

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

## **Section B: Mechanical Engineering and Industrial Engineering**

1. Carbide tips usually have
  - a. negative rake angle
  - b. positive rake angle
  - c. any rake angle
  - d. no rake angle
  
2. Ball bearings are usually made from
  - a. low carbon steel
  - b. high carbon steel
  - c. medium carbon steel
  - d. chrome steel
  
3. A steel with 0.8 % carbon and 100 % pearlite is called
  - a. eutectoid steel
  - b. hypo-eutectoid steel
  - c. hyper eutectoid steel
  - d. none
  
4. PERT and CPM are
  - a. techniques to determine project status
  - b. decision making techniques
  - c. charts which increase aesthetic appearance of rooms
  - d. aids to the decision maker

5. PERT has following time estimate

- a. one time estimate
- b. two time estimate
- c. three time estimate
- d. four time estimate

6. The purpose of annealing is to

- a. Induce stress
- b. harden the surface
- c. Induce hardness
- d. remove stresses

7. For obtaining a cup of diameter 25 mm and height 15 mm by drawing, the size of the round blank should be approximately

- a. 42 mm
- b. 44 mm
- c. 46 mm
- d. 48 mm

8. The annual demand of an item is 19845 units and the production rate is 100 units per day. The per-unit production cost is Rs. 50, the per-unit holding cost is Rs. 10 per year and setup cost is Rs. 520 per set-up. To minimize the total annual cost, the optimum quantity to be produced per setup is

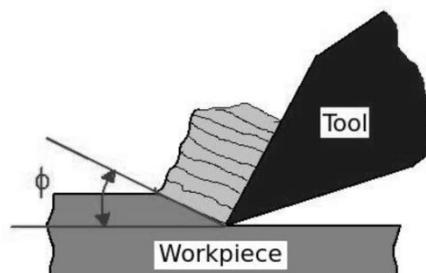
- a. 2100 - 2155
- b. 1900 - 2050
- c. 2500 - 2750
- d. 2250 - 2300

9. Match the correct pairs.

Group I	Group II
P. Man-machine chart	1. Determines standard time of jobs
Q. Learning curve	2. Finds the preferred method of doing work
R. Time study	3. Measures work improvement
S. Motion study	4. Shows idle times

- a. P-2, Q-3, R-4, S-1
- b. P-3, Q-2, R-4, S-1
- c. P-4, Q-1, R-3, S-2
- d. P-4, Q-3, R-1, S-2

10. What is the angle  $\phi$  shown in the below diagram of basic mechanism of chip formation?



- a. Shear angle
- b. Tool rake angle
- c. Chip angle
- d. Cutting angle