



# 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 Biotechnology

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: Biotechnology

1. Infra-red radiation spans which section of electromagnetic spectrum?
- 400 nm - 1 nm
  - 750 nm - 400 nm
  - 1 mm - 25  $\mu\text{m}$
  - 25  $\mu\text{m}$  - 2.5  $\mu\text{m}$
2. Isotopes are the atoms with the same number of
- Protons and varying number of electrons
  - Neutrons and varying number of protons
  - Protons and varying number of neutrons
  - electrons and varying number of neutrons
3. Which of the following webserver is used to identify protein domains
- Swissprot
  - fastSCOP
  - LMSD
  - TrEMBL

4. Identification of parasitic cysts can be done by
- Albert's staining
  - Lugol's staining
  - Moeller's staining
  - Indian ink preparation
5. In scanning electron microscopy, biological samples are coated with \_\_\_\_\_ metal ions
- Gold
  - Mercury
  - Magnesium
  - Calcium
6. ELISA is a
- Ex citu assay
  - In vitro assay
  - In silico assay
  - In vivo assay
7. Which of the following is used for transfer of protein in western blot
- Whatman filter paper
  - PVDF
  - X-ray film
  - Normal Tissue paper
8. Which of the following counter is generally used in RIA
- Alpha Counter
  - Beta Counter
  - Gamma Counter
  - Delta Counter
9. Which of the following process require energy
- Ligation
  - Transformation
  - Restriction digestion
  - Hybridization
10. T4 polynucleotide kinase is used for
- Labelling 3'-end of DNA
  - Labelling 5'-end of DNA
  - Creating blunt ends of DNA
  - Dephosphorylation of DNA