



*(University of Choice)*  
UNIVERSITY EXAMINATIONS  
2021/2022

SECOND YEAR, SECOND TRIMESTER  
MAIN EXAM

DIPLOMA IN MEDICAL BIOTECHNOLOGY

**COURSE CODE:** BBD 227

**COURSE TITLE:** CLINICAL CHEMISTRY

**DATE:** 25/04/2022

**TIME:** 12.00 -2.00PM

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**GENERAL INSTRUCTIONS**

1. Read these instructions VERY carefully
2. The paper is divided into sections A, B and C
3. For each section answer the questions according to the accompanying instructions
4. Write university registration number on every new leaf used of the answer script
5. Answer all questions

## SECTION A: MULTIPLE CHOICE QUESTIONS

### Instructions

This section consists of twenty (20) multiple choice questions, carrying a maximum of twenty(20) marks

1. Criteria for diagnosis of Rheumatic heart disease:
  - a. Leukocytosis.
  - b. Elevated ESR and CRP.
  - c. Increased Anti-streptolysin (ASOT).
  - d. All of them.
2. What is the most specific biomarker for MI diagnosis?
  - a. Troponin.
  - b. Myoglobin
  - c. CK-MB.
  - d. LDH.
3. What happens when there is an increase in peripheral resistance in left ventricle:
  - a. Hypertrophy and dilatation.
  - b. Atrophy and construction.
  - c. Hypertrophy and construction.
  - d. Atrophy and dilatation.
4. What is the most common cause of CHF:
  - a. Cardiomyopathies?
  - b. Coronary artery disease.
  - c. Cardiac Conduction.
  - d. Inflammatory heart disease.
5. There are many mechanisms that lead to the cellular injury in atherosclerosis, except:
  - a. Bacterial Infection.
  - b. Hypolipidemia.
  - c. Glycosylated products seen in Diabetes Mellitus.
  - d. Proinflammatory cytokines.
6. What is the indicator (risk factor) associated with development of premature coronary artery and vascular disease?
  - a. Elevation of AST.
  - b. Alkaline Phosphatase (ALP).
  - c. Lipoprotein (a).
  - d. GlutamyITransferase (GGT)
7. What are the indicators of cardiovascular damage and myocardial disease, which may be indicated by hemolysis?
  - a. Hemoglobinuria
  - b. Myoglobinuria.
  - c. Both.
  - d. Neither of them.
8. Cardiac Function include:
  - a. Pumping blood to the organs of the body.
  - b. Delivering oxygen and nutrients where they are needed
  - c. Removing waste products from the tissues.
  - d. All of the above.
9. Troponin raises hours after the onset of symptoms:
  - a. 6 – 9 hours.
  - b. 12 – 24 hours.
  - c. 1 – 4 hours.
  - d. 4 – 10 hours.
10. One of these is not an inflammation and coagulation disorders markers:

- a. Lipoprotein-associated phospholipase A2.
  - b. Hs-CRP.
  - c. Lipoprotein-associated phospholipase A1.
  - d. Pregnancy-associated plasma protein A.
11. The following are causes of stone formation of calcium oxalate except:
- a. Hyperparathyroidism
  - b. High urine calcium
  - c. Gout
  - d. Osteoporosis
12. What happens to GFR in advancing obstructive disease?
- a. increase
  - b. No change
  - c. Decrease
13. Which of the following casts is most indicative of severe renal disease?
- a. Hemoglobin
  - b. Granular
  - c. Cellular
  - d. Waxy
14. Which of the following crystals may be found in acidic urine?
- a. Calcium carbonate
  - b. Calcium phosphate
  - c. Calcium oxalate
  - d. Triple phosphate
15. A 17-year-old female decided to go on a starvation diet. After one week of starting herself, what substance would be most likely to be found in her urine?
- a. Protein
  - b. Glucose
  - c. Ketone
  - d. Blood
16. Patients with diabetes mellitus have urine with.
- a. decreased volume and decreased specific gravity
  - b. decreased volume and increased specific gravity
  - c. increased volume and decreased specific gravity
  - d. increased volume and increased specific gravity
17. Calculate the creatinine clearance of a 22 years old man if the serum creatinine is .14mg/dL, urine creatinine=110mg/dl and urine volume =1600ml/24hrs (if surface body area was 1.73)?
- a. 290
  - b. 200
  - c. 175
  - d. 123
18. Rhabdomyolysis is characterized by elevated concentrations of serum and urine -----  
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- a. Glucose
  - b. Hemoglobin
  - c. ALP
  - d. Myoglobin A
19. D.latum is a fish tapeworm that causes -----in humans?
- a. anaemia
  - b. respiratory acidosis
  - c. hypokalemia
  - d. diabetes mellitus
20. which of the following best describes fasting blood glucose

- a. It is tested anytime of the day
- b. The patient has to take high intake of glucose before the test is done
- c. The patient has to starve for 15 hours before the test is done
- d. None of the above

**SECTION B: SHORT ANSWER QUESTIONS (40 MARKS) ANSWER ALL QUESTIONS**

1. State the Beer Lambert's law and its clinical significance ( 5marks)
2. Diabetes mellitus is a disease that happens when body cells cannot take up sugar for use in the body. Describe three types of diabetes mellitus.(6 marks)
3. Describe the clinical application of the following tests: (8marks)
  - i) Fasting blood glucose.
  - ii) 2-hour postprandial (2-hour PP).
  - iii) Oral glucose tolerance test (OGTT).
  - iv) Glycosylated hemoglobin.
4. The laboratory process are divided into three phases. Describe the three phases and the possible error that can occur in each phase?( 10 marks)
5. Explain the appropriate patient preparation and specimen collection for an oral glucose tolerance test. (6marks)
6. State five biomarkers of the liver function test?(5 marks )

**SECTION C: LONG ANSWER QUESTIONS (60 MARKS) ANSWER ALL QUESTIONS**

1. Describe the importance and classification of liver function test? (20marks)
2. Discuss urinalysis as a test in a clinical chemistry laboratory?
3. Explain spectrophotometry, types of spectrophotometers and its clinical applications?