

Total No. of Questions :10]

SEAT No. :

**P2895**

**[4958]-1088**

[Total No. of Pages :3

**T.E. (Computer Engineering)**  
**EMBEDDED OPERATING SYSTEMS**  
**(2012 Course) (Semester -II) (310250)**

*Time : 2½ Hours]*

*[Max. Marks :70*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6,Q.7 or Q.8, Q.9 or Q.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)** How user space application communicates with the hardware? **[4]**
- b) Write an ARM assembly program to find value of expression  $5X + 4Y + 3Z$ , where  $X = 4, Y = 5, Z = 3$ . **[6]**

OR

- Q2) a)** With the help of a diagram explain the classification of real-time scheduling methods. **[6]**
- b) Explain role of barrel shifter in the ARM. **[4]**
- Q3) a)** Explain the steps involved in initialization flow of control on embedded Linux. **[6]**
- b) Why 'BusyBox' is used in embedded systems? Explain. **[4]**

OR

- Q4) a)** What are the steps involved in 'subsystem initialization'? **[4]**
- b) Write short note on(any two): **[6]**
- i) LSB
  - ii) OSDL
  - iii) Init thread

**P.T.O.**

- Q5)** a) Explain the role of boot loader in embedded systems. [4]
- b) Explain Linux device driver architecture using minimal device driver. [8]
- c) What module utilities are used to add, delete & to get information about the modules? [5]

OR

- Q6)** a) How MTD services are enabled in embedded system? [6]
- b) Explain about U-boot configurable commands. [5]
- c) Give the general steps involved in PCI discovery process and probe function. [6]
- Q7)** a) Explain the use of GDB in debugging a core dump. [7]

- b) With a neat diagram explain the graphics display of data in embedded systems. [10]

OR

- Q8)** a) How to debug the kernel using 'printk'? [5]
- b) Write short note on (any two): [6]
- i) DDD
- ii) EGL
- iii) OpenGL
- c) Explain the tracing and profiling tools used in Embedded Application development. [6]

- Q9)** a) Explain in detail, development process of Android applications. [8]  
b) Explain four preemption modes of Linux kernel. [8]

OR

- Q10)**a) Write short notes on (any two): [8]  
i) Dalvik VM  
ii) Zygote  
iii) Activity Manager  
b) What policies are used by Linux to schedule a real time process? [8]

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