



KERALA AGRICULTURAL UNIVERSITY

B.Tech.(Agri. Engg) 2017 Admission

IV Semester Final Examination- June 2019

Sacs.2213

Applied Electronics and Instrumentation (2+1)

Marks: 50
Time: 2 hours

I **Fill in the blanks.** (10x1=10)

- 1 Resistance strain gauge is also known as _____ gauges.
- 2 A power supply which has voltage regulation of 10% is _____ power supply.
- 3 The high torque to weight ratio in an analog indicating instrument indicates low _____ loss.
- 4 In a transducer, the observed output deviates from the correct value by a constant factor the resulting error is called _____ error.
- 5 In a semiconductor strain gauge, when _____ strain is applied resistance increases in P type of materials.
- 6 Wagner's Earth devices are used in AC bridge circuits for eliminating effect of _____.
- 7 The leakage current across a P-N junction is due to _____.
- 8 The value of current gain in common base connection (α) of transistor is _____ than one.
- 9 _____ amplifier amplifies the signal from 20 Hz to 20 KHz.
- 10 In a _____ oscillator, the frequency determining elements are R and C.

II **Write short notes on ANY FIVE of the following.** (5x2=10)

- 1 Effect of temperature on barrier voltage.
- 2 Positive clamper circuit with neat diagram.
- 3 Working principle of thermister.
- 4 Series type Ohmmeter.
- 5 Working principle of magneto-strictive transducers.
- 6 List different types of filter circuit. Explain any one type of filter with neat circuit diagram.
- 7 Difference between sensors and transducers.

III **Answer any FIVE of the following.** (5x4=20)

- 1 Explain modified De sauty's Bridge with neat diagram.
- 2 Semiconductor strain gauges.
- 3 Capacitive transducers.
- 4 Full wave adder with neat diagram and truth table.
- 5 Operational amplifier as voltage regulator.
- 6 A transistor is connected in common emitter connection in which collector supply is 8 v and voltage drop across resistance r_c connected in the collector circuit is 0.5 v. The value of $R_c=80$ ohm. If $\alpha=0.96$. Determine collector emitter voltage and base current.
- 7 Construction working of Colpitts oscillator.

IV **Answer any ONE of the following** (1x10=10)

- 1 Pyrometer. Explain construction working, advantages and disadvantages of optical pyrometer.
- 2 Explain operational amplifier as 1) Adder 2) Differentiator
