

Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Sensor Technology

Subject Code: 4SC06SNT1

Branch: B.Sc. (Physics)

Semester: 6

Date: 29/04/2019

Time: 10:30 To 01:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
-

Q.1 Define and discuss the following terms [14]

1. Transducer
2. Sensor
3. Optical fibre
4. Conductivity
5. Electromagnetic frequency domain
6. Potentiometer
7. Radiation

Attempt Any four questions from Q.2 to Q.8

Q.2 Attempt all questions. [14]

- a) Explain principle of ionization transducer. Discuss its significance with help of an example.
- b) Discuss the working function of piezo-electric transducer with help of necessary diagram. Write its applications.

Q.3 Attempt all questions. [14]

- a) Describe the various types of electromechanical transducers.
- b) Compare Photo-voltaic transducer with photo conductive transducer.

Q.4 Attempt all questions. [14]



- a) Write technical note on high pressure measurements [5]
- b) Explain the principle of working for; [9]
- (i) Pirani Gauge
- (ii) Vibrating String Transducer
- (iii) Unbalanced bridge
- Q.5 Attempt all questions [14]
- a) Define temperature. Enlist various methods of temperature measurements. [4]
- b) Discuss the working theory and principle of total radiation pyrometer with help of suitable diagram. [6]
- c) Write a brief note on thermoelectric materials [4]
- Q.6 Attempt all questions. [14]
- a) Compare main features of Electrical methods with radiation methods. [4]
- b) Explain the Bimetallic thermometer in detail. [7]
- c) Write a short note on Knudsen Gauge [3]
- Q.7 Attempt all questions [14]
- a) Write advantages of optical fibre sensors. [4]
- b) Write note on Gas Chromatography [7]
- c) Define microphone. What are its types? [3]
- Q.8 Attempt all questions [14]
- a) Write short notes on [6]
- (i) Bio-sensors
- (ii) Smart sensors
- b) Explain various air pollution parameters and their measurements [5]
- c) Compare the terms Analog transducer with Digital transducer [3]

