B – 5596

(Pages : 3)

Reg. No. : .....

Name : .....

Sixth Semester B.Tech. Degree Examination, March 2017

(2008 Scheme)

08.606 : EMBEDDED SYSTEMS (F)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. How will the definition of embedded system change with system-on-chip ?
2. Why does a processor system always need an 'Interrupt Handler' ?
3. How do separate caches for instruction, data and branch-transfer help ?
4. What are the advantages in Harvard architecture ?
5. What is the advantages of polymorphism, when programming using C++ ?
6. Give the features of top-down design of a program.
7. Why do you use infinite loop in embedded system software ?
8. What is a block file system ?
9. A strategy is that tasks are created at start up only and creating and deleting tasks later is avoided. Why should it be adopted ?
10. How does an OS solve priority inversion problem by a priority inheritance mechanism ?

(4×10=40 Marks)

P.T.O.

PART – B

Answer **any one** question from **each** module.

Module – I

11. i) What do you mean by a hardware timer and software timer ? **5**

ii) Explain the control bits (or signals) and status flags of a hardware timer and software timer. **8**

iii) How do the software timer help in scheduling multiple tasks in real time ? **7**

OR

12. i) Why the device drivers are processor sensitive programs ? **5**

ii) How do you use the vector address for an interrupt source ? **5**

iii) What are the advantages and disadvantages of interrupt driven data transfer or DMA based data transfer ? **10**

Module – II

13. i) How and when are the following used in a C program.

a) # define

b) typedef

c) null pointer

d) passing the reference

e) recursive function. **10**

ii) What are the advantages of having short ISR that build the function queues for processing at a later time ? **5**

iii) What are the advantages of using GNU C/C++ compiler ? **5**

OR

14. i) Explain the following :

i) QUEUES

ii) STACKS

iii) LISTS

iv) ORDERED LISTS. **8**

ii) What is the need for optimising the memory needs in the system ? What are the various standard ways for optimising the memory needs in the system ? **12**

Module – III

15. i) What are the OS units at an RTOS Kernal ? **4**

ii) What is a mail box ? How does a mail box pass a message during an IPC ? **10**

iii) What are the advantages of time-slice scheduling by an RTOS ? **6**

OR

16. i) What is meant by a pipe ? How does a pipe differ from a queue ? **8**

ii) What is meant by a spinning lock ? Explain the situation in which the use of spinning mechanism would be highly useful to lock the transfer of control to a higher priority task. **12**