



17670

11819

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) *All questions are **compulsory**.*
 - (2) *Answer **each** next main question on a **new** page.*
 - (3) *Illustrate your answers with neat sketches **wherever** necessary.*
 - (4) *Figures to the **right** indicate **full** marks.*
 - (5) *Assume suitable data, if **necessary**.*
 - (6) *Use of Non-programmable Electronic Pocket Calculator is **permissible**.*
 - (7) *Mobile Phone, Pager and any other Electronic Communication devices are **not** permissible in Examination Hall.*
 - (8) *Use of Steam tables, logarithmic, Mollier's chart is **permitted**.*

Marks

1. Attempt **any five** from following :

(5×4=20)

- a) Describe the working of isolator and circulator.
- b) Draw schematic of magnetron, write function of each part.
- c) With help of neat sketch, describe construction of gunn diode.
- d) What is MTI Radar ? Draw its block diagram.
- e) Define uplink and downlink frequency with respect to satellite communication.
- f) Draw orbital subsystem and give the function of component of subsystem.
- g) Draw basic pulse radar system. Give function of each block.

2. Attempt **any four** :

(4×4=16)

- a) What is circular waveguide ? Give two application and advantages.
- b) Draw neat diagram of Reflex klystron. Write function of each component.
- c) State the working of IMPATT diode. Sketch diagram of it.
- d) Draw basic block diagram of Radar system.
- e) State the concept of orbit. List its type in satellite communication.
- f) Draw power subsystem. List the function of power subsystem in satellite system.

P.T.O.

3. Attempt **any two** :

(2×8=16)

- a) i) Describe the function of E and H plane junction in microwave communication system with neat diagram. 4
- ii) Compare waveguide with transmission line. 4
- b) Give minimum 8 advantages of microwave tube over conventional vacuum tubes. 8
- c) Draw microwave bipolar transistor with constructional diagram. Give its advantages and disadvantage and its specific application. 8

4. Attempt **any four** :

(4×4=16)

- a) Define cut off frequency, group and phase velocity of waveguide.
- b) Describe the working of cavity resonator. Give its application.
- c) What is antenna scanning and tracking in Radar system ? What is significance of it ?
- d) Draw the construction of PIN diode and explain its working.
- e) Describe A-scope display method used in RADAR system.
- f) Write different microwave spectrum used in satellite communication system with uplink and downlink frequency.

5. Attempt **any two** of following :

(2×8=16)

- a) Draw the construction of TRAPATT diode. Give its working. Give its application, advantage and disadvantage with other microwave component.
- b) Draw the satellite subsystem schematic. Describe antenna subsystem in detail.
- c) Define the term :
- a) Look angle
- b) Longitude
- c) Latitude
- d) Station keeping.

6. Attempt **any two** of following :

(2×8=16)

- a) Draw and explain Radar Beacon.
- b) Draw neat sketches and give applications of following :
- i) Flanges
- ii) Rotating coupling
- iii) Bends
- iv) Taper.
- c) Draw and give working, specification and application of two cavity klystron amplifier.