EVELYN HONE COLLEGE

INTERMEDIATE EXAMINATION

FOR

DIPLOMA IN ENVIRONMENTAL HEALTH TECHNOLOGY

WATER QUALITY MANAGEMENT II (WQM 232)

THEORY

June, 2015

SECTION A: MCQ: [40 Marks]

Q1. A pit latrine in Missis Compound and stagnant water in Kabulonga Compound are examples of

A. Pathway factors

B. Hazard factors

C. Direct assessment

D. None of the above

Q2. Chloroamines are an example of

A. Radioactive materials

B. DBPs

C. Water pollutants

D. Water colouring compounds

Q3. A white lab coat can been stained brick-red by washing it in borehole water high in;

A. Fluorine

B. Calcium carbonate

C. Iron

D. Aluminum

Q4. The main reason for residue chlorine in drinking water at household level in rural areas is to;

A. Disinfect water in distribution lines.

B. Prevent recontamination

C. Improve the colour of water

D. All of the above

Q5. *Nitrosomonas* can convert _____ to_____in the distribution system.

A. nitrites to nitrates

B. nitrates to nitrites

C. nitrates to nitrogen

D. nitrogen to nitrates

Q6. Conductivity is measured in

A. CFU

B. NTU

C. µs/cm

D. None of the above

7. The optimum pH for chlorination is

A. pH below 5

B. pH above 5

C. pH 7

D. pH above 7

Q8. The greater the turbidity,

A. the murkier the water

B. the higher the chance of DBP formation

C. the lesser the disinfection efficiency

D. All of the above

Q9. Iron and Sulphur bacteria cause

A. corrosion of water pipes

B. diarrhea

C. typhoid

D. Cancer

Q10: Conductivity is NOT affected by

A. Ion concentration

B. Mobility of ions

C. Valence

D. Oxygen concentration

Q11. Chlorine demand is

A. the amount of chlorine added to water.

B. Chlorine added minus residual chlorine

C. Chlorine used plus residual chlorine

D. Chlorine which does not react with water

Q12: Which one of the following is NOT an effect of pipe corrosion.

A. Colour

B. Taste

C. Odour

D. pH

Q13: A method where chemicals in water are analysed by titration with a standardized titrant is known as

A. Colometric method

B. Ion- selective method

C. Volumetric analysis

D. Non of the above

Q14: A measure of the extent to which a water supply project achieves its set objectives is the

A. Efficiency

B. Effectiveness

C. Impact

D. All of the above

Q15: In Mass spectrometry, chemicals in water are separated based on mass and

A. Velocity

B. Wavelength

C. Light

D. Concentration

Q16: Water quality surveillance promotes improvement of water

A. Quality

B. Quantity

C. Coverage

D. All of the above

Q17: The direct assessment approach does not involve

A. A sanitary inspection

B. Testing of water

C. Analysis of water

D. Review of water quality records

Q18: Which one of the following is NOT a hazard factor?

A. Animal husbandry

B. Sewers

C. Leaking pipe

D. Pit latrines

Q19: In the Presence-Absence Test, a positive result is indicated by a _____ colour.

A. Blue

B. Pink

C. Black

D. Yellow

Q20. In the DPD calorimetric test, the concentration of residual chlorine is proportional to the formation of a _____ colour.

A. Pink

B. Blue

C. Black

D. Yellow

Q21. In the Presence-Absence Test, the incubation temperature is

A. 35°C

B. 20°C

C. 45°C

D. 25°C

Q22: CFU refers to

A. Culture Forming Units

B. Coliform Forming Units

C. Colony Forming Units

D. Colour Forming Units

Q23. Which element does NOT cause taste problems in drinking water?

A. Aluminium

B. Chloride

C. Iron

D. Manganese

Q24. Which chemical causes browning of teeth especially among people from India, China and Central Africa?

A. Manganese

B. Iron

C. Fluoride

D. All of the above

Q25. The bacterial analysis method which uses statistical tables is

A. MPN

B. Membrane Filtration Technique

C. Presence-Absence Test

D. All of the above

Q26. Excess _____ in drinking water is associated with memory loss.

A. Radon

B. Aluminium

C. Iron

D. Flouride

Q27. Why is coliform bacteria used as an indicator of poor water quality?

A. Indicates acid rain

B. Indicates high Oxygen levels

C. Indicates fecal contamination

D. Indicates high nitrate levels

Q28. All of the following are critical parameters EXCEPT

A. pH

B. Turbidity

C. Residual chlorine

D. Colour

Q29. The quality of drinking water can be influenced by

A. Gases and aerosols from the atmosphere

B. Weathering and erosion of rocks and soils

C. Human activities

D. All of the above

Q30. In membrane filtration, a very large number of colonies are recorded as

A. TNTC

B. TFTC

C. TMTC

D. Not potable

Q31. Water quality surveillance involves

A. Testing

B. Sampling

C. Inspection

D. All of the above

Q32: During sampling, the collected water sample must always be

A. Sterile

B. Clean

C. Good

D. Representative

Q33: Which one of the following is NOT a physical parameter?

A. TSS

B. pH

C. Nitrate

D. Conductivity

Q34: The water testing method which uses bromocresol indicator is

A. Pour Plate

B. Volumetric Analysis

C. Presence-Absence Test

D. MPN

Q35: Which one of the following affects chlorination efficiency?

A. pH

B. Turbidity

C. Organic Matter

D. All of the above

Q36: Which one of the following is NOT responsible for diarrhea in children under 5 years.

A. Coliforms

B. Helminths

C. Rotaviruses

D. Salmonella

Q37: Collected water samples must be tested within _____ hours.

A. 30

B. 24

C. 12

D. 48

Q38: The simplest method of testing for residual chlorine in water is by

A. Titration

B. Using a lovibond comparator

C. Membrane Filtration

D. All of the above

Q39: Monitoring and evaluation of water supply projects does NOT focus on

A. Quality

B. Efficiency

C. Effectiveness

D. Impact

Q40: Which one of the following is NOT a coliform?

A. *E coli*

B. *Feacal streptococci*

C. *Salmonella typhi*

D. All of the above

SECTION B TRUE OR FALSE Answer all [10 Marks]

1. Membrane filtration is able to give the number of pathogenic bacteria. True or False

2. Indicator organisms originate from a faecal source and are pathogenic. True or False

3. Biofilms in distribution pipes can cause taste and odour problems. True or False

4. Nitrates cause “blue baby” syndrome. True or False

5. All total coliforms originate from a faecal source. True or False

6. A positive result for the hydrogen sulphide test is a colour change to blue. True or False

7. Temperature is a WHO critical parameter. True or False

8. Water with CFU of 1/100ml is safe for consumption. True or False

9. Aluminium is responsible for white solid deposits in pots used for boiling water. True or False

10. The ideal indicator organism has not yet been discovered. True or False

SECTION C SHORT ANSWER QUESTIONS Answer all [30 Marks]

1. What is the JAR test and its importance in water quality.

2. Briefly describe the types of data that must be collected when planning a water supply project.

3. Describe how pathogens can be detected using the Presence-Absence Test.

4. Write short notes on any six chemical parameters.

5. Describe how a sanitary inspection for a hand-dug well can be conducted.

6. Write short notes on the types of Evaluation.

SECTION D ESSAY QUESTIONS Choose any two.[20 MARKS]

1. With specific examples, explain in detail what is meant by indicator organisms.

2. Describe the membrane filtration technique.

3. Describe the characteristics of a good water distribution system.