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Total Number of Pages : 02

B.Tech  
PET6I102

6<sup>th</sup> Semester Regular / Back Examination 2018-19

HIGH FREQUENCY ENGINEERING

BRANCH : ECE, ETC

Max Marks : 100

Time : 3 Hours

Q.CODE : F208

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Only Short Answer Type Questions (Answer All-10) (2 x 10)

- Differentiate between Magnetron and klystron.
- Define TWT and BWO.
- Write down the properties of S-Matrix.
- What is junctions of E, M hybrid? (with neat diagram)
- What is staggered PRFs in Doppler radar?
- Discuss Lobe switching in angle tracking systems.
- What do you mean by varactor diode?
- Write down the measurement of VSWR.
- What is phase shifter in microwave components?
- Write down the limitations of conventional tubes.

Part- II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- What is crossed field amplifier and why it is named so?
- Give a brief idea about Gunn Diode.
- Discuss Avalanche transit time effect in detail.
- What do you mean by coupler parameter? Explain its types in detail.
- A signal of power of 32 mW is fed into one of the collinear ports of a lossless H-Plane T. Determine the powers in the remaining ports when other ports are terminated by means of matched loads and power delivered to port at which power is fed.
- Discuss Rat Race junction/ Hybrid junction in detail.
- Discuss the construction and operation of Gyrator with proper diagram.
- Define and explain Bunching process with neat diagram.
- Explain reflex klystron in single cavity with neat diagram and proper example.
- A two cavity klystron operates at 5GHz with a DC beam voltage of 10Kv and cavity grid gap of 1mm. The amplitude of microwave input is 100V. Calculate the transit time and the transit angle at the buncher cavity and beam coupling coefficient.
- Write down the basic principles and operation of moving target indicator (MTI).
- What do you mean by delay line cancellers? Explain in detail.

**Part-III**

**Only Long Answer Type Questions (Answer Any Two out of Four)**

- 210 **Q3** 210 Explain MASER in detail with proper examples and neat diagram. 210 (16) 210
- Q4** Write down about all the ferrite devices. (16)
- Q5** Discuss frequency modulated continuous wave radar in detail. (16)
- 210 **Q6** 210 Define radar range equation, pulse repetition frequency and range ambiguities in detail. (16) 210