



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 Technology

Department of Electronics And Communication Engineering

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. Essence of both basic and applied research lies in
 - a. market orientation
 - b. scientific method
 - c. performance monitoring research
 - d. costing methods
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. Before searching you should define the timeframe of your search. Why?
 - a. So, you don't find the library busy
 - b. So, you find the most articles
 - c. So, you work when you are most efficient
 - d. So, you do not incur unnecessary costs
4. Why is it important for a researcher to review the literature?
 - a. Because it is traditional
 - b. Because it will find if anyone has done the work before
 - c. Because it identifies like-minded researchers
 - d. Because it shows time has been spent on the subject
5. The literature review will examine:
 - a. all aspects of a topic
 - b. only facts
 - c. only one side of the main argument
 - d. only opinions
6. What do you think might happen if you started a research project, but hadn't written any clear research objectives?
 - a. Confusion about the limits of study
 - b. Collection of data is unlimited
 - c. Identify barriers and concerns
 - d. Only a is correct
 - e. Both a & b is correct

7. Surveying the literature involves
- narrow the problem itself
 - identify the gaps
 - limited information about the existing theories
 - b is correct
 - both a & b is correct
8. The purpose of attribution is
- similar to citation
 - not similar to citation
 - used to quote (or paraphrase all or a portion of an openly licensed work)
 - both a & c
 - none of the above
9. Who is responsible for plagiarism?
- Lecturers and supervisors
 - The participant
 - Institution
 - The researcher
 - All of the above
10. How do you prepare for presentation?
- Writing main argument or conclusion
 - Writing the main points as headings
 - Timing the presentation & discuss the main issue by clear opening and closing line remarks
 - All of the above
 - Only a & b

Section B: Electronics And Communication Engineering

1. If a signal $f(t)$ has energy E , the energy of the signal $f(2t)$ is equal to
- E
 - $E/2$
 - $2E$
 - $4E$
2. MOSFET can be used as a
- Current controlled capacitor
 - Voltage controlled capacitor
 - Current controlled inductor
 - Voltage controlled inductor
3. The load voltage is approximately constant when the Zener diode is
- Forward biased
 - Reverse biased
 - Operating in the breakdown region
 - Unbiased

4. The cascade amplifier is a multistage configuration of
- CC-CB
 - CE-CB
 - CB-CC
 - CE-CC
5. 2's complement of binary number 0101 is
- 1011
 - 1111
 - 1101
 - 1110
6. In a double side-band full carrier AM transmission system, if the modulation index is doubled, then the ratio of total sideband power to the carrier power increases by a factor.
- 2 times
 - 4 times
 - 6 times
 - 8 times
7. If the diameter of a $\lambda/2$ dipole antenna is increased from $\lambda/100$ to $\lambda/50$ then its
- Bandwidth increases
 - Bandwidth decreases
 - Gain increases
 - Gain decreases
8. In a good conductor the phase relation between the tangential components of electric field E_t and the magnetic field H_t is as follows
- E_t and H_t are in phase
 - E_t and H_t are out of phase
 - H_t leads E_t by 90°
 - E_t leads H_t by 45°
9. The minimum number of 2-input NAND gates required to implement the Boolean function $Z=AB'C$ are
- Two
 - Three
 - Five
 - Six
10. For a periodic signal $v(t)=30\sin 100t + 10\cos 300t + 6\sin(500t + \pi/4)$, the fundamental frequency in rad/s is
- 100
 - 300
 - 500
 - 1500