

# Question Paper

Exam Date & Time: 22-May-2023 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal  
Second Semester Master of Engineering - ME (Embedded Systems) Degree Examination - May 2023

### Device Drivers [ESD 5201]

**Marks: 100**

**Duration: 180 mins.**

**Monday, May 22, 2023**

**Answer all the questions.**

- 1) Describe the role of a device driver. (TLO 1.1, CO1, L2) (10)
- 2) Describe the security issues involved in module programming (TLO 1.2, CO1, L2) (10)
- 3) Illustrate how you compile and load a kernel module. Describe the Makefile required for this purpose. (TLO 1.2, CO1, L2) (10)
- 4) Explain dev\_t and kdev\_t structures used with respect to major and minor numbers. How can we extract the major and minor numbers inside the driver? (TLO 1.3, CO1, L3) (10)
- 5) Explain kmalloc and kfree. Give examples to use it. (TLO 3.1, CO4, L3) (10)
- 6) Illustrate why we use the ioctl system call. How do we implement it in modules? (TLO 1.2, CO1, L3) (10)
- 7) Discuss how do we define and schedule tasklets? Illustrate with an example. (TLO 3.1, CO4, L2) (10)
- 8) Describe the architecture of the PC parallel port. (TLO 3.2, CO4, L2) (10)
- 9) Illustrate disabling interrupts in interrupt handlers (TLO 3.2, CO4, L2) (10)
- 10) Explain implementing llseek in a Linux device driver Give an example (TLO 3.2, CO4, L2) (10)

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