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一、選擇題 40% (單選題，每題4分，答錯倒扣1分)

1. IO device controller informs CPU when it finished its operation by causing an
(a) interrupt (b) trap (c) buffer (d) stack
2. In RR scheduling, if the time quantum is infinite large, the algorithm's performance will be similar to
(a) SJF (b) priority (c) multi-level queue (d) FCFS
3. Which protocol is used for carrier transmission in wireless LAN?
(a) token ring (b) TCP (c) CSMA/CD (d) CSMA/CA
4. In IPv6, an IP address is composed by
(a) 32 (b) 64 (c) 128 (d) 256 bits.
5. Router is a device that forwards data packets along networks. Routers can determine the best path for forwarding the packets. This routing function is defined in which layer in the OSI 7 layers model?
(a) transport (b) network (c) data link (d) physical layer
6. Which information system is one kind of "IOIS"?
(a) SCM (b) CRM (c) MIS (d) EIP
7. Which information technology would have the greatest impacts on data interchange in B2B e-commerce?
(a) HTML (b) XML (c) Java (d) .NET
8. What is the most important difference between m-commerce and e-commerce?
(a) programming technology (b) network technology (c) data base (d) system development process
9. Which information technology will have the greatest impacts on transaction processing in a retail store?
(a) WWW (b) MIS (c) RFID (d) Bar code
10. Which one is NOT a major component of DSS?
(a) interactive user interface (b) data base (c) model base (d) network component

二、問答題 60% (每題10分)

1. Convert the following infix expression into (1) tree (2) postfix representation.
(A+B)-C*(D+E)
2. (1) What is "semaphore" technology which is used to solve the process synchronization problem?
(2) Please explain how semaphore can ensure "mutual exclusion" between two processes.

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3. Consider the following relations. The “Student” relation shows the fundamental information of students and “Class” relation contains the classes’ information in a school.

Student (snum: integer, sname: string, major: string, level: string, age: integer)

Class (name: string, room:string, faculty_id: integer)

Please write the following queries in SQL. No duplicates should be printed in any of the answers.

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- (1) Find the names of all Junior (level=JR)
 - (2) Print the level and the average age of students for that level, for all levels except JR.
4. Please explain the following MIS terminologies:
- (1) ERP (2) SIS
5. (1) What is data mining? (2) What is its role in CRM?
6. (1) What is KM? (2) Please describe at least three KM activities in a company in detail.

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