Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.

Note: first question is compulsory. Attempt two questions from each section A and B.

1(a) What is the meaning of data acquisition system?
   (b) Write a short note on classifications of the embedded systems.
   (c) Differentiate between polling & interrupt.
   (d) What do you mean by host machines & target machines?
   (e) What are the advantages of computer based control instrumentation?

   **(4*5=20)**

**SECTION – A**

2(a) Write a detailed note on the design process in embedded system.

   **(14)**

   (b) What do you mean by the term “multiple interrupts”.

   **(6)**

3(a) How will you justify the programmed I/O busy wait approach without interrupt service mechanism?

   **(15)**

   (b) What is the difference between soft real time operating systems and hard real time operating systems?

   **(5)**

4(a) Discuss different hard real time scheduling considerations?

   **(8)**

   (b) Elaborate the concept of encapsulating semaphores and queues.

   **(12)**

5. Write short note on any four of the following:
   a) PROM programmers
   b) Flash memory
   c) ROM emulators
   d) In-circuit emulators
   e) Cross compiler

6. Write a case study on an embedded system for an adaptive cruise control.

   **(20)**

7(a) Which are various control objectives in a general control system?

   **(6)**

   (b) Write a detailed note on the general control system and PID controllers.

   **(14)**