KERALA AGRICULTURAL UNIVERSITY
B. Tech. (Agrl. Engg.) 2020 Admission
IV Semester Final Examination – August 2022

Sacs.2213 **Applied Electronics and Instrumentation (2+1)** **Marks: 50**
Time: 2 hours

I **Fill in the blanks** (10x1=10)
1. The atomic number of silicon is_____.
2. The energy band in which free electrons exists is_____.
3. The type of diode used for voltage regulation is_____.
4. CMRR of an op-amp should be _____.
5. The first point of contact in any measurement system is_____.

State True or False
6. Zener breakdown happens in forward biasing.
7. Oscillators do not need a power source to work.
8. An ideal Op-Amp has infinite gain.
9. The thermocouple working principle is based on the Seebeck Effect.
10. Load cells used the principle of strain gauges.

II **Write short notes on ANY FIVE of the following** (5x2=10)
1. Summarize the concept of Semiconductors.
2. Identify the types of rectifiers.
3. Differentiate between clipper and clamper.
4. List the characteristics of an ideal OP-AMP.
5. Write short notes on half adders.
6. What is a transducer?
7. Briefly explain force measurement using load cells.

III **Answer ANY FIVE of the following** (5x4=20)
1. Explain the V-I characteristics of P-N junction diode.
2. Distinguish the half-wave and the full-wave rectifiers.
3. Summarize the concept of the Wein bridge oscillator.
4. Identify the operation of Op-Amp as integrator and differentiator.
5. Explain the features of the bipolar junction transistor.
6. Classify the pressure measurement transducers.
7. Describe any one transducer for the measurement of displacement.

IV **Write an essay on ANY ONE of the following** (1x10=10)
1. With a neat block schematic explain the generalised instrumentation system in detail.
2. Distinguish the various biasing methods of the bipolar junction transistor.

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