Roll No......................   Total No. of Unit   : 04
                                Total No. of Printed Pages : 03

Code No. : 03/401

Third Semester Examination, Dec. 2018

M.Sc. PHYSICS

Paper - IV

SPECIAL PAPER - II, (ELECTRONICS)

Time : 3 Hrs.   **Max. Marks : 80**

- Part A and B of each question in each unit consist of very short answer type questions which are to be answered in one or two sentences.
  Part C (Short answer type) of each question will be answered in 200-250 words.
- Part D (Long answer type) of each question should be answered within the word limit 400-450.

Unit - I

Q.1 A. What do you mean by half substractor and full substractor?   **(2)**

Q.1 B. What is the application of multiplexer?   **(2)**

Q.1 C. Explain the working of R-S flip-flop with necessary diagram and truth table.   **(4)**

OR

Discuss the basic principle of decoder and encoder.

Q.1 D. What are Registers? Explain its types and applications.   **(12)**

OR

Explain the working principle, types and applications of counters.

P.T.O.

Unit - II

Q.2 A. What are seven segment display? **(2)**

Q.2 B. What are digital display units? **(2)**

Q.2 C. Describe the working and construction of photo detector? **(4)**

OR

Write the principle of LED numeric and alphanumeric display units.

Q.2 D. Describe the working, construction and types of photo diode. **(12)**

OR

What are LED? Explain its following features :

(a)   Construction and working

(b)   Measuring instruments with LED indicators

(c)   Applications

Unit - III

Q.3 A. Write the elements which exhibit Gunn effect. **(2)**

Q.3 B. Write the disadvantages of microwave communication. **(2)**

Q.3 C. Explain the principle of reflux klystron. **(4)**

OR

Explain Gunn effect.

Q.3 D. Write the principle of two cavity klystron and its working. **(12)**

OR

Explain the principle and operation of Magnetron.

Unit - IV

Q.4 A. What are geo-stationary state? **(2)**

Q.4 B. What do you mean by geo-synchronous orbits? **(2)**

Q.4 C. Explain Radar transmitting system. **(4)**

OR

Explain Radar Antennas and Radar Receivers.

Q.4 D. Explain the function of communication satellite and explain the earth station geometry. **(12)**

OR

Write the basic principle of RADAR and derive the expression for Radar cross section.

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