Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Microwave Communication: Electronics and Technology

Subject Code: 5SC04MCT1 Branch: M.Sc. (Physics)

Semester: 4 Date : 20/10/2018 Time : 10:30 To 01:30 Marks : 70

Instructions:

(1) Use of Programmable calculator and any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

SECTION – I

Q-1 Define the Following terms: (07)

a. Flanges
b. Antenna
c. Waveguide
d. Extrinsic semiconductor
e. Microwave
f. Reflex
g. Oscillation

Q-2 Attempt all questions (14)

(a) What is TWT? Explain the working principle of TWT with suitable figure. **7**
(b) What is BJT? Explain the working phenomenon of BJT. **7**

OR

Q-2 Attempt all questions (14)

(a) What is Varactor diode? Explain with suitable figure. **7**
(b) What is Shcottky diode? Explain with suitable figure. **7**

Q-3 Attempt all questions (14)

(a) What are negative resistance devices? Explain Gunn diode. **7**
(b) What are Impatt devices? Explain working principle of Impatt devices. **7**

OR

Q-3 (a) What is MESFET? Explain the working principle of MESFET **8**
(b) Explain the working principle of tunnel diode. **6**

SECTION – II

Q-4 **Define the Following terms:** **(07)**

a. Coupler
b. Jointer in waveguide
c. Adhesive
d. Refractive index
e. Free space
f. Impedance
g. Space wave

Q-5 **Attempt all questions** **(14)**

What is propagation of modes? State and explain the transmission line equation briefly.

OR

Q-5 What are characteristics of impedance? Find out the characteristics impedance in the form of attenuation and phase constant.

Q-6 **Attempt all questions** **(14)**

What is the wave propagation in free space? Explain briefly the ionospheric propagation with its range.

OR

Q-6 **Attempt all Questions**

How many types of Antenna? Explain the working principle of parabolic and helical antenna.