

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**THIRD SEMESTER M. TECH DEGREE EXAMINATION**

**Mechanical Engineering**  
**(Machine Design)**  
**04 ME 7503: SENSORS FOR INDUSTRIAL APPLICATIONS**

Max. Marks: 60

Duration: 3 hrs

**PART A**

*(Answer all questions. Each question carry 3 marks).*

1. What are characteristics of sensors? (3)
2. Explain the principle of optical sensor (3)
3. On what basis do we select sensors for an application? (3)
4. How is temperature sensing accomplished using a sensor? (3)
5. What is acoustic emission? Where is it used? (3)
6. Explain how fiber optic sensors work. (3)
7. How does RFID work? (3)
8. How is automatic identification technique used for shop floor control? (3)

**PART B**

*(Each full question carries 6 marks).*

9. Explain any three static characteristics of sensors. (6)

OR

10. Explain different errors in measurement. (6)
11. Explain the principle behind LVDT, with a suitable example. (6)

OR

12. Explain operation principle of pneumatic sensors. (6)
13. How is condition monitoring used for preventive maintenance? (6)

OR

14. What are the selection criteria for materials of sensors? (6)
15. Explain the working of sensors for monitoring pressure. (6)

OR

16. With a neat diagram, explain the working of force sensors. (6)

17. How is a sensor network used to detect machinery faults? (6)

OR

18. Explain any two applications of acoustic emission sensors. (6)

19. What do you mean by 2D barcodes? (6)

OR

20. Explain the working of OCR. (6)