# BRAINWARE UNIVERSITY

## Term End Examination 2024-2025
## Programme – Dip.RA-2022/Dip.RA-2023
## Course Name – Electronic Measurements and Instrumentation
## Course Code - ECPC305
## ( Semester III )

**Full Marks : 60** **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) A moving-coil permanent-magnet instrument can be select as ..... by using a low resistance shunt.
a) ammeter b) voltmeter
c) flux-meter d) ballistic galvanometer

(ii) For measurements on high voltage capacitors, the suitable bridge can apply
a) Wein bridge b) Modified De Santy's bridge
c) Schering bridge d) none of the above

(iii) Bar' express as the unit of
a) Temperature b) Heat
c) Atmospheric pressure d) Current

(iv) Compute, 1 Angstrom (Å) = _____
a) 10^-6m b) 10^-8m
c) 10^-10m d) 10^-12m

(v) In function generator, the output waveform of integrator express_____ wave
a) Sinusoidal b) Square
c) Triangular d) Saw-tooth

(vi) Select, A liquid crystal display requires
a) An AC drive b) Both AC and DC drive
c) Both AC and DC drive d) None of these

(vii) Write, With the increase in the intensity of light, the resistance of a photovoltaic cell
a) Increases b) Decreases
c) Remains same d) None of these

(viii) State, Oscilloscope is _____
a) a ohmmeter b) an ammeter
c) a voltmeter d) a multimeter

(ix) Write, CRO is a _____

a) fast x-y plotter b) slow x-y plotter
c) medium x-y plotter d) not a plotter

(x) Explain, What determines light intensity in a CRT?

a) voltage b) current
c) momentum of electrons d) fluorescent screen

(xi) Classify, Deflection system of a CRT consists of _____

a) 4 plates b) 6 plates
c) 2 plates d) 8 plates

(xii) Illiustrate,Role of an attenuator is _____

a) to boost the signal b) to distort the signal
c) to remove noise d) to improve the operation

(xiii) identify, Input stage in the amplifier consists of _____

a) oscillator b) attenuator
c) rectifier d) op amp

(xiv) Calculate, How many vertical inputs exist in a dual trace oscilloscope?

a) 8 b) 6
c) 4 d) 2

(xv) Define, After pre-amplification the signals are fed into

a) an electronic switch b) a signal generator
c) a rectifier d) a regulator

## Group-B

(Short Answer Type Questions) 3 x 5=15

2. Tell the function of aquadag. (3)

3. A voltmeter reads 109.5 V. The error taken from an error curve is – 0.37 V. Examine the true voltage. (3)

4. Discuss Advantage and disadvantages of PMMC instrument. (3)

5. A 1KΩ potentiometer that has a resolution 0.5Ω is used as a potential divider with a 10V supply. Examine the precision of the output voltage. (3)

6. Write short note on Errors. (3)

**OR**

Write short note-Eddy current damping (torque of metal former & metal disc). (3)

## Group-C

(Long Answer Type Questions) 5 x 6=30

7. Develop the torque equation for a PMMC instrument and show that is scale is linear. (5)

8. Derive and explain vertical deflection of an electron beam in CRT. (5)

9. Draw the circuit diagram of a simple zener diode voltage regulator, and explain its operation. (5)

10. The focusing system in a CRT is known as electron lens, Justify. (5)

11. Describe the basic function of a distortion meter. (5)

12. Draw the basic block diagram of an oscilloscope and state the functions of each block. (5)

**OR**

A sample of insulation was placed in arm AB of Schering bridge, when the bridge was balanced at a frequency of 100 Hz, the other arms of the bridge were as follows Arm BC - a non-inductive R of 1000 Ω Arm CD - a non-inductive R of 2000 Ω in parallel with a capacitor of 1 μF Arm DA – a loss free capacitor of 1000 pf Calculate the capacitance , equivalent series resistance (5)

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