

# 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 Electrical and Electronics 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: Electrical and Electronics Engineering**

1. Kirchhoff's current law is based on the law of
- Conservation of energy
  - Conservation of charge
  - Conservation of momentum
  - Conservation of mass
2. A sinusoidal voltage 1V r.m.s value at 10 HZ is applied across the two terminals of a PMMC type of voltmeter. What is the deflection of the pointer?
- Zero volt
  - 1 volt
  - 1.414 volt
  - The pointer oscillates around zero volt
3. A single phase transformer has a maximum efficiency of 90% at full load and unity power factor. Efficiency at half full load, at the same power factor
- 86.7%
  - 88.26%
  - 88.9%
  - 87.8%

4. For rural electrification in India, which circuit breaker is generally used?

- a. Vacuum
- b. Air blast
- c. SF<sub>6</sub>
- d. Oil

5. A 4 pole, DC generator has lap wound armature containing 480 conductors and a flux per pole of 25m wb. The machine is running at 600 rpm. The induced armature voltage is

- a. 240 V
- b. 120 V
- c. 60 V
- d. 30 V

6. The state equation and the output equation of a control system are given below:



then the system is

- a. controllable and observable
- b. controllable but not observable
- c. non controllable but observable
- d. neither controllable nor observable

7. A power system consists of 10 buses , one slack bus, three PV buses and six load buses. Number of equations required to solve Load flow using Newton -Raphson (polar) form is

- a. 10
- b. 15
- c. 30
- d. 20

8. A 50Hz, 4 pole, turbo generator rated at 20 MVA, 13.2 k v has an inertia constant H=4 Kw.sec/kVA. The kinetic energy stored in the rotor at synchronous speed is

- a. 20 MJ
- b. 20 KJ
- c. 80 KJ
- d. 80 MJ

9. The incremental cost characteristics of two generators delivering 200 MW are as follows:

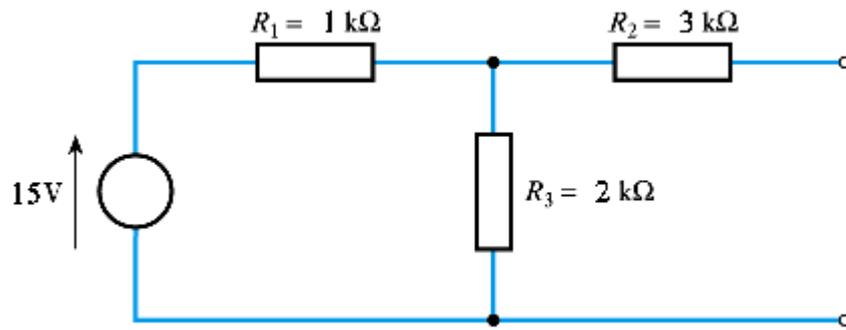
$$IC_1=20+0.1P_1$$

$$IC_2=16+0.2P_2$$

For economic operation, the generation P<sub>1</sub> and P<sub>2</sub> should be

- a. P<sub>1</sub>=P<sub>2</sub>=100 MW
- b. P<sub>1</sub>=80 MW, P<sub>2</sub>=120 MW
- c. P<sub>1</sub>=200 MW, P<sub>2</sub>=0 MW
- d. P<sub>1</sub>=120 MW, P<sub>2</sub>=80 MW.

10. Determine the open-circuit output voltage of the following circuit.



- a. 10 V
- b. 6 V
- c. 4V
- d. 8V