

091905T4HRI
HEALTH RECORDS AND INFORMATION TECHNOLOGY LEVEL 5
HE/OS/HR/CR/04/5/A
APPLY MEDICAL INSTRUMENTATION
July /Aug 2023



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

Time: 3 hours

INSTRUCTIONS TO CANDIDATES

1. This paper has three sections **A**, **B** and **C**.
2. You are provided with a separate answer booklet.
3. Marks for each question are as indicated.
4. Do not write on the question paper.

This paper consists of 7 printed pages
Candidates should check the question paper to ascertain that all
pages are printed as indicated and that no questions are missing

SECTION A: (20 Marks)

Answer all questions in this section.

Each question carries one Mark.

1. A medical device is.
 - A. Any device intended to be used in theatre only
 - B. A device intended to be used by nurses and doctors
 - C. A device intended to be used for medical procedures
 - D. A tongue depressor and a pacemaker
2. The purpose of an endoscope is.
 - A. To measure blood pressure
 - B. To visualize internal body structures
 - C. To detect heart rate irregularities
 - D. To monitor oxygen saturation
3. Which medical imaging technique uses radioactive tracers to visualize internal body structures?
 - A. X-ray
 - B. MRI
 - C. Ultrasound
 - D. PET scan
4. The best way of increasing the lifespan of a medical device is.
 - A. Keeping the device in administrators' office
 - B. Employing only skilled personnel
 - C. Continuous regular check-up, maintenance and repair assessment
 - D. Import only Korean made equipment
5. The process done with CT to visualize the blood flow in the renal arteries is.
 - A. CT Angioplasty
 - B. CT Angiography
 - C. Simple CT
 - D. CT Cardiograph
6. Quality assurance is important because;
 - A. It improves clinical inefficiency
 - B. It increases production cost
 - C. It helps in avoiding medical device failure during critical procedures
 - D. None of the above

7. Which instrument is used to measure oxygen saturation in the blood?
 - A. Stethoscope
 - B. Pulse oximeter
 - C. Sphygmomanometer
 - D. Spirometer
8. The temperature of patient X on the Celsius scale is 34 °C, the temperature in Kelvin scale is
 - A. 319.15 K
 - B. 307.15K
 - C. 292.15K
 - D. 300.15 K
9. An example of an implantable medical device is.
 - A. X-ray machine
 - B. Ultrasound probe
 - C. Cochlear implant
 - D. Spirometer
10. Patient monitors are.
 - A. Medical equipment that keeps accurate track of a patient's vitals and state of health during intensive or critical care.
 - B. Equipment that are used to control heart fibrillation by application of an electric current to the chest wall or heart.
 - C. Machine designed to pass breathable air into and out of the lungs, to ease breathing for a patient who is feeling difficult to breathe.
 - D. Used mainly for patient and research purpose to diagnose disease by counting blood cells and monitor it.
11. What does the abbreviation PET stand for in PET scan?
 - A. Positron emission tomography
 - B. Positron examination technology
 - C. Photonic emission technique
 - D. Proton emission tomography

12. Which of the following is an example of a therapeutic medical device?
- A. Magnetic resonance imaging (MRI) machine
 - B. Dialysis machine
 - C. Endoscope
 - D. Pulse oximeter
13. A major advantage of MRI is:
- A. The ease with which equipment is updated or replaced.
 - B. It's relatively low cost, compared to CT scans.
 - C. It does not require specialized room
 - D. The ability to reposition the 'cross-section' through the body without repositioning the patient.
14. What is the purpose of a hemodialysis machine?
- A. To measure blood pressure
 - B. To visualize internal body structures
 - C. To regulate heart rhythm and blood flow
 - D. To filter waste products from the blood
15. Which of the following is used to monitor fetal heart rate during pregnancy?
- A. Electrocardiogram (ECG)
 - B. Electroencephalogram (EEG)
 - C. Ultrasound Doppler
 - D. Pulse oximeter
16. In liquid glass thermometer when bulb comes in contact with a hot object, the liquid inside it
- A. Contracts
 - B. Remains same
 - C. Expands
 - D. None of above
17. The penetrating power of X-rays increases with the
- A. Increase in its velocity
 - B. Increase in its frequency
 - C. Increase in its intensity
 - D. Decrease in its velocity

18. Contrasts are used in CT scan to?
- A. To suppress particular tissues
 - B. To help highlight the part of the body being examined
 - C. To ensure increase in ultrasonic transducers
 - D. To reduce bone interference
19. Which of the following is an example of an invasive medical procedure?
- A. Electrocardiography (ECG)
 - B. Ultrasound imaging
 - C. Colonoscopy
 - D. MRI scanning
20. The main factor to consider when purchasing a medical instrument is.
- A. Cost
 - B. Color
 - C. Country of origin
 - D. Available space in the facility

SECTION B: (40 MARKS)

*Answer **all** questions in this section.*

21. State FOUR ways of extending the lifespan of a medical equipment (4 Marks)
22. Differentiate between 'intended use' and 'indication for use' as used in medical equipment classification (4 Marks)
23. List FOUR factors contributing to healthcare diagnostic errors in hospitals by medical equipment (4 Marks)
24. Highlight FOUR disadvantages of not having quality assurance programs in hospital (4 Marks)
25. List FOUR medical equipment found in out-patient department (4 Marks)
26. Patients present with various clinical conditions that requires use of equipment and instruments to investigate. State FOUR clinical conditions. (4 Marks)
27. State FOUR ways of checking specific instruments for functionality. (4 Marks)
28. List FOUR drawbacks of digital thermometers (4 Marks)
29. Describe FOUR disadvantages of computerized tomography (CT) Scan (4 Marks)
30. Name FOUR types of blood pressure (BP) machines (4 Marks)

SECTION C: (40 Marks)

Answer any two questions in this section

31. When purchasing medical equipment, it is crucial to consider various factors to make an informed decision. Discuss TEN key factors to consider when purchasing medical equipment (20 Marks)
32. Maintenance of instruments is vital to increase the durability of an instrument.
- a) Outline FIVE ways through which a health records and information officer (HRIO) can take care of instruments in the central health records department. (10 Marks)
 - b) Decontamination and sterilization are important processes in maintenance of instruments and apparatus used in healthcare settings to free them from harmful microorganisms and make them safe for use. Describe FIVE methods of decontamination and sterilization. (10 Marks)
- 33.
- a) Explain FIVE functions of a quality assurance officer in a hospital (10 marks)
 - b) Describe FIVE Ways of effectively keeping laboratory equipment operational and preventing damage (10 Marks)

END