UNIVERSITI KUALA LUMPUR
INSTITUTE OF MEDICAL SCIENCE TECHNOLOGY

FINAL EXAMINATION

OCTOBER 2025 SEMESTER

COURSE CODE	:	HGD30403
COURSE TITLE	:	ENVIRONMENTAL EVALUATION & ANALYSIS
PROGRAMME NAME	:	DIPLOMA IN ENVIRONMENTAL HEALTH
DATE	:	29 JANUARY 2026
TIME	:	9:00AM - 12:00PM
DURATION	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Section A consist 25 MCQ or EMQ questions. Answer ALL questions.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet. ☐ *Tick if applicable*
9. Refer to the attached Formula/ Appendies. ☐ *Tick if applicable*

THERE ARE 11 PAGES OF QUESTIONS INCLUDING THIS PAGE

SECTION A (Total: 25 marks)

Answer ALL questions.

Please use the objective answer sheet provided.

1. Precision in environmental measurements is best describes as the _____.

   A. degree of accuracy in a single measurement

   B. reliability of a measuring instrument

   C. proximity of measured values to the true value

   D. ability to obtain consistent results over multiple trials

2. What does accuracy refer to in the context of measuring environmental data?

   A. The closeness of a measurement to the true accepted value.

   B. The consistency of repeated measurements.

   C. The degree of confidence in a measurement.

   D. The ability to reproduce the same result under different conditions.

3. Which of the following statements best describes the relationship between accuracy and precision?

   A. High accuracy ensures high precision.

   B. High precision guarantees high accuracy.

   C. Accuracy and precision are independent of each other.

   D. Accuracy and precision are unrelated concepts in measurement.

4. What does the term 'sampling' refer to in the context of environmental data collection?

   A. Conducting data surveys without a specific plan.

   B. Collecting a representative subset of data from a larger population.

   C. Analyzing all available data.

   D. Ignoring outliers in the dataset.

5. Diffusion causes pollutants to move from _____.

   A. solid to gas

   B. low to high concentration

   C. high to low concentration

   D. water to soil

6. Advection refers to pollutant movement due to _____.

   A. biological uptake

   B. sedimentation

   C. chemical reaction

   D. water or air flow

7. Fate of a pollutant refers to its _____.

   A. color

   B. source of emission

   C. behaviour in the environment

   D. price

8. Soil pH affects the _____ of the soil.

   A. rainfall

   B. temperature

   C. wind speed

   D. nutrient availability

9. Soil analysis helps determine _____.

   A. air quality

   B. noise level

   C. water depth

   D. soil fertility

10. Plant analysis is used to assess _____.

   A. soil erosion

   B. water pollution

   C. noise pollution

   D. nutrient status of plants

11. Biological Oxygen Demand (BOD) measures _____.

   A. organic pollution

   B. salinity

   C. water hardness

   D. acidity

12. Dissolved oxygen (DO) is important for _____.

   A. soil fertility

   B. air quality

   C. noise control

   D. aquatic life

13. pH of water indicates _____.

A. temperature

B. salinity

C. acidity or alkalinity

D. turbidity

14. Which method measures light absorption?

A. Spectrophotometry.

B. Gravimetry.

C. Titration.

D. Filtration.

15. The main purpose of sample preservation is to _____.

A. reduce sampling cost

B. increase sample volume

C. improve instrument sensitivity

D. prevent chemical and biological changes

16. Environmental analysis mainly focuses on the measurement of _____.

A. social behaviour

B. economic indicators

C. industrial profit

D. environmental pollutants and parameters

17. Random errors are best described as _____.

A. errors with consistent bias

B. predictable errors

C. errors that vary unpredictably

D. errors due to poor calibration

18. Which type of error occurs due to the faulty instruments?

A. Random error.

B. Sampling error.

C. Systematic error.

D. Gross error.

19. Water quality monitoring is important to _____.

A. improve water color

B. reduce rainfall

C. protect human health

D. increase water price

20. Hardness of water is caused by the presence of _____.

A. calcium and magnesium

B. sodium and potassium

C. iron and zinc

D. chloride and sulfate

21. Gravimetric analysis is based on _____.

A. electrical conductivity

B. color change of the analyte

C. mass measurement

D. light absorption

22. Environmental models are used to _____.

A. treat waste

B. store samples

C. measure directly in lab

D. predict pollutant behaviour

23. Cooling samples to 4°C is done to _____.

A. improve color

B. dry the sample

C. increase concentration

D. prevent microbial activity

24. Plant samples are usually dried to _____.

A. change color

B. increase moisture

C. prevent decomposition

D. increase the size

25. Precision in measurements indicates _____.

A. repeatability of results

B. true value

C. detection limit

D. instrument sensitivity

SECTION B (Total: 75 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

Answer all the following questions.

(a) Briefly explain the importance of water sampling for environmental monitoring.

(5 marks)

(b) Discuss five (5) parameters that should be analyzed during water sampling.

(10 marks)

(c) Examine four (4) common challenges in water sampling and provide strategies that can be done to overcome those challenges. You should describe the importance of proper water sampling techniques in ensuring accurate and reliable results.

(10 marks)

Question 2

Please answer all the following questions.

(a) Interpret measurement error in environmental analysis.

(5 marks)

(b) Discover THREE (3) types of measurement errors commonly found in environmental laboratories.

(12 marks)

(c) Examine FOUR (4) methods used to reduce measurement errors during laboratory analysis.

(8 marks)

Question 3

Please answer all the following questions.

(a) Interpret indoor air quality (IAQ), by including symptoms with poor IAQ.

(6 marks)

(b) Discuss FIVE (5) common indoor air pollutants with the sources.

(10 marks)

(c) Discuss FOUR (4) factors affecting indoor air quality.

(9 marks)

Question 4

Please answer all the following questions.

(a) Examine the importance of proper environmental sample collection.

(5 marks)

(b) Discover the steps involved in correct sample handling from field to laboratory.

(10 marks)

(c) Examine FIVE (5) techniques used for environmental sample preservation.

(10 marks)

END OF EXAMINATION PAPER