

B.E. (Elect. & Telecommunication / Elect. & Communication Engineering)  
Eighth Semester (C.B.S.)  
**Elective-II : Embedded System**

P. Pages : 2

Time : Three Hours



NRJ/KW/17/4702

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Due credit will be given to neatness and adequate dimensions.

1. a) State different design challenges appear while designing the system. 7

b) Explain Time to market. NRE and unit cost design metric with an example. 7

**OR**

2. a) List various application areas of an embedded system. 7

b) Explain the design process for Automatic chocolate vending machine. 7

3. a) Explain the role of Interrupt service mechanism in embedded system. 7

b) Explain Device Drivers in detail. 6

**OR**

4. a) Explain software architecture of an embedded system. 6

b) Explain memory organization in an embedded system with little and big endian memory organizations. Also explain Princeton and Harvard memory architecture. 7

5. a) Explain exception handling mechanism of ARM processor. 6

b) Explain CPSR in detail. 7

**OR**

6. a) State and explain ARM core extensions. 6

b) Explain Nomenclature & pipelining in ARM processor. 7

7. Write technical note on **any two**. 14

i) CAN protocol

ii) I2C protocol

iii) Bluetooth

**OR**

8. a) Write short note on IEEE 802.11. 7  
b) Explain USB in detail. 7
9. a) What is task? How task scheduler manage the task in Kernel. 6  
b) Explain Timer and Event Function in detail. 7

**OR**

10. Write short note on following Kernel objects **any three**. 13
- a) Semaphore  
b) Mutex  
c) ISR  
d) Mailbox

11. Explain the case study of Digital camera in detail. 13

**OR**

12. Discuss in detail the case study of communication between orchestra robots. 13

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