TEVETA

Technical Education, Vocational and Entrepreneurship Training Authority

DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY

LEVEL 6 YEAR I EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATIONS

SITTING: APRIL /MAY 2025

SUBJECT: OCCUPATIONAL SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT

TIME: THREE (3) HOURS **TOTAL MARKS: 100**

PASS MARK: 50

INSTRUCTIONS TO CANDIDATES

1. Write your Examination number and National Registration Card (NRC) number on the answer booklet provided. Ensure you append your signature in the space provided on the answer booklet.
2. Write the ANSWER SCRIPT SERIAL NUMBER on the examination register and the entry slip.
3. This paper has SEVEN (7) questions. Answer FIVE (5) questions.
4. Diagrams may be used where necessary to clarify your answer.
5. Cellphones and programmable calculators are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

QUESTION ONE

(a) Define the following terms:

(i) Risk. (2 marks)

(ii) Hazard. (2 marks)

(b) Explain the importance of safety signs and symbols in a workplace. (4 marks

(c) Describe four (4) basic categories of safety signs and symbols. (12 marks)

[Total: 20 marks]

QUESTION TWO

(a) State four (4) possible ignition sources in a workplace. (4 marks)

(b) With reference to the fire triangle, explain two (2) methods of extinguishing fires. (4 marks)

(c) Foam and carbon dioxide fire extinguishers have been fitted in the newly built Laboratory at Tazini Laboratory.

(i) State four (4) classes of fire and an extinguisher that can safely extinguish each one of the fires. (4 marks)

(ii) Explain the mode of action for each extinguisher in (i). (4 marks]

(iii) State four (4) disadvantages of each fire extinguisher in (i). (4 marks)

[Total: 20 marks]

QUESTION THREE

(a) What are the four (4) pathogens that cause communicable diseases? (4 marks)

(b) Explain three (3) modes of transmission of communicable diseases. (6 marks)

(c) Describe two (2) ways of preventing malaria. (4 marks)

(d) Explain three (3) ways of reducing occupational diseases. (6 marks)

[Total: 20 marks]

QUESTION FOUR

(a) Define the following terms:

(i) Noise Pollution. (2 marks)

(ii) Water Pollutant. (2 marks)

(b) State three (3) sources of pollution. (3 marks)

(c) Solid waste management is associated with the control of waste generation, its storage, collection, transfer and transport, processing and disposal in a manner that is in accordance with the best principles of public health, economics, engineering, conservation, aesthetics, public attitude and other environmental considerations.
List three (3) possible methods of disposal and state a limitation for each of the methods listed. (6 marks)

(d) Explain the Improper handling of waste. (5 marks)

[Total: 20 marks]

QUESTION FIVE

An accident has just occurred at Bombesheni Laboratory and one of the employees has been severely injured.

(a) State four (4) reasons for investigating the accidents by the employer. (4 marks)

(b) Describe the information that should be included in the investigation report. (6 marks)

(c) Explain five (5) ways of preventing accidents in the workplace. (10 marks)

[Total: 20 marks]

QUESTION SIX

(a) Explain the factors that should be considered when selecting personal protective equipment. (6 marks)

(b) Chemicals should be separated from each other by hazard class, whenever possible to avoid unwanted reactions in the event of a fire or due to leaking or broken containers. List four (4) hazard classes recommended for segregating chemicals in storage. (4 marks)

(c) Explain the reason for PPE to be considered a last resort in controlling occupational health hazards. (4 marks)

(d) State the parts of a typical material safety data sheet. (6 marks)

[Total: 20 marks]

QUESTION SEVEN

(a) Differentiate biological oxygen demand from chemical oxygen demand. (6 marks)

(b) Three water samples A, B, and C are collected. Their BOD was found to be 20mg/L, 8mg/L and 400mg/L respectively.

(i) State the sample that is mostly polluted and state a reason. (2 Marks)

(ii) Explain at which stage of sewage treatment is BOD of effluent reduced. (2 marks)

(c) BOD tests were conducted on a water sample. The incubation period was five days at 20 °C. The following was the data:

Sample volume = 20 ml; Volume of BOD bottle = 350 ml; at t=0 dissolved oxygen of diluted sample = 7.3 mg/l; at t=5 dissolved oxygen of diluted sample = 3.7 mg/l.

Calculate the Biological oxygen demand. (10 marks)

[Total: 20 marks]