

**MANIPAL UNIVERSITY****FOURTH SEMESTER M. Sc. TECH EMBEDDED SYSTEMS DEGREE  
EXAMINATION – NOVEMBER 2015****SUBJECT: ESD 604 – DEVICE DRIVERS**

Thursday, November 19, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

1. How can we print the base name of the program of the current process and its pid. What are the header files that need to be included to perform this operation?  
(7+3 = 10 marks)
2. How can we dynamically allocate a major number for a module?  
(10 marks)
3. List the various versions of Kmalloc? Illustrate the flags used.  
(10 marks)
4. What are the basic functions of the read method? Illustrate with an example code.  
(7+3 = 10 marks)
5. Why do we use the ioctl system call? How do we implement it in modules?  
(6+4 = 10 marks)
6. What is a wait queue? Where do we use it? Give examples to illustrate the usage of wait queues.  
(5+2+3 = 10 marks)
7. How do we implement short delays in kernel modules?  
(10 marks)
8. How are the tasks scheduled in the pre-defined task queues in linux kernel?  
(10 marks)
9. What are the various methods of writing to I/O ports?  
(10 marks)
10. How should we write an interrupt handler? Describe the usage of bottom half in interrupt handlers.  
(6+4 = 10 marks)

