

Question Paper



MANIPAL UNIVERSITY

SCHOOL OF INFORMATION SCIENCES (SOIS)
SECOND SEMESTER - MASTER OF ENGINEERING - ME (EMBEDDED
SYSTEMS)

DEGREE EXAMINATION - APRIL 2017

Friday, 21, 2017

Time : 10:00 AM - 1:00 PM

Device Drivers [ESD 604]

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Describe the structure of a linux kernel. (10 marks) (10)
- 2) What is name-space pollution? How do we avoid it? List at least two techniques. (6+4 marks) (10)
- 3) How can we change the names of `init_module` and `cleanup_module`? Why should we use `__init` and `__exit`? (6+4 marks) (10)
- 4) Describe the usage of parameters for manually configuration of modules. Give an example. (7+3 marks) (10)
- 5) Why do we use the `file_operations` structure in device drivers? List its various fields. (6+4 marks) (10)
- 6) How do we create a timer in kernel? Give an example. (7+3 marks) (10)
- 7) What is the `barrier()` macro? Why do we use it? (7+3 marks) (10)
- 8) How can we write string data to I/O ports? (10 marks) (10)
- 9) Comment on self-probe associated with irq detection. (10 marks) (10)
- 10) Comment on the usage of circular buffers in handling race conditions arising due to (10)

interrupts.

(10 marks)