



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agri. Engg.) 2019 Admission
IV Semester Final Examination- November 2021

Sacs.2213

Applied Electronics and Instrumentation (2+1)

Marks: 50
Time: 2 hours
(10x1=10)

I Fill in the blanks

1. The maximum efficiency of a Full Wave Rectifier is
2. A differentiator circuit is one in which the voltage output is to the rate of change of the input voltage with respect to time.
3. A voltage regulator generates a of a preset magnitude.
4. The input stage of an OP-AMP is usually a
5. With zero volts on both inputs, an OP-AMP ideally should have an output

State True/False

6. A series resistance is connected in the zener circuit to properly forward bias the zener.
7. The PIV rating of each diode in a bridge rectifier is one-half that of the equivalent centre-tap rectifier .
8. The OP-AMP can amplify both a.c. and d.c. signals. .
9. Hysteresis Effect results in producing the difference in resistance due to incapability to regain its original physical form before an application of stress to the gauge element. .
10. A load cell cannot be used to measure Level.

II Write short notes on ANY FIVE of the following

(5x2=10)

1. Difference between zener and avalanche breakdown.
2. Difference between fixed bias circuit and self bias circuit.
3. Configurations for inverting and non-inverting operational amplifiers.
4. Temperature range difference among thermistor, thermocouple and pyrometers.
5. V-I Characteristics of PN junction diode.
6. Comments over ripples available in half and full wave rectifier circuits.
7. Circuit diagram for RC Phase shift oscillator

III Answer ANY FIVE of the following

(5x4=20)

1. Difference between a clipper circuit and a clamper circuit.
2. Draw two input diode AND circuit and explain its truth table.
3. Draw and explain frequency response of a typical operational amplifier.
4. Draw and explain High pass active filter using operational amplifier.
5. Derive an expression to calculate frequency of oscillation in Wien Bridge Oscillator.
6. For an inductor of 15 micro henery (μH) and equal capacitors of 100 pF each in a circuit of colpitt oscillator, calculate the frequency of oscillation.
7. A thermistor has a resistance temperature coefficient of -5% over a temperature range of 25°C to 50°C. If the resistance of the thermistor is 100 Ω at 25°C , what is the resistance at 35°C?

IV Write an essay on ANY ONE of the following

(1x10=10)

1. Draw, explain and derive an expression of stability factor for voltage divider biasing.
2. With the help of graphical arrangement, explain the method of linear displacement measurement using LVDT transducer.
