

Reg. No

Name

18P441

M Sc DEGREE END SEMESTER EXAMINATION - MARCH 2018**SEMESTER 4 : PHYSICS****COURSE : 16P4PHYT16EL ; INSTRUMENTATION AND COMMUNICATION ELECTRONICS***(For Regular - 2016 admission)*

Time : Three Hours

Max. Marks: 75

Section A**Answer all the following (1 marks each)**

1. Which transducer is known as 'self-generating transducer'?
 a) Active transducer b) Passive transducer c)
 Secondary transducer d) Analog transducer
2. Which of the following is correct for thermistors?
 a) Positive temperature coefficient of resistance b) Negative temperature coefficient of resistance
 c) Unpredictable temperature coefficient d) None of the mentioned
3. Main disadvantage of a true r.m.s responding voltmeter is _____
 a) presence of transducer b) presence of thermocouple
 c) presence of transformer d) presence of oscillator
4. Sensitivity is of thermocouples of the order of _____
 a) MV b) V c) GV d) mV
5. In a TV receiver, the picture signals are applied to
 a) the vertical deflector plates b) the horizontal deflector plates
 c) the control grid of the electron gun d) the filament of the electron gun

(1 x 5 = 5)**Section B****Answer any 7 (2 marks each)**

6. Distinguish between X-Y and strip chart recorders.
7. Differentiate between photoconductive and photovoltaic cell
8. What are resistive Transducers?
9. Distinguish between Active and passive Transducers
10. Give the circuit diagram of a simple sweep generator and explain its working.
11. What is the capacitance of a tuning circuit, tuned to a station of frequency 1MHz, if the series inductance is 1 mH.
12. Write short note on Stroboscope
13. Brief the need for modulation.
14. Define characteristic impedance of a transmission line. When is the input impedance of a transmission line equal to its characteristic impedance?
15. Explain Maximum usable frequency and skip distance in ionosphere propagation

(2 x 7 = 14)**Section C****Answer any 4 (5 marks each)**

16. Explain pressure inductive Transducer
17. A certain crystal has a coupling coefficient of 0.32. How much electrical energy must be applied to produce an output of 7 milli joules of mechanical energy?
18. Explain with a diagram the working of a digital pH meter. How is pH measured?
19. Describe a true RMS voltmeter with a neat diagram
20. What is a sweep generator? Explain its function.
21. What are the functions of blanking and synchronizing pulses in TV transmission?

(5 x 4 = 20)

Section D

Answer any 3 (12 marks each)

22. Explain the method of measuring displacement using LVDT. State the advantages and disadvantages of LVDT.
23. Explain the principle and operation of pressure transducer employing resistive Transducer and inductive transducer
24. Describe with a neat diagram the operation of a chopper type micro voltmeter.
25. With a neat diagram explain the components of CRO.
26. Discuss in detail transmission line characteristic impedance, its calculation and losses in transmission lines.
27. Explain the sky wave propagation in Ionosphere

(12 x 3 = 36)