Carry bag & Envelope making,Bhoomithrasena training: 21 Feb 2019

III. A) a) Explain with suitable diagrams the different modes of shift register operation.

b) Give the design of a ring counter and explain its operation.

OR

III. B) a) What is race around condition ? Explain the working of a Master-Slave JK flip-flop.

b) Give the design of a 3-bit binary counter using JK flip-flops. 15

IV. A) a) Explain the operating mechanisms, characteristics and uses of strain gauge, LVDT, thermistors and thermocouples.

b) Distinguish between active and passive transducers.

OR

IV. B) a) Discuss the various kinds of distortions and signal loss mechanisms encountered in fibre optic systems.

b) What are the advantages of PIN photodiode ? 15

PART – C

Answer **any three** questions. **Each** question carries **five** marks.

V. a) A power amplifier has a power gain of 40 dB. If an input power of 3 mW is applied then calculate the output power.

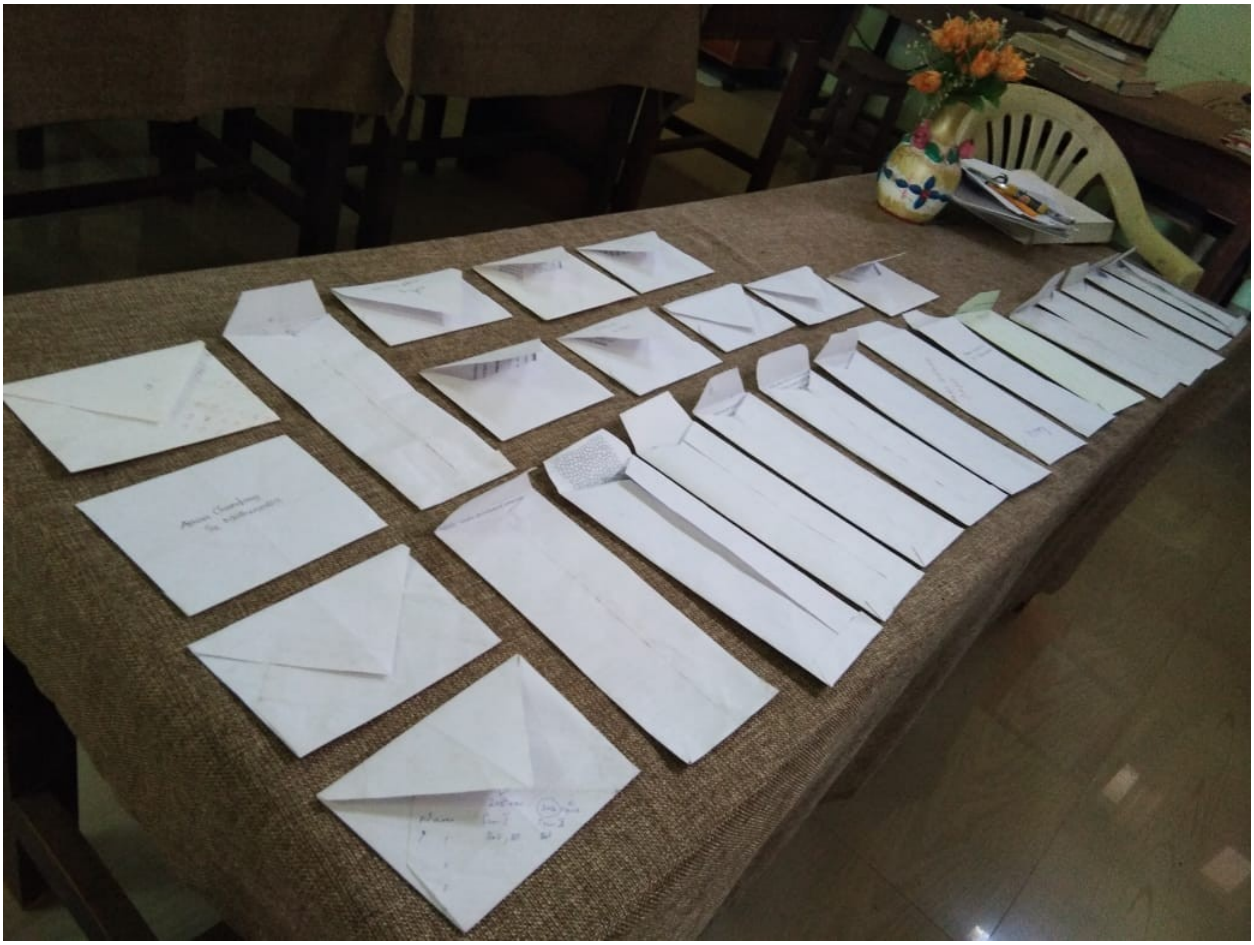
b) An opamp square wave oscillator is required to oscillate at a frequency of 2.5 kHz. Calculate the value of timing resistance if the value of timing capacitor used is 0.1 μF. The feedback factor β is 0.5.

c) Design a 4-bit synchronous binary counter using J-K flip-flops and logic gates.

d) Design a 8-bit parity generator circuit.

e) A fibre optic cable is 20 km long. The measured ratio of input power to output power is 45. Calculate the attenuation of the fibre in dB per km.

f) A step index multimode optical fibre is having a core refractive index of 1.59 and cladding refractive index 1.47. Calculate the numerical aperture of the fibre. **(3×5=15 Marks)**




BUDGET FOR ALL
NO ONE