# POKHARA UNIVERSITY SERVICE COMMISSION
**2073**

Subject: Design & Technology Of Electronic Device
Post: Lecturer

Full Marks: 90
Pass Marks: 45
Time : 4 Hours

**Attempt all the Questions in English.**

## Part: One

1. Describe the basic construction and operating principles of an operational amplifier. **10**

2. With necessary diagrams explain the process of formation of a PN junction and then explain its characteristic curve. **10**

3. Draw the circuit diagram of IC regulated +12 V, 1 A; +5 V, 2 A DC supply derived from 220 V mains using a step down transformer, bridge rectifier, capacitor filter and voltage regulating IC. Write brief specifications of the components to be used . **7**

4. Establish the relationship between $\alpha$ and $\beta$ of a bipolar junction transistor amplifier. **7**

5. A sinusoidal signal having T =70 picosecond, is to be transmitted digitally. What would be the required data rate if each quantized sample were converted into 8 bit code word. **7**

6. Describe the basic principles of VLSI design. **7**

## Part: Two

7. Critically discuses the features of the Bachelor level curricula of electronic and communications engineering offered by Pokhara University . **12**

8. Prepare a lecture plan for 2 hours on the topics of your expertise. **6**

9. List the essential components of a research proposal and briefly explain any tow of them. **6**

10. Prepare the course structure for a new M.Sc. Engineering program in Electronics and Communications engineering to be offered by Pokhara University. **12**

11. Highlight the role played by Pokhara University in promoting engineering education in Nepal. **6**