



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 Physics & Electronics

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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 - 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: ELECTRONICS

1. A current ratio of I_C/I_B is usually less than one and is called:
- Beta
 - theta
 - alpha
 - omega
2. With a PNP circuit, the most positive voltage is probably:
- Ground
 - V_C
 - V_{BE}
 - V_{CC}
3. If a 2 mV signal produces a 2 V output, what is the voltage gain?
- 0.001
 - 0.004
 - 100
 - 1000

4. A JFET is also called, transistor
- unipolar
 - bipolar
 - unijunction
 - none of the above
5. In a p-channel JFET, the charge carriers are
- electrons
 - holes
 - both electrons and holes
 - none of the above
6. The trans-conductance curve of a JFET is a graph of:
- I_S versus V_{DS}
 - I_C versus V_{CE}
 - I_D versus V_{GS}
 - I_D versus R_{DS}
7. A MOSFET is sometimes called, JFET
- Many gate
 - open gate
 - insulated gate
 - shorted gate
8. The differential gain is,
- Very high
 - Very low
 - dependent on input voltage
 - about 100
9. A voltage follower,
- Has a voltage gain of 1
 - is non inverting
 - has no feedback resistor
 - has all of these
10. An ideal operational amplifier has
- Infinite output impedance
 - Zero input impedance
 - infinite bandwidth
 - All