

Faculty of Engineering & Technology
Eighth Semester B.E. (Electronics)/EDT Examination
EMBEDDED SYSTEMS

Elective—II

Sections—A & B

Time : Three Hours]

[Maximum Marks : 80

INSTRUCTIONS TO CANDIDATES

- (1) All questions carry marks as indicated.
- (2) Answer **THREE** questions from Section—A and **THREE** questions from Section—B.
- (3) Due credit will be given to neatness and adequate dimensions.
- (4) Illustrate your answers wherever necessary with the help of neat sketches.

SECTION—A

1. Draw the block diagram of 68HC12 and explain the on-chip peripherals in detail. 13
2. Interface 16×1 liquid crystal display to 68HC12. Also write and explain the WHY P program to display 'Embedded systems' on LCD. 13

- 3. (a) What are different addressing modes of 68HC12 ?
Explain with one example each. 7
- (b) Describe different hardware interrupts of 68HC12.
List them according to priorities. 6
- 4. (a) Explain the system stack and data stack in 68HC12.
Give an example. 7
- (b) What the WHY P words MIN and MAX mean ?
Write the WHY P code for the same. 7
- 5. Interface four digit seven segment display using
MC 14499 decoder driver with 68HC12 and write
WHY P program to display 0000 to 9999 count with the
interval of 1 sec. Discuss the program in brief. 13

SECTION—B

- 6. (a) Explain the memory mapping of 68HC12. 7
- (b) Discuss the out compare and input capture in
68HC12. 7
- 7. (a) Explain in detail :
 - (i) ATDCTLS
 - (ii) ATDSTAT
 - (iii) ATDSTATL. 9
- (b) Discuss data register and baud rate control register
of SCL. 4

- 8. Explain with block diagram Analog to Digital
converter module of 68HC12. Comment on the following
terms :
 - (i) 8/4 channel mode
 - (ii) continuous scan control
 - (iii) multiple/single channel
 - (iv) channel addresses
 - (v) sequence complete flag
 - (vi) conversion complete flag. 13
- 9. (a) Explain how synchronous serial communication is
done using 68HC12. 7
- (b) Explain the pulse accumulator available in timers
of 68HC12. 6
- 10. (a) Explain the words :—
 - (i) SIGN
 - (ii) TYPE
 - (iii) SPACE
 - (iv) HOLD. 7
- (b) Explain the following instructions of 68HC12 :—
 - (i) EMVL
 - (ii) FDIV
 - (iii) LDD 2, X —. 6