

PD-161
(521)M.Sc. PHYSICS (FIRST-SEMESTER)
Examination DEC.- 2020
Compulsory/Optional
Group-
Paper-I

Name/Title of Paper- ELECTRONICS (I)

Time:- Three Hours.]

[Maximum Marks:080

[Minimum Marks:.....

नोट : दोनो खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note: Answer from Both the Section as Directed. The Figures in the right-hand margin indicate marks.

Section-A

1. Answer the following questions - (1x10=10)

- (a) JFET is also called unipolar Transistor.
- (b) What is meant by bipolar in bipolar Transistor.
- (c) Write the condition when a feedback amplifier work as on oscillator.
- (d) Write a eruptions write shows the relation among the coefficient of FET.
- (e) What do you mean by CED.
- (f) What is functions of SIO₂ in MOSFET?
- (g) Give name of any two transfer electron devices.
- (h) Why UJT is called unijunction?
- (i) In amplitude modulation amplitude of cornier wave is function of
- (j) Which semiconductor devices is used for detection of SSB waves.

2. Answer the following short answer type questions - (2x5=10)

- (a) Differentiate between DE-MOSFET and E-MOSFET ?
- (b) What do you mean by interface trapped charge.
- (c) Write symbol and use of bulk word diode.
- (d) A carrier wave of 460 watts is subjected to 100% amplitude modulation the power of side bands and modulators wave.
- (e) What are break down devices ? Give symbol of UTT.

Section-B

Answer the following log-answer type questions -

3. (a) Draw equivalent ckt of BJT and obtain an expression for h Parameters in CE mode. 8
- (b) What do you mean by feedback in an amplifier device an expression for condition of oscillator in a feedback amplifier 7

OR

- (a) Why JFET is called junction field effect? Explain construction and working of P channel JFET. 8
- (b) Give the characteristics curves of DE-MOSFET and explain tham write any two use of MOSFET. 7

4. Explain the construction and working of MIS diode. Draw energy band diagram for its various cases and discuss them. 15

OR

Describe the following -

15

- (a) Surface depletion region of MOS diode.
(b) Charge control devices.

5. What are Microwave devices ? Explain construction and working of turned diode with energy band structure. Discuss about negative resistance. 15

OR

Write short notes on -

8+7

- (a) Transfer Selection devices.
(b) IMPATT diode

6. What do you mean by modulation? Why modulation is required ? Explain amplitude modulation with suitable circuit diagram with mathematical expression for practice of modulation 15

OR

Explain any one methods for generation and detection of SSB wave? Write down advantage and disadvantages of SSB modulation.