

Seat No.
-------------

Total No. of Pages : 10

**Ph. D. Entrance Examination**  
**Environmental Engineering**  
**Subject Code : 58749**

---

**Day and Date : Wednesday, 13-11-2024****Total Marks : 100****Time : 10.00 am to 12.00 noon**

---

**Instruction :**

1. All questions are compulsory.
  2. All questions carry 2 marks.
  3. Negative Marking System WILL NOT BE followed
- 

1. Acidity in water is caused due to
  - a. Mineral acids
  - b. Free CO<sub>2</sub>
  - c. Iron Sulphate
  - d. All of these
2. Biochemical Oxygen Demand (B.O.D.) of safe drinking water must be
  - a. Nil
  - b. 5
  - c. 10
  - d. 15
3. The electrostatic precipitator is used to control
  - a. Oxides of Sulphur
  - b. Suspended Particulate matter
  - c. Oxides of Nitrogen
  - d. All of these

4. The term "garbage" refers to
  - a. Food waste
  - b. Plastics
  - c. Municipal Waste water
  - d. Ashes
5. If pH value of water is
  - a. 7 water it is said to be neutral
  - b. less than 7 it is said to be acidic
  - c. more than 7 it is said to be alkaline
  - d. all the above
6. The common phenomenon of environmental lapse rate is observed in
  - a. stratosphere
  - b. Mesosphere
  - c. Troposphere
  - d. Ionosphere
7. A high velocity of wash water is required for
  - a. Rapid Gravity Filter with strainers
  - b. Rapid Gravity Filter without strainers
  - c. Slow sand Filter with strainers
  - d. Slow sand Filter without strainers
8. The correct relationship between Total Organic Carbon (TOC), Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) is given by
  - a.  $TOC > BOD > COD$
  - b.  $TOC > COD > BOD$
  - c.  $COD > BOD > TOC$
  - d.  $BOD > COD > TOC$

9. Iron and Manganese can be removed from waters by
- a. Boiling
  - b. Aeration followed by Coagulation
  - c. Chlorination
  - d. Activated carbon addition
10. The maximum allowable concentration of iron in water is
- a. 1 ppm
  - b. 0.05ppm
  - c. 0.3ppm
  - d. 0.03ppm
11. Methemoglobinemia is caused due to drinking of water having excess of
- a. Fluorides
  - b. Iron
  - c. Hardness
  - d. Nitrates
12. MPN index is a measure of which of the following
- a. B.O.D
  - b. Hardness
  - c. D.O Content
  - d. Coliform Bacteria
13. The maximum allowable concentration of Lead for domestic supplies
- a. 0.01 ppm
  - b. 0.05ppm
  - c. 0.5ppm
  - d. 1ppm
14. The effective size of sand particles for Rapid sand filters varies from
- a. 0.30-0.35mm
  - b. 0.35-0.5mm
  - c. 0.50-0.65mm
  - d. 0.65-0.75mm
15. The Coagulant used for treating sewage is
- a. Alum
  - b. Iron salt
  - c. Chlorinated Copper
  - d. None of these

16. Acid Rain may occur
- a. Equally in all regions
  - b. Predominantly in arid regions
  - c. Predominantly in tropical regions
  - d. Predominantly in temperate regions
17. What does super saturation of a water body with DO cause?
- a. Eutrophication
  - b. Gas bubble disease in fish
  - c. Methaemoglobinemia
  - d. Endemic goiter
18. Sound pressure level (dB) can be expressed as
- a.  $20 \log_{10} (\text{Reference pressure} / \text{Measured pressure})^{0.5}$
  - b.  $20 \log_{10} (\text{Reference pressure} / \text{Measured pressure})$
  - c.  $20 \log_{10} (\text{Measured pressure} / \text{Reference pressure})^{0.5}$
  - d.  $20 \log_{10} (\text{Measured pressure} / \text{Reference pressure})$
19. A Grit Chamber having higher detention period is called
- a. Grit basin
  - b. Detritus tank
  - c. Vaccuator
  - d. Grit Channel
20. Air Binding may occur in
- a. Sewers
  - b. Artesian well
  - c. Aerator
  - d. Filters

21. Period of Cleaning Slow sand filter is about
- a. 24 to 48 hours
  - b. 10 to 12 days
  - c. 1 to 3 months
  - d. 1 to 2 years
22. Trickling filters are used to remove
- a. Suspended solids
  - b. Colloidal solids
  - c. Organic matter
  - d. Pathogenic bacteria
23. Which type of Plume may occur during winter nights.
- a. Looping
  - b. Inversion
  - c. Coning
  - d. Lofting
24. Which one of the following methods can be employed for plastic and rubber waste disposal
- a. Incineration
  - b. Composting
  - c. Pyrolysis
  - d. Sanitary Landfill
25. The pH of fresh sewage is usually
- a. Less than 7
  - b. More than 7
  - c. Equal to 7
  - d. Equal to zero
26. What do you consider as the main aim of inter disciplinary research
- a. To bring out holistic approach to research
  - b. To reduce the emphasis of single subject in research domain
  - c. To over simplify the problem of research
  - d. To create a new trend in research methodology

27. One of the aims of scientific method in research is to
- a. eliminate spurious relation
  - b. Improve data interpretation
  - c. Confirm triangulation
  - d. Introduce new variables
28. The depth of any research can be judged by
- a. Title of the research
  - b. Total expenditure on research
  - c. Duration of research
  - d. Objectives of research
29. The First step of research is
- a. Identification of Problem
  - b. Searching a Problem
  - c. Selecting a Problem
  - d. Finding a Problem
30. Research can be conducted by a person who
- a. Holds a Postgraduate degree
  - b. Has studied Research. Methodology
  - c. Possesses Reasoning ability.
  - d. Is a Hard worker

31. Fundamental research reflects the ability to
- a. Synthesis new ideas
  - b. Expound new principles
  - c. Evaluate the existing materials
  - d. Study the existing research regarding various topics
32. Bibliography given in a research project
- a. Helps those interested in further research
  - b. Has no relevant to research
  - c. Shows vast knowledge of researcher
  - d. All of these
33. To test Null Hypothesis, a researcher uses
- a. T test
  - b. ANOVA
  - c. X<sup>2</sup>
  - d. Factorial Analysis
34. A ratio represents the relation between
- a. Part and part
  - b. Part and Whole
  - c. Whole and whole
  - d. All the above
35. We use Factorial Analysis
- a. To know the relationship between two variables
  - b. To test the hypothesis
  - c. To know the difference between two variables
  - d. To know the difference among many variables

36. Generalized Conclusion on the basis of a sample is technically known as
- a. Data analysis and interpretation
  - b. Parameter inference
  - c. Statistical inference
  - d. All the above
37. Field Work based research is classified as
- a. Empirical
  - b. Historical
  - c. Experimental
  - d. Biographical
- 38: When a research problem is related on heterogeneous population, the most suitable sampling method is
- a. Cluster sampling
  - b. Stratified sampling
  - c. Convenient Sampling
  - d. Lottery Method
39. The research that applies the laws at the time of field study to draw more and more clear ideas about the problem is
- a. Applied research
  - b. Experimental Research
  - c. Action Research
  - d. None of these
40. How can the objectivity of the research be enhanced
- a. Through its impartiality
  - b. Through its reliability
  - c. Through its Validity
  - d. All of these



41. The Process not needed in the experimental research is
- a. Manipulation and replication
  - b. Observation
  - c. Controlling
  - d. Content Analysis
42. The Research is Always.
- a. Verifying the old knowledge
  - b. Exploring new knowledge
  - c. Filling the gap between knowledge
  - d. All of these
43. Research is
- a. Searching again and again
  - b. Finding solution to any Problem
  - c. Working in a scientific way to search for truth of any problem
  - d. None of the above
44. Which one of the following is not a source of data
- a. Population data
  - b. GIS
  - c. Census
  - d. Administrative records
45. Research is considered not ethical if
- a. Tries to prove a particular point
  - b. Does not ensure privacy of the respondent
  - c. Does not investigate the data scientifically
  - d. Is not of very high standard
46. Newton gave three basic laws of motion
- a. Descriptive research
  - b. Sample survey
  - c. Fundamental Research
  - d. Applied research

47. A research paper is a brief report of research work based on
- a. Primary data only
  - b. Secondary data Only
  - c. Primary and secondary data only
  - d. None of these
48. Workshops are meant for
- a. Giving Lectures
  - b. Multiple target groups.
  - c. Showcase new theories
  - d. Hands on training/experience
49. A hypothesis is a
- a. Law
  - b. Postulate
  - c. Canon
  - d. Supposition
50. Controlled group condition is applied in
- a. Survey research
  - b. Historical research
  - c. Experimental Research
  - d. Descriptive research



**- ROUGH WORK -**