

Question Paper

Exam Date & Time: 11-Aug-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences, Manipal Second Semester Master of Engineering - ME (Embedded Systems) Degree
Examination(Makeup) - August 2022

Device Drivers [ESD 5201]

Marks: 100

Duration: 180 mins.

Thursday, August 11 ,2022

Answer all the questions.

- 1) Classify the different types of devices. Give examples for each type (TLO 1.1) (10)
- 2) Write a simple module program to print hello world. How do we compile this code? (TLO 1.2) (10)
- 3) Illustrate how we write concurrent code. Comment on reentrant code and race conditions (TLO 2.2) (10)
- 4) Describe explicit init and cleanup functions in modules. When do we use `__init` and `__exit`? (TLO 1.2) (10)
- 5) Explain the `file_operations` structure found in `<linux/fs.h>`. Why do we use this in module programming? (TLO 1.3) (10)
- 6) Discuss debugging modules using the proc file system. Give an example (TLO 2.1) (10)
- 7) Explain spin-locks. Where do we use spin locks? Distinguish between spin-locks and semaphores (TLO 2.3) (10)
- 8) Explain the need of memory barriers. What are the different kinds of barrier functions available for use in kernel modules? (TLO 3.1) (10)
- 9) Write an interrupt handler. Describe the usage of the bottom half in interrupt handlers. (TLO 3.2) (10)
- 10) Illustrate how we enable interrupt in parallel port. Give an example (TLO 3.2) (10)

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