Note : 1) Diagrams should be neat and labeled.
2) All questions are compulsory.
3) Figures to the right indicate marks.

ES-3

Q. 1 Answer the following : (Any two) : 10

1) Explain the difference between Big endian and Little endian ?
2) Write what is embedded system and give application areas of embedded system.
3) Explain USB as communication interface with diagram.
4) Explain serial peripheral interface in detail ?

Q. 2 Answer the following : (Any two) : 10

1) Explain any five characteristics of embedded system ?
2) Explain automobiles in details with it's communication interface types ?
3) Write short note on washing machine.
4) Explain non-operational quality attributes ?

Q. 3 Answer the following : (Any two) : 10

1) Explain structure of embedded program ?
2) Write short note on compiling process.
3) Explain linking and locating process of embedded program in detail ?
4) Write a short note on infinite loop ?

Q. 4 Answer the following : (Any two) : 10

1) Use CRC algorithm for testing memory for sender and receiver side message, original message is 11010011101100 and generator polynomial is 1011.
2) Write a short note on address bus test.
3) Explain memory map and interrupt map ?
4) Explain RAM and ROM memory with their types ?

Q. 5 Answer the following : (Any two) : 10

1) Write short note on embedded operating system.
2) Explain watchdog timer in detail ?
3) Write short note on scheduling points.
4) Explain deadlock and priority inversion concept ?

Q. 6 Answer the following : (Any two) :

1) Explain types of file generated in cross-compilation process ?
2) Explain simulator and emulator in detail ?
3) Explain life cycle of embedded system development ?
4) Explain the concept of IDE in detail ?

Q. 7 Answer the following : (Any three) :

1) Write short note on COTS.
2) Explain any five operational quality attributes ?
3) Explain simulator, oscilloscope and logic analyzer ?
4) Write short note on CRC algorithm.
5) Explain task and multitask in detail ?
6) Define the following :
   i) Sensor ii) Actuator iii) I2C
   iv) NVRAM v) PROM

—— The End ——