Total No. of Questions :10]

SEAT No. :

**P1758**

[Total No. of Pages :3

# [5058]-398

## T.E. (Computer Engineering)

## EMBEDDED OPERATING SYSTEMS

## (2012 Pattern) (End-Sem.) (Semester - II) (310250)

*Time : 2½ Hours]* *[Max. Marks :70*

***Instructions to the candidates:***

1) ***Answer Q.No.1 or Q.No.2, Q.No.3 or Q.No.4, Q.No.5 or Q.No.6, Q.No.7 or Q.No.8, Q.No.9 or Q.No.10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

***Q1)*** a) List and explain non-preemptive scheduling algorithms? **[6]**

b) What are the message pipes? How they are useful to Kernel? **[4]**

OR

***Q2)*** a) What is the difference between Thumb and ARM modes of ARM? **[4]**

b) Give total number of registers found in ARM mode of ARM architecture? Give reason for their existence. **[4]**

c) What is tardiness and laxity? **[2]**

***Q3)*** a) Explain Linux kernel construction. **[4]**

b) What are the following with respect to Linux kernel? **[3]**

i) zImage

ii) vmlinuz

c) Draw a typical flash memory layout. **[3]**

OR

***P.T.O.***

*Q4)* a) With the help of neat diagram, explain composite kernel image construction. **[6]**

b) Give details of Busy Box configuration. **[4]**

*Q5)* a) What is the use of flash memory found on the embedded/target board? What are the limitations of flash memory? **[5]**

b) What is journaling? Give the names of two file systems where it is used. **[6]**

c) What are loadable modules with respect to device drivers? Give Commands for loading and unloading device driver modules. **[6]**

OR

*Q6)* a) What are the responsibilities of bootloader when designed for an embedded board? **[6]**

b) How DHCP/BOOTP protocols are useful for embedded Linux development? **[6]**

c) Write a note on MTD subsystem. **[5]**



*Q7)* a) With the help of neat diagram, explain the Linux kernel debugging on target board. **[7]**

b) Describe GDB, DDD, cbrowser/cscope. **[6]**

c) What is SSH? When do you use it? **[4]**

OR

*Q8)* a) With the help of neat diagram, explain interfacing of BBB with Stepper motor. **[7]**

b) Discuss the challenges faced by developer while debugging Linux kernel code. **[6]**

c) What is gdbserver? **[4]**

***Q9)*** a) With the help of neat diagram, explain embedded android Architecture. **[8]**

b) Explain different steps involved in porting Linux on embedded/target board. **[8]**

OR

***Q10)***a) Explain the following terms with respect to embedded android: **[8]**

i) Launcher

ii) Activity manager

iii) Dalvic VM

b) What is required to preempt Linux kernel? **[4]**

c) What are sources of preemption latency in Linux kernel? **[4]**

EEE