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Question Paper Code: 45804

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fifth Semester

Information Technology

14UIT504 - EMBEDDED COMPUTING SYSTEMS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Which of the following are the two main components of the CPU.
 - Control Unit and Registers
 - Registers and Main Memory
 - Control unit and ALU
 - ALU and bus
- Which of the following modes will provide retrieval of a previous computing session with the least amount of boot-up time?
 - Shutdown
 - Hibernate
 - Standby
 - Restart
- Bus is a set of
 - Wires
 - Cards
 - Chips
 - Pins
- A computer program that converts an entire program into machine language at one time is called
 - Interpreter
 - CPU
 - Compiler
 - Simulator
- The method for updating the main memory as soon as a word is removed from the Cache is called
 - Write-through
 - write-back
 - protected write
 - cache-write

6. _____ is a model of a program with no conditionals.
- (a) Control flow graphs (b) Control/data flow graphs
(c) Data flow graph (d) Flow graph
7. Which phase makes detailed measurements of the development process and product quality in Capability Maturity Model (CMM)?
- (a) initial (b) repeatable (c) defined (d) managed
8. Which one of the following is not a real time operating system?
- (a) POSIX (b) Windows CE
(c) RTLinux (d) Palm OS
9. _____ refers to the message recorded by the owner of the machine and played at the start of every phone call.
- (a) Messaging (b) Incoming message
(c) Outgoing message (d) Both incoming / outgoing message
10. _____ not only captures images, it also performs a substantial amount of image processing that formerly was done by photofinishers.
- (a) Audio player (b) Data compressor
(c) Video accelerator (d) Digital still camera

PART - B (5 x 2 = 10 Marks)

11. What are the sophisticated functionalities of embedded systems?
12. What are the compilation techniques available in an embedded computing system?
13. In interprocess communication, how does a process send a communication?
14. Mention the networks for distributed embedded systems.
15. Define data compressor.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Explain the various data operations involved in ARM. (8)
(ii) Implement an if statement in ARM. (8)

Or

- (b) What do you mean by throwing an exception? How is the exception condition during execution of a function handled. (16)
17. (a) Explain in detail about compiler optimization techniques in embedded systems. (16)
- Or
- (b) Explain in detail about program validation and testing. (16)
18. (a) Explain in detail the various scheduling policies in RTOS with example. (16)
- Or
- (b) Write in detail about shared memory multiprocessors. (16)
19. (a) Discuss about the advanced techniques for specification. (16)
- Or
- (b) Explain in detail about quality assurance. (16)
20. (a) Summarize the sequence diagram of taking picture with digital still camera. (16)
- Or
- (b) Draw and discuss the block diagram and architecture of Video accelerator. (16)
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