Government College of Engineering, Amravati

(An Autonomous Institute of Government of Maharashtra)

Third Semester B. Tech.
(Electronics and Telecommunication)

Winter – 2016

Course Code: ETU 302

Course Name: Components, Devices and Instruments Technology

Time: 2 Hrs. 30 Min. **Max. Marks: 60**

Instructions to Candidate

1) All questions are compulsory.
2) Assume suitable data wherever necessary and clearly state the assumptions made.
3) Diagrams/sketches should be given wherever necessary.
4) Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5) Figures to the right indicate full marks.

1. **Solve the Following** **12**

a) Explain any three types of capacitor with construction, specification and applications.

b) Explain with suitable diagram the different types of epitaxy method.

2. **Solve any TWO** **12**

a) What are the different types of switches? Discuss the application of each type and how they are tested.

b) Explain the process of oxidation for the protection of P – N junction

Contd...

c) Write a short note on- The Metal – Semiconductor contact.

3. Solve any TWO **12**

a) Explain the frequency measurement with the Wein bridge and derive the general expression for the frequency of Wien bridge.

b) What are the difference between accuracy and precision? List four sources of possible errors in instruments.

c) List the characteristics of integrated components. Describe the lateral p-n-p transistor.

4. Solve any TWO **12**

a) Explain the function of Various controls on the front panel of a oscilloscope. Also list its advantages

b) With the help of block diagram explain the principle and working of dual slope type digital voltmeter (DVM).

c) Draw the general form of the AC bridge and explain the conditions for bridge balance.

5. Solve the Following **12**

a) With suitable diagram explain unbounded resistance wire stain gauge and bonded resistance wire stain gauge.

b) With suitable circuit diagram explain basic DC ammeter and DC voltmeter.