



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 Microbiology & FST

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 _____.
 - a. data collection design
 - b. sampling design
 - c. instrument development
 - d. data analysis
 - e. all of the above are part of the design strategy

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: Microbiology

1. Which of the following does not protect us from microorganism
- Skin
 - Mucus
 - Gastric acid
 - Salivary amylase
2. The TLR 9 pattern recognition receptor recognizes
- CpG motifs
 - Gram -ve LPS
 - Gram +ve peptidoglycan
 - ds RNA
3. Complement component C3 is cleaved by
- C3b
 - C3bBb
 - Factor B
 - Factor D
4. Which of the following is chemical sequencing method

- a. DNA chip sequencing
- b. Edman's method
- c. Sanger's method
- d. Maxam- Gilbert method

5. Pattern recognition receptor (PRR) include:

- a. LPS
- b. PMPs
- c. Lectin-like molecule
- d. d)Lipoteichoic acid

6. Which of the following is not produced following activation of the NADPH oxidase microbicidal pathway

- a. O₂
- b. H₂O₂
- c. NO
- d. OH

7. What is the natural function of restriction enzymes?

- a. Protecting bacteria by cleaving the DNA of infecting viruses
- b. Protecting bacteria by cleaving their own DNA
- c. Protecting bacteria by methylating their own DNA
- d. Protecting bacteria by methylating the DNA of infecting viruses

8. RT-PCR is a method that is used for

- a. analysis of mRNA expression
- b. forensic analysis of DNA
- c. amplification of genomic DNA sequences
- d. amplification of mRNA sequences

9. Type 1 hypersensitivity can be blocked using

- a. Histamine
- b. An Ig A myeloma
- c. IL-5
- d. Sodium chromoglycate

10. Which of the following methods for introducing DNA into cells is used only for plants?

- a. A gene 'gun'
- b. Electroporation
- c. Microinjection
- d. Transformation of competent cell