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NEPWT—145—2024

FACULTY OF SCIENCE

M.Sc. (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

PHYSICS

Paper—SPHYC—503

(Electronics-I : Microwave Devices)

(Saturday, 14-12-2024)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—80

- N.B. :—** (i) All questions carry equal marks.
(ii) Question No. 1 is compulsory.
(iii) Solve any *three* of the remaining five questions [Q. No. 2 to Q. No. 6]
(iv) Figures to the right indicate full marks.

1. Solve the following questions : 20
- (a) Discuss applications of Smith chart.
- (b) Explain in brief velocity modulation in Klystron tube.
- (c) Give structure of microwave bend and discuss in brief.
- (d) Explain factors affecting range of radar.
2. (a) Discuss distribution parameters in case of two conductor transmission line. Establish transmission line equation. 10
- (b) What do you mean by standing waves ? Explain voltage standing wave ratio. 10

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3. (a) What are transferred electron devices ? Explain Gunn effect in brief. 10
- (b) With neat structure explain working of travelling wave tube (TWT) 10
4. (a) State various types of microwave T-junctions and explain construction and working of magic tee. 10
- (b) With neat schematic diagram explain construction and working of directional coupler. 10
5. (a) Draw the block diagram of pulsed radar systems and explain in brief. 10
- (b) Derive the expression for Radar range. 10
6. Write short notes on : 20
- (a) Reflection coefficient
- (b) Microwave solid state devices
- (c) Wave guide termination
- (d) Scanning with Radar.