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SEAT No. _____

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SARDAR PATEL UNIVERSITY
B.Sc. (6th Semester) Examination
Monday, 1st April 2019
10:00 am to 01:00 pm
Electronics
US06CELE04- Instrumentation

Total Marks : 70

Q.1 Multiple choice questions.

[10]

- 1) A chopper amplifier _____
 - (a) Convert AC signal from low frequency to high frequency
 - (b) Convert DC signal from low frequency to high frequency
 - (c) Convert AC signal from low frequency to DC high frequency
- 2) The amount of power drawn from a circuit under test can be decreased by
 - (a) Increasing output impedance
 - (b) Decreasing output impedance
 - (c) Increasing input impedance
- 3) Complex waveform are most accurately measured by _____
 - (a) An average responding voltmeter
 - (b) An rms responding voltmeter
 - (c) None of above
- 4) In the resonant circuit, at resonance capacitive reactance is equal to _____.
 - (a) Resistance of circuit
 - (b) Inductance of circuit
 - (c) None of above
- 5) In differential voltmeter _____ is connected between the unknown voltage and reference voltage.
 - (a) Galvanometer
 - (b) Ammeter
 - (c) Null meter
- 6) The output voltage of heater element of thermocouple is directly proportional to _____
 - (a) squareroot of rms value of input signal
 - (b) square of rms value of input signal
 - (c) double of rms value of input signal
- 7) The stylus (Pen) consist of a _____ wire moving across the aluminium surface.
 - (a) Copper
 - (b) Tungsten
 - (c) Nichrome
- 8) The _____ recorder is the voltage responsive positional servo system using a motor to move a writing device back and forth across a piece of paper.
 - (a) Galvanometer type recorder
 - (b) Null or potentiometric
 - (c) Magnetic recorder

- 9) In IEEE 488 system, frequency counter is _____
 (a) Talker instrument (b) Listener instrument (c) Both (a) & (b)
- 10) The _____ of the audio amplifier could be determine by measuring the output power into the load.
 (a) Voltage (b) Current (c) Gain

Q.2 Answer any **TEN** questions in brief. [20]

- 1) Define Form Factor.
- 2) Write the difficulty of true rms responding voltmeter and how it is overcome.
- 3) Write the importance of Chopper type amplifier in DC voltmeter.
- 4) What is the use of Q meter? Explain its basic operation.
- 5) Write the drawbacks of differential voltmeter.
- 6) What is the function of S/H circuit in successive approximation DVM?
- 7) Write the different method to record the data on the strip chart paper.
- 8) Write the application of XY recorders.
- 9) Write the basic components of magnetic tape recorder.
- 10) Which three components are required for computer operated test system?
- 11) Write Eight different control line in IEEE 488 bus.
- 12) Show one example where ATS system is better compared to manual operation.

Q.3 Explain briefly the chopper stabilised amplifier. [10]

OR

Q.3 Draw the block diagram of true rms responding voltmeter and explain it [10]

Q.4 Draw the block diagram of Ramp type digital voltmeter and explain it in detail. [10]

OR

Q.4 Draw the block diagram of Successive approximation type digital voltmeter and explain it. [10]

Q.5 Draw the basic circuit of potentiometric recorder and explain it. [10]

OR

Q.5 Explain digital XY plotter. [10]

Q.6 Give detail how an audio amplifier could be tested using automatic test system. [10]

OR

Q.6 Explain in detail computer controlled test system for testing radio receiver. [10]