Code No.: ETCS 203	**L**	**T**	**C**
Paper: Analog Electronics	**3**	**1**	**4**

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from question no. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

UNIT – I

Semiconductors Diodes and Rectifiers: Introduction, general characteristics, energy levels, extrinsic materials n & p type, ideal diode, basic construction and characteristics, DC & AC resistance, equivalent circuits, drift & diffusion currents, transition & diffusion capacitance, reverse recovery times, temperature effects, diode specifications, different types of diodes (zener, varator, schottky, power tunnel, photodiode & LED), Half wave & full wave rectifiers

[No. of Hrs.: 11]

UNIT – II

Bipolar junction transistor: Introduction, Transistor, Construction, transistor operations, BJT characteristics, load line, operation point, leakage currents, saturation and cut off mode of operations Eber-mall's model.

Bias stabilization: Need for stabilization, fixed Bias, emitter bias, self bias, bias stability with resfpect of variations in I_{co}, V_{be} & β, stabilization factors, thermal stability.**[No. of Hrs.: 11]**

UNIT – III

Small Signal Amplifiers: CB, CE, CC configurations, hybrid model for transistor at low frequencies, RC coupled amplifiers.

Field Effect Transistors: Classification & characteristics, operating point, biasing, enhancement & depletion type MOSFETS.

[No. of Hrs.: 11]

UNIT – IV

Operational Amplifier: Ideal OPAMP, OPAMP stages, OPAMP Parameters, equivalent circuit, Ideal voltage transfer curve, open loop OPAMP configuration, closed loop OPAMP configuration, OPAMP applications: comparator, current sources, rectifiers, first and second order filters, summer, integrator, differentiators, Clipper, clamper, waveform generators, instrumentation amplifier, log, antilog amplifier. **[No. of Hrs.: 11]**

TEXT BOOKS:

1. S. Salivahanam, N. Suresh Kumar, A. Wallavaraj, "Electronic Devices and Circuits", TMH, 2001.

REFERENCE BOOKS:

1. S.G. Burns, P.R. Bond, "Principles of Electronic Circuits, 2nd Ed., Galgotia, 1999.
2. M.S. Roden, G.L. Carpenter & W.R.Wieseraman, "Electronic Design", Shroff Publisher & Distributors, 2003

3.. Millman & Halkias Electronic Devices & Circuits , TMH(ISE), 1998.
4. S. Salivahanan & other, Electronic Devices & Circuits, TMH, 1999.
5. Malvino, Electronic Principles, TMH, 1998.
6. Jacob Millman, Micro Electronics, TMH, 1998.