



# 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 CIVIL 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: Civil Engineering

1. In a wet soil mass, air occupies one sixth of its volume and water occupies one-third of its volume. The void ratio of the soil is [     ].
- 0.25
  - 0.5
  - 1.00
  - 1.50
2. A concentration load of 50 acts vertically at a point on the soil surface. If Boussinesq equation is applied for Computation of stress then the ratio of vertical stresses depths of 3 mm and 5 mm respectively vertically below the point of application of load will be [     ].
- 0.36
  - 0.60
  - 1.66
  - 2.77
3. A building constructed on a compressible layer settles 80mm in 4 years. What will be the settlement in 9 years assuming that the degree of consolidation at both the times is less than 60%?
- 65 mm
  - 80mm
  - 40mm
  - 120mm

4. Calculate the extra widening required for a pavement of width 7m on a horizontal curve of radius 200m , wheel base is 6.5m and Design speed 65kmph

- a. 0.59 m
- b. 0.65 m
- c. 0.69 m
- d. 0.73 m

5. Calculate the safe SSD on a level road stretch for a design speed of 50kmph for two way traffic on a single lane road.  $f = 0.37$  and reaction time 2.5 sec

- a. 61.4m
- b. 122.8m
- c. 72.3m
- d. 144.6m

6. Bitumen grade 80/100 indicates that under the standard test conditions, penetration value of the bitumen would vary from

- a. 0.8mm to 1 mm
- b. 8 mm to 10mm
- c. 8cm to 10 cm
- d. 0.08mm to 0.1mm

7. What is the safe bearing capacity as per Terzaghi theory for a granular soil with  $\gamma = 18\text{kN/m}^3$ , width of footing =2m and depth of foundation =1m,  $N_c = 12, N_q = 30, N_\gamma = 40$ . Factor of safety is 3.

- a. 432kN/m<sup>2</sup>
- b. 332kN/m<sup>2</sup>
- c. 232kN/m<sup>2</sup>
- d. 0kN/m<sup>2</sup>

8. Calculate ESWL of a dual wheel assembly carrying 2044 kg each for trail pavement thickness value of 540mm. centre to centre spacing between two tyres = 270mm and clear gap between the walls of the tyres= 110mm

- a. 2044 kg
- b. 2760 kg
- c. 3000 kg
- d. 4088 kg

9. Match the following

	List -I		List-II
a	Grit chamber	1	Zone settling
b	Secondary settling tank	2	Stoke's law
c	Activated sludge process	3	Aerobic

- a. 1 2 3
- b. 2 1 3
- c. 3 2 1
- d. 3 1 2

10. Two pipes of diameters  $d_1$  and  $d_2$  converge to form a pipe of diameter  $2d$ . If the liquid flows with a velocity of  $v_1$  and  $v_2$  in the two pipes, what will be the flow velocity in the third pipe?

- a.  $v_1 + v_2$
- b.  $v_1 + v_2/2$
- c.  $v_1 + v_2/4$
- d.  $2(v_1 + v_2)$