AD-3217
Third Year B. Sc. (Sem. VI) Examination
March/April – 2015
Physics : Paper - X
(PHY - 6010)

Time : 2 Hours] [Total Marks : 50
Instructions :
(1)
(2) Draw neat diagrams wherever necessary.
(3) Symbols used in the paper have their usual meaning.
(4) Figures to the right indicate full marks of the question.

1 Answer the following as required in brief : 8
   (i) Draw the block diagram 1 to N Demultiplexer .
   (ii) Define intrinsic speed.
   (iii) Write any one advantage of rotary oil pump.
   (iv) Draw the block diagram of parallel input, parallel output
        register.
   (v) ______ are most used for designing counters.
   (vi) What is Exhaust pump?
   (vii) ______ is an 4 bit universal register.
   (viii) Define Exhaust (E).

2 (a) Answer any one of the following in detail. 10
   (i) Describe with a neat diagram, the construction and
       working of a cenco. Hyvac rotary oil pump.
   (ii) Describe, with a neat diagram, the construction of
       a mercury vapour pump and explain its working.
       Why does it need a backing pump ?
(b) Attempt any one of the following:

(i) Give advantages of a rotary oil pump.

(ii) Explain the construction and working of Thermocouple gauge.

3 (a) Answer any one of the following in detail.

(i) Construct a 4-bit binary ripple down counter with circuit diagram. Explain its operation.

(ii) Construct the Master-slave JK flip-flop with circuit diagram. Explain its operation.

(b) Attempt any one of the following:

(i) Distinguish between combinational and sequential logics circuits.

(ii) Explain and convert JK flip-flop into T flip-flop.

4 Answer any two of the following.

(i) Explain left shift register in brief.

(ii) Explain what is meant by the speed of an exhaust pump.

(iii) Explain the construction and working of Ionization gauge.

(iv) Write short note on Encoders.