Aliah University

End-Semester Examination (Spring Semester) – 2023

(4th Year8th Semester4-yrs B.Tech)

Subject Name: Adhoc & Sensor Networks **Full Marks: 80**

Subject Code: CSEUGPE26 **Time: 3hrs**

Part – A (Answer all questions) 5 x 2=10

1. What are the characteristic requirements of Wireless sensor network?
2. Differentiate between active and passive sensors,
3. How clustering is useful in WSNs?
4. What is the concept of flooding mechanism?
5. What is data aggregation?

Part – B (Answer any 6 questions) 6 x 5 = 30

1. What are the challenges and the required mechanisms of a Wireless Sensor networks?
2. Differentiate between MANET and WSNs?
3. Explain variousapplications of WSNs?
4. What is the role of MAC layer in WSNs? Explain various attributes of the MAC protocol.
5. Discuss the operation of B-MAC protocol for the MAC layer in WSNs.
6. What is the hidden terminal problem in WSNs? How to overcome from it?
7. Differentiate between contention based protocols and schedule based protocols.
8. Write short note on IEEE 802.15.4.

Part – C(Answer any 4 questions) 4 x 10 = 40

1. Draw the architecture of a sensor node and discuss various component of it. 4+ 6
2. What are the attributes of MAC protocol and what are the causes of energy consumption in MAC layer of WSNs? 2+4+4
3. Discuss the various factors influenced the routing protocol in WSNs. 10
4. Define flat routing in WSNs? Explain the working principle of the SPIN and DD routing protocols? 2 + 4 + 4
5. Why the hierarchical routing protocol is needed in WSNs? Discuss the operation of LEACH protocol in details. 2+8
6. Construct an architecture of WSNs for detecting forest fire and explain how your model is useful for this application? 10

Even (Spring) Semester Examination 2022-23
Paper Code: MBAUGHU02; Paper name: Professional Values and Ethics
Btech (CSE) VIIIth Semester
Full Marks: 80; Time: 3Hrs.

(The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as possible)

GROUP: A (Answer *all* the questions) **(1 x 10 = 10)**

1. **I.** Which of the following is an example of a professional value?
(a) Honesty **(b)** Fame **(c)** Wealth **(d)** Power
II. What is the purpose of a professional code of ethics?
(a) To enforce rules and regulations **(b)** To establish guidelines for ethical behaviour
(c) To limit professional growth **(d)** To increase profits
III. Kohlberg's theory proposes that moral development progresses through how many stages?
(a) 3 **(b)** 6 **(c)** 9 **(d)** 12
IV. Kohlberg's theory proposes that moral reasoning is based on which of the following?
(a) Personal opinions and feelings **(b)** Cultural norms and values
(c) Logical reasoning and problem-solving skills **(d)** All of the above
V. Gilligan's theory proposes that women's moral reasoning is based on which of the following?
(a) Emotions and feelings **(b)** Rationality and logic **(c)** Cultural norms and values
(d) All of the above
VI. Which ethical theory emphasizes the importance of duty and obligation?
(a) Virtue ethics **(b)** Deontological ethics **(c)** Utilitarianism **(d)** Care ethics
VII. Which ethical theory evaluates the morality of an action based on its consequences?
(a) Virtue ethics **(b)** Deontological ethics **(c)** Utilitarianism **(d)** Care ethics
VIII. You are a software developer and have been asked by your manager to include a hidden feature in the company's software that will collect user data without their knowledge. What should you do?
(a) Follow your manager's instructions to keep your job
(b) Refuse to include the hidden feature and report your manager to higher management
(c) Include the hidden feature but make it clear in the software's terms and conditions that user data will be collected
(d) Consult with a lawyer before deciding what to do
IX. Company X creates a new software application that collects and stores personal information about its users. What ethical considerations should Company X consider?
(a) Ensuring that the data is encrypted and secure **(b)** Ensuring that users are informed about how their data will be used and have the option to opt-out **(c)** Ensuring that the data is used only for marketing purposes **(d)** Ensuring that the data is shared with third-party vendors for additional revenue
X. What caused the Challenger disaster?
(a) A mechanical failure in the shuttle's engines
(b) A failure of the shuttle's communication systems
(c) A faulty design of the shuttle's booster rockets **(d)** A failure of the shuttle's heat shields

GROUP: B (Answer *any five* questions) **(5 x 5 = 25)**

2. "Privacy has both intrinsic and extrinsic value". Comment on the statement.

3. As a manager at a company, you are faced with the difficult decision of whether to lay off some employees in order to reduce costs. How would you apply utilitarian ethical theory to make this decision?

4. What are the five key differences between morality and ethics?

5. Which moral behaviours are recognized across multiple cultures, according to the study conducted by Oxford University's anthropologists in 2019?

6. Describe the approaches of micro-ethics and macro-ethics.

7. How do cultural values influence parenting styles?

8. Write a short note on dual inheritance theory.

GROUP: C (Answer *any three* questions) **(15 x 3 = 45)**

9. What is regality theory, and how does it explain cultural variations?

10. Discuss utilitarian, duty, and virtue theories of ethical decision making.

11. Describe the approaches of Kohlberg and Gilligan to the moral development of individuals. What is the Heinz dilemma?

12. Write a comprehensive overview of the ethical issues surrounding the Challenger tragedy in 1986.

13. Explain in detail the following themes in computer ethics:

a. Computer as the object of unethical acts

b. Computers in the workplace

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End Semester Examination (Sping Semester) 2023

(For 4th Year 8th Semester B.Tech(CSE))

Paper Name: Distributed Systems **Full Marks: 80**

Paper Code: CSEUGPE21B **Time: 3 hours**

Group A (Answer all the questions) **10X1 =10**

1. In distributed system, each processor has its own _____.
a) local memory b) clock c) both local memory and clock d) none of the mentioned
2. If one site fails in distributed system then_____.
a) the remaining sites can continue operating b) all the sites will stop working c) directly connected sites will stop working d) none of the mentioned
3. Network Operating system runs on_____.
a) server b) every system in the network c) both server and every system in the network d) none of the mentioned
4. Which technique is based on compile-time program transformation for accessing remote data in a distributed-memory parallel system?
a) cache coherence scheme b) computation migration c) remote procedure call d) message passing
5. Logical extension of computation migration is _____.
a) process migration b) system migration c) thread migration d) data migration
6. Processes on the remote systems are identified by_____.
a) host ID b) host name and identifier c) identifier d) process ID
7. Which routing technique is used in a distributed system?
a) fixed routing b) virtual routing c) dynamic routing d) all of the mentioned
8. In distributed systems, link and site failures are detected by _____.
a) polling b) handshaking c) token passing d) none of the mentioned
9. The capability of a system to adapt the increased service load is called _____.
a) scalability b) tolerance c) capacity d)none of the mentioned
10. Internet provides _____ for remote login.
a) telnet b)http c) ftp d)rpc

Group B (Answer any 5 questions) **5X6=30**

1. i) Write the advantages of Ricart-Agarwala Algorithm.
ii) Write the metrics used for measuring the performance of Ricart-Agarwala Algorithm (3+3)
2. Differentiate a) tightly coupled and loosely coupled system. b) wait-die and wound-wait. (3+3)
3. i) What are the conditions for correctness of distributed control algorithms?
ii) Explain happened before relationship. (3+3)
4. Differentiate between Logical and Physical clocks. (6)
5. Write short notes on: i) a) Mutual Exclusion ii) Phantom deadlocks (3+3)
6. Discuss the processor pool model briefly. (6)

Group C (Answer any 4 questions) **4X 10=40**

1. Explain the Election algorithm in detail. (10)
2. Explain the Diffusion Computation based Algorithm for Distributed deadlock detection. (10)
3. How are the classifications of Mutual Exclusion algorithms done? Explain any two algorithms in detail. (2+8)
4. What are the conditions for Distributed Termination Detection? Explain the Credit-Distribution based Termination Detection Algorithm. (3+7)
5. Discuss the different approaches for distributed load balancing. (10)