

M.SC.(Physics) Third Semester  
**MSc23105 - Applied Electronics-I Paper-VII (Optional)**

P. Pages : 2

Time : Three Hours



**GUG/W/18/2305**

Max. Marks : 80

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- 1.** Either
- a) Discuss the open-loop configuration of OP-AMP with. **8**
    - i) Differential amplifier.
    - ii) inverting amplifier.
    - iii) Non-inverting amplifier.
  - b) Explain the effect of feed back on. **8**
    - i) Close loop voltage gain.
    - ii) Input resistance.

**OR**

- e) Discuss square wave and triangular wave generators with suitable diagram. **8**
  - f) Explain the phase shift oscillator. **4**
  - g) What is Barkhausen criterion for oscillation. **4**
- 2.** Either
- a) What is amplitude modulation. Discuss generation of AM wave. **8**
  - b) Discuss the following term. **8**
    - i) Vestigial sideband modulation.
    - ii) Double sideband full carrier.
    - iii) Frequency division multiplexing.
    - iv) Single sideband modulation.

**OR**

- e) Discuss Fresnel zone problem and fading source. **8**
  - f) Explain the term detector component and atmospheric effect on propagation. **8**
- 3.** Either
- a) What is counter? **2**
  - b) Explain synchronous counter and Asynchronous counter with the help of diagram. **6**
  - c) Discuss the following term. **8**
    - i) Address bus.
    - ii) Assembly language.
    - iii) Instruction set.
    - iv) Stack and sub routings.

**OR**

- e) Explain the working of ladder and weighted register with suitable diagram. 8
- f) Discuss successive approximations with suitable diagram and example. 8

**4. Either**

- a) What is klystron? 2
- b) Discuss principle and operation of Reflex klystron. 6
- c) What is magnetrons, give the Description of the cavity magnetron. Explain the effect of electric field and magnetic field on magnetrons. 8

**OR**

- e) Explain the following terms. 8
  - i) Gunn effect and application.
  - ii) Gunn domains.
  - iii) Gunn diode.
  - iv) Gunn diode performance.
- f) Discuss the principle and operation of 8
  - i) IMPATT
  - ii) TRAPATT diode.

**5. All questions are compulsory.**

- a) Give the application of OP-AMP as fixed and various voltage. 4
- b) Discuss the advantage and disadvantage of microwave transmission. 4
- c) Explain the working of JK master slave flip-flop. 4
- d) What is the operation of helix travelling wave tube. 4

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