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RAN-2103000206030068

B.Sc. (Sem. VI) Examination March - 2025

Physics (Elective Paper - III)

Measurements and Instrumentation System - II

[Total Marks: 50

સૂચના : / Instructions

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નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

B.Sc. (Sem. VI)

Name of the Subject :

Physics (Elective Paper - III) Measurements and Instrumentation System - II

Subject Code No.: 2103000206030068

Seat No.:

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Student's Signature

Q. 1. Answer the following questions in brief:

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1. Thermistor is constuctracion of a which two terms.
2. Write the full form of RTD.
3. In peizo electric transducer define "g"
4. Draw the symbols of semiconductor photo diode, and photo transistor.
5. State the two application of hall effect
6. What do you mean by planar and non planer digital display unit?
Give examples.
7. State two disadvantages of LED in a digital display unit.
8. What are LCDs? Which are different types?
9. State main advantages of modern chemical sensors.
10. Write full form of AFM, STM, MFM, TEM

Q. 2. A. Attempt any one of the following in detail:

07

1. Explain LVDT in details.
2. Explain the construction of thermistor and write their applications

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- B. Attempt any one of the following** **03**
1. Draw the diagram of RVDT and discuss in short.
 2. Discuss thermistor and RTDs characteristics.
- Q. 3. A. Attempt any one of the following in detail:** **07**
1. Mention in details of hall-effect transducer.
 2. Discuss in details of capacitive transducer.
- B. Attempt any one of the following.** **03**
1. A piezo -electric crystal having dimensions of 5mm x5mm x1.5mm and voltage sensitivity of 0.055V-m /N is used for the measurement. Calculate the force if the voltage developed is 100V.
 2. Write the application of photo transistor.
- Q. 4 A. Attempt any one of the following in detail:** **07**
1. Discuss in details the working of bistable multivibrator drawing necessary circuit diagram.
 2. Discuss in details an LED, drawing necessary diagram also state advantages of LED in electronic displays?
- B. Attempt any one of the following.** **03**
1. Write a note on the different types of dot matrices.
 2. State 4 important points about a nanosensor.
- Q. 5. A. Attempt any one of the following in detail:** **07**
1. What is nanoscience? Discuss the different methods for studying a nanostructure.
 2. Explain in details the working of a spectrophotometer.
- B. Attempt any one of the following** **03**
1. Write a short note on differential refractometer
 2. Explain Beer's law of absorbance.
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