

- N. B. :** (1) Question No. 1 is **compulsory**.  
 (2) Attempt any **four** questions out of remaining **six** questions.  
 (3) Assume any **suitable** data wherever required but justify the **same**.

1. Answer any **four** questions.
  - (a) Explain the term Dipole. Prove that the resonant length of dipole is half wave length. **5**
  - (b) What is Doppler effect ? How is it made use of in radar ? **5**
  - (c) Explain what is equatorial, polar and inclined orbits ? **5**
  - (d) Define Directivity, Antenna Bandwidth and efficiency of antenna. **5**
  - (e) What is the major problem with analog MIT system ? How can digital MIT overcome it ? **5**
  
2. (a) Explain Yagi Uda antenna and log periodic antenna with respect to their radiation pattern dipole spacing, dipole lengths and applications along with the sketch. **12**
  - (b) Distinguish between the resonant and non-resonant antennas. **4**
  - (c) Discuss the broad side array and its radiation pattern. **4**
  
3. (a) What is the composite video signals for a monochrome T.V. ? Draw a neat sketch of composite video signal and indicate. **10**
  - (i) Blanking Level
  - (ii) Synchronizing Level
  - (iii) Pedestal height
  - (iv) D.C. Level
- (b) With the help of neat block diagram of B/W (monochrome) T.V. receiver explain how synchronize pulses are separated from cvs and processed to synchronize the field and line oscillator. **10**
  
4. (a) Derive an expression for maximum possible range of radar. **8**
  - (b) What is pulsed radar system ? Explain basic pulse radar system with the neat sketch. **8**
  - (c) Explain what is meant by term blind speed in MIT Radar. **4**
  
5. (a) Explain in brief—satellite launching and explain the role and function of transponders in satellite T.V. **10**
  - (b) Define the following with respect to satellite system. **10**
    - (i) Frequency allocation (ii) LEO and MEO satellite.

6. (a) Compare and contrast Negative picture modulation with positive picture modulation. **10**
- (b) Explain the generation of 'Y' signal and colour difference signals from camera **10** output. Why is the (G-Y) signal is not suited for transmission in TV system ?

7. Write short notes on the following (any **four**) :— **20**

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|-------------------------------|------------------------------|
| (a) HDTV                      | (d) Radar antenna            |
| (b) NTSC colour TV system     | (e) Geostationary satellits. |
| (c) Satellite multiple access |                              |
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