

B.Tech. ESTC 2007 Sem-VII
3308Z

NARNALA - VII: WINTER - 2016
SUBJECT: MICROWAVE DEVICES & CIRCUITS

(2007 Course)

Day: Saturday
Date: 10-12-2016

Time: 2:30 P.M. TO 5:30 P.M.
Max. Marks: 80

N.B.:

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books
- 4) Draw diagrams **WHEREVER** necessary.

SECTION-I

- Q.1 a) Explain in detail TE and TM modes existing in rectangular wave guide. (05)
b) Write short note on microwave circulators. (05)
c) Give principles of operation, construction and working of reflex klystron. (04)
- Q.2 a) Define: (07)
i) Cut off wave number
ii) Resonant frequency
iii) Phase constant existing in rectangular cavity
b) Discuss power transmission in rectangular waveguide with power losses. (06)
- Q.3 a) Write short note on microwave high pass filter. (07)
b) Comment on microwave twist, bends and joints. (06)
- Q.4 a) Explain in detail construction and working of helix TWT. (07)
b) Compare two cavity klystron with reflex klystron. (06)

SECTION-II

- Q.5 a) How varactor diode operate at microwave frequency. (05)
b) Explain Gunn effect. (05)
c) Discuss ohmic losses in strip line. (04)
- Q.6 a) Write short note on Multicavity reflex Klystron. (07)
b) Explain beam and filed interaction in TWT. (06)
- Q.7 a) Write short note on construction and application of microstrip line. (07)
b) Explain PIN diode. (06)
- Q.8 a) Derive expression for characteristics impedance of microstrip line. (07)
b) Discuss applications of microwave link. (06)

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