forget about theory because this is a very practical undertaking can't have one without the other

PART B: Short Answer Questions

- Outline four essential elements of consent form **4 marks**
- Differentiate between pilot study and pre-test **4 marks**
- Explain two advantages of conducting experimental research **2 marks**