



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B.tech CS+IOT &SC

Semester – 4th

Subject (Course): Sensor Tech. & Instrumentation

Course Code :CSEG271

No. of page/s: 1

Max. Marks : 100

Duration : 3 Hrs

SECTION A

Note :All question are compulsory & carry equal marks

(4 marks each)

- Q 1 Name and explain the components of Sensors .Draw the diagram
- Q2 What are different types of thermocouple effect?
- Q3 Briefly describe the applications of pressure sensor
- Q4 Give only the names of generations of architecture of SCADA with diagram
- Q5 How are actuators classified?

SECTION B

Note :All question are compulsory & carry equal marks

(8 marks each)

- Q 6 Explain the working of stepper motor .Give at least 4 applications of Stepper motor
- Q7 Explain the photoelectric effect with diagram and differentiate between photoelectric and photovoltaic effect.
- Q8 Explain the components of DAQ device and define SCADA ,draw the diagram of SCADA with single computer
- Q9 Give explanation of applications of sensors in the field of Medical/health and automotive
- Q10 Explain the components of wireless communication with diagram .Also draw the diagram of component based IOT reference model

SECTION-C

Note :All question are compulsory & carry equal marks

(20 marks each)

- Q 11 Explain the construction and working of DC motor with neat diagram. Write its applications as well.
- Q12 Briefly explain following terms:
 - a)Hall Effect
 - b)Hysteresis
 - c)Dead band
 - d)6 axis of freedom
 - e)Analytics in IOT ecosystem

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SECTION A

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- Q 1 Explain the concept of telematics and write the difference between telemetry and IOT.
- Q2 Give names of piezoelectric materials. Which characteristics of crystalline Quartz and PZT makes them idle for varied applications.
- Q3 What is RDT ? explain briefly about the technologies used in it
- Q4 Derive and explain Krichoff's law
- Q5 Explain solid state switches ,its classification with neat diagram

SECTION B

Note :All question are compulsory & carry equal marks

(8 marks each)

- Q 6 Explain the working following
a)solenoid
b)voice coil
- Q7 Explain the input-output configurations
- Q8 Explain the following terms
a)Cross talk & cross sensitivity
b)Resolution
- Q9 What is scheduling? Explain its classification with examples. Differentiate between fixed and dynamic scheduling
- Q10 Give the names of IOT platforms. Explain the architecture of sensors

SECTION-C

Note :All question are compulsory & carry equal marks

(20 marks each)

- Q 11 Explain the working of MQTT & COAP
- Q12 Explain the working of AC motor? Explain about various types of AC motor. Justify your answer with neat diagram.

