Reg. No.										

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

IV SEMESTER B.S. DEGREE EXAMINATION – NOV./ DEC.2016

SUBJECT: ELECTRONIC DEVICES AND COMPUTER INTERFACING (CS 241)

(BRANCH: CS & CE)

Thursday, 24 November 2016

Time: 3 Hours **Max. Marks: 100**

- ✓ **Answer ANY FIVE FULL Questions.**
- ✓ **Missing data may be suitably assumed.**

1A. Design a Zener diode shunt regulated power supply with following specifications a) O/p voltage is 10V. b) Load current is 50mA c) Maximum power dissipation of 500mw and d) Input voltage $15 \pm 2V$

1B. Draw the circuit of negative and positive clamper and explain its operation with the input and output waveform. (10+10)

2A. For a full wave rectifier using center tapped transformer, derive a) Ripple factor b)The average value of load current c)The rms value of load current d)Efficiency of the rectifier.

2B. Explain with neat diagram operation of a) LED b) Photodiode.

(10+10)

3A. What are the drawback of fixed bias? How do you overcome it? Explain with neat circuit diagram the modified biasing circuit.

3B. Explain with neat circuit diagram RC-coupled amplifier. Explain all the components in them and why they are used. Draw the frequency response of the same.

(10+10)

4A. Explain Barkhausen criteria for sustained oscillations? Write the circuit of RC phase shift oscillator and explain its working. In an RC phase shift oscillator if the value of resistors are $R_1=R_2=R_3=150$ KΩ and the value of capacitors $C_1=C_2=C_3=0.25$ nF Determine the frequency of oscillation.

4B. Explain with neat block diagram flash type of ADC.

(10+10)

5A. Explain with circuit a differentiator and integrator circuit using OPAMP.

5B. Explain with circuit diagram a voltage follower (12+8)

6A. Explain with neat circuit diagram how SCR can be used as a half wave rectifier. How the output power can be controlled?

6B. Explain circuit using 555 timer that generates pulse output of 1.1msec every time a trigger is given (10+10)

7A. Explain how CMOS can be used as a NOT gate. What are the advantage of the CMOS?

7B. Write the block diagram of a data acquisition system and explain each of the functions of these blocks. (10+10)

8A. How many bits are required in a binary ladder to achieve a resolution of 1mV if full scale is +5V?

8B. Draw and explain the characteristics of following devices

a) Diac b) Zener diode c) pn diode d) TRIAC (4+16)