



# GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT (GITAM)

(Deemed to be University)

(Estd. u/s 3 of the UGC Act, 1956), NAAC Accredited with 'A+' Grade

Visakhapatnam | Hyderabad | Bengaluru

## GITAM Institute of Science

Department of Chemistry

PhD Entrance Test 2020-21

Model-Question paper

Duration: 2 hours

Max Marks: 140

**Note :** This is a sample paper. The main examination paper will be online and consists of 35 questions each in section A and section B

### Section A: Research Methodology

1. Research is
  - a. ability to teach a given topic
  - b. obtaining information in a particular field
  - c. ability to analyze
  - d. a scientific and systematic data collection and analysis
2. Which of the following is the first step in starting the research process?
  - a. Searching sources of information to locate problem.
  - b. Survey of related literature
  - c. Identification of problem
  - d. Searching for solutions to the problem
3. Which of the following regarding research is true
  - a. Its, defining problems, formulating hypothesis or suggesting solutions;
  - b. Collecting, organizing and evaluating data;
  - c. Making deductions and reaching conclusions
  - d. All the above
4. The purpose of research is best described as
  - a. Formulating questions and finding answers
  - b. Discovering lacunae in available knowledge
  - c. Obtaining data by observation or experiments
  - d. Identifying pertinent questions and obtaining answers through the application of scientific procedures.
5. Research design strategy encompasses all of the components below except \_\_\_\_\_.
  - a. data collection design
  - b. sampling design
  - c. instrument development
  - d. data analysis
  - e. all of the above are part of the design strategy
6. Research design strategy encompasses all of the components below except \_\_\_\_\_.
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7. Which one of the following is not true of the Descriptive research
- Research carried out to using questionnaires and survey
  - Researcher has control over the variables
  - Study is only observation and data collection
  - Study is used to assess the states of affairs, for a particular object
8. What purpose do clearly stated objectives serve
- state clearly how the research will be done and what conclusions are expected
  - state clearly what the research intends to contribute and justifies the research being carried out
  - state clearly what the research intends to contribute and details how the research will be done
  - states clearly in detail how research will be done and justify why research is being carried out
9. Taking the idea that the more under stress a person is the more he is depressed, who would be the correct hypothesis
- people under more stress are likely to be less depressed
  - greater stress is associated with low levels of depression
  - stress is positively linked with depression
  - none of these
10. "Individuals who face malnutrition as a child show low immunity" If this is the alternate hypothesis, which of the below statements would be the correct null hypothesis?
- Individuals who face malnutrition as a child show high immunity.
  - Individuals who are well nourished as a child show low immunity"
  - Individuals who face malnutrition as a child have similar immunity as, well nourished ones.
  - None of the above

## Section B: Chemistry

1. The gas burden from conventional LC flow rates creates nearly \_\_\_\_\_ times more gas than cryo-pumped vacuum system can handle.
- 5
  - 10
  - 20
  - 40
2. Which of the following should be in a position to split the effluent?
- Interface
  - Ion source
  - Makeup gas
  - Microbore
3. Which of the following is the most commonly used interface?
- Nebulizer
  - Chopper
  - Filter
  - Vapourising chamber

4. Only \_\_\_\_\_ percent of the effluent of the liquid chromatography must be introduced in the mass spectrometer.
- 1-2 %
  - 1-5 %
  - 1-20 %
  - 1-15 %
5. Which of the following is the normal nebuliser temperature used in LC mass spectrometry?
- 50-100°C
  - 100-200°C
  - 125-150°C
  - 150-200°C
6. The system for measurement of ion intensity in GS-MS system consists of which of the following?
- Electrometer
  - Ion meter
  - Ion transducer
  - Intensity meter
7. The system for measurement of ion intensity in GS-MS system consists of which of the following?
- Band pass amplifier
  - Narrow band amplifier
  - Wide band amplifier
  - Low pass amplifier
8. Which of the following is not a component of mass spectrometer?
- Inlet system
  - Sweep generator
  - Ion transducer
  - Mass analyser
9. Which of the following can be introduced into the ionization chamber directly?
- Solid samples with low vapour pressure
  - Solid samples with high vapour pressure
  - Liquid samples with low density
  - Liquid samples with high density
10. Inlet system is also known as which of the following?
- Initial system
  - Sample reservoir
  - Sample handling system
  - Element injection system