Total No. of Questions : 10]

SEAT No. :

P2464

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T.E. (Computer Engineering)

EMBEDDED OPERATING SYSTEMS

(2012 Pattern) (Semester - II)

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 indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) What is priority inversion? What are the solutions available to handle the priority inversion? **[6]**

b) What is Readers-Writers problem? **[4]**

OR

Q2) a) Explain the RISC architectural features of ARM. **[4]**

b) What are the quality points that rate a scheduling algorithm? **[4]**

c) Name four Embedded Operating Systems. **[2]**

Q3) a) What are the reasons for the growth and popularity of Embedded Linux? **[3]**

b) Explain steps involved in compiling Linux Kernel for ARM -XScale architecture as a target. **[5]**

c) Name four executables or binaries of Embedded Linux. **[2]**

OR

Q4) a) What is cross development environment for Linux? Elaborate. **[5]**

b) What is Busy Box? How to configure it? Explain its usefulness in embedded systems. **[5]**

Q5) a) Name and explain the typical bootloader used for embedded/target board? Also mention the commands available with such a bootloader. **[6]**

b) How to format and partition a USB stick? Explain the commands used. **[7]**

c) How flash memory is used in embedded/target board? What are its limitations? **[4]**

OR

P.T.O.

Q6) a) What are the different types of device drivers? Explain depmod and rmmod. **[6]**

b) How MTD utility is useful for target boards? How to enable and use MTD services? **[6]**

c) What is Das U-Boot? What are U-Boot command sets? **[5]**

Q7) a) What is core dump? How to debug a core dump? **[7]**

b) Recognize and explain the following: **[6]**

i) ps

ii) strace

iii) mtrace

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

OR

Q8) a) What is a stepper motor? How to interface BBB with Stepper motor? **[7]**

b) How do modern processors and compilers make it difficult to debug Linux kernel? **[6]**

c) What are the challenges faced while debugging Linux application code? **[4]**

Q9) a) Explain in details steps involved while porting Linux on a target board. **[8]**

b) What are the scheduling policies used by Linux to schedule real time processes? **[6]**

c) Explain Zygote for Embedded Android. **[2]**

OR

Q10)a) What are real-time processes? Which latency periods affect their performance? **[8]**

b) What is real-time scheduling in Linux? **[4]**

c) Explain System Server and Activity Manager for Embedded Android. **[4]**