



UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 1 Examination in Engineering: October 2019

Module Number: CE1101

Module Name: Basic Concepts in Environmental Engineering

SECTION – A

[One Hour]

[Answer all questions in the Exam Paper itself. Total Marks 30]

Index Number:

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- Underline the BEST answer for the questions 1 to 20.
 - Each question carries **1.0 Mark**.
 - Please note that wrong answer will result in **NEGATIVE** marks (- 0.25 Marks for each wrong answer) for only the **MCQ questions 1 to 20**.
 - Negative marks of this section will **NOT** carry forward to other sections.
 - Questions not attempted will result in zero mark.
 - **Total Marks= 20**

- 1) What are three pillars of Sustainable Development?
 - a) Environment + Culture + Society
 - b) Environment + Society + Humanity
 - c) Environment + Economy + Society
 - d) Environment + Humanity + Culture

- 2) Greenhouse gas enhances the absorbing and infrared radiation toward the earth
 - a) reemitting
 - b) trapping
 - c) evaporating
 - d) conducting

- 3) Earth is already showing many signs of worldwide climate change. Average temperatures have climbed degree Celsius around the world since 1880.
 - a) 0.5
 - b) 1.5
 - c) 5
 - d) 8

- 4) Which of these is NOT an expected effect of climate change?
- a) Forest fires
 - b) Flooding in coastal cities
 - c) Expanding glaciers
 - d) Extreme weather condition
- 5) Which one of the following gases is NOT included in the category 'greenhouse gases'?
- a) Methane
 - b) Argon
 - c) Carbon dioxide
 - d) Nitrous oxide
- 6) In a polluted river with mercury, which one of the following may contain the maximum amount of mercury?
- a) River plants
 - b) Microscopic animals
 - c) Big fish
 - d) Water birds
- 7) Which one of the following is the standard unit of Hardness in water?
- a) mg/L as Mg
 - b) mg/L as Ca
 - c) mg/L as CaCO_3
 - d) Both a) and b)
- 8) High *E.coli* counts in water indicate;
- a) High nutrient concentration.
 - b) Contamination by human sewerage.
 - c) Phosphorus contamination.
 - d) High level of hardness
- 9) Which one of the following is NOT a 'renewable' energy source?
- a) Solar
 - b) Crude Oil
 - c) Wave
 - d) Hydro power

- 10) All the following are considered Toxic Metal pollutants in water, EXCEPT
- a) Mercury
 - b) Cadmium
 - c) Sodium
 - d) Lead
- 11) What is the approximate per capita freshwater availability in Sri Lanka?
- a) 250 m³/year
 - b) 2500 m³/year
 - c) 25000 m³/year
 - d) 25000 L/year
- 12) The Protocol which binds 38 industrialized countries to reduce greenhouse gas emissions by an average of 5.2% below 1990 levels for the period of 2008-2012 is known as;
- a) Tokyo Protocol
 - b) Kyoto Protocol
 - c) Paris Protocol
 - d) UN Protocol
- 13) The journey of water, from being collected in forested catchments to returning to the natural water cycle as purified wastewater, is called as;
- a) Urban water cycle
 - b) Water treatment
 - c) Natural hydrological cycle
 - d) Hydrological movement
- 14) Which of the following is NOT considered as Physical Water Quality parameter?
- a) Temperature
 - b) Turbidity
 - c) Colour
 - d) Hardness
- 15) What is the average per capita daily water demand in Sri Lanka?
- a) 20 L
 - b) 120 L
 - c) 100 m³
 - d) 50 L

- 16) There are 2 levels of environmental impact assessment process in Sri Lanka. One is EIA and the other is IEE. What is meant by IEE?
- Impact Evaluation Examination
 - Initial Environmental Examination
 - Industrial Environment Evaluation
 - Impact of Environmental Examination
- 17) How much greater is the $[H^+]$ in a solution with pH 1 than in a solution with pH 5?
- 4 times
 - 10,000 times
 - 40,000 times
 - 100,000 times
- 18) Which one of the following is **NOT** correct on "Turbidity" in a lake?
- High turbidity may decrease the DO level
 - High turbidity can clog the fish gills
 - High turbidity may reduce the photosynthesis process
 - High turbidity may reduce the water temperature
- 19) It was found that the suspended solid concentration of a 100 mL water sample is 29 mg/L. What will be the "dissolved solid concentration" of this sample if the total solid concentration is 229 mg/L.
- 2000 mg/L
 - 200 mg/L
 - 258 mg/L
 - 2580 mg/L
- 20) The "Brown or Brackish" color of groundwater may be caused by
- Iron Oxides
 - Manganese Oxides
 - Calcium Oxides
 - Both b) and c)

- Filling the blanks with most appropriate word/s for questions 21 to 29.
- Each fill blank carries 1 Mark
- No Negative marks for questions 21 to 29
- Questions not attempted will result in zero mark.
- Total Marks= 10

- 21) _____ is a measure of water clarity and it reduces the transmission of light into water.
- 22) Conductivity is not a pollutant itself but serves as an indicator of the presence of pollutants. is measured in _____.
- 23) Precipitation with a pH around 2 is called "acid rain" and is due to air pollution by _____ from vehicles and power plants.
- 24) _____ hardness is especially important since it leads to scaling in kettles or pipes.
- 25) _____ is defined as the increase in concentration of a pollutants in an organism or a part of that organism.
- 26) _____ are harmful microorganisms (bacteria and viruses) that cause disease.
- 27) The environment around us can be categorized into Two basic factors. One is "Abiotic" Factors and the other is _____ Factors.
- 28) _____ is the formal process of assessing the likely environmental impacts of a proposed project and identifying options to minimize environmental damage.
- 29) Excessive intake of fluoride causes fluorosis, such as _____ fluorosis and _____ fluorosis.

