

SEM II

ME Comp. (Choice Based)

Q.P.Code:13395

11

(3 hours)

[Max Marks-80]

N.B. (1) Attempt any four questions out of six questions

(2) Assume any additional data if necessary and state it clearly

(3) Explain answers with neat sketches wherever necessary

1. a) Explain in detail the essentials of a good research report [10]
b) Explain the statistics for Data Analysis and Reporting. [10]
 2. a) Explain in brief the stages in Scientific Research process [10]
b) Briefly describe various types of research [10]
 3. a) What do you mean by 'Sample Design'? What points should be taken into consideration by a researcher in sample design for any research project? [10]
b) Formulate a research problem, taking into consideration all the aspects [10]
 4. a) Explain in details the characteristics of research [10]
b) Enumerate the different methods of collecting data giving one example each [10]
 5. a) State the objectives of research and illustrate the issues and problems in research [10]
b) Explain validity testing for research and the ethical issues faced [10]
 6. a) What do you understand by Research Design? State its types and significance [10]
b) What are the Characteristics of a good hypothesis? Explain (i) Type I and Type II errors (ii) Level of Significance (iii) variables in Hypothesis [10]
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(3 hours)

[80 Marks]

N.B.:

1. Question No.1 is compulsory.
2. Attempt any **Three** questions out of remaining **Five** questions.
3. Figures to the right indicate full marks.
4. Assume any suitable data wherever required but justify the same.

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|-----|----|--|----|
| Q.1 | a) | Write a short note on RFID sensors. | 5 |
| | b) | List and explain in short IoT applications. | 5 |
| | c) | Write a short note on Raspberry Pi programming for IoT. | 5 |
| | d) | Write a short note to give abstract view of Internet of Things. | 5 |
| Q.2 | a) | Write a detail note on NFC and its use in IoT applications. | 10 |
| | b) | Write a detail note on secured communication in IoT applications for data transfer and its importance. | 10 |
| Q.3 | a) | Explain Wireless Sensor Network in IoT paradigm. | 10 |
| | b) | Explain in detail steps involved in Prototype design of IoT. | 10 |
| Q.4 | a) | Write a note on importance of networking protocol LoWIPv6 in IoT context. | 10 |
| | b) | Explain in detail Arduino and sensors and interfacing for it. | 10 |
| Q.5 | a) | Explain a multi agent system in IoT paradigm. | 10 |
| | b) | Write a detail note on Business Processes in IoT. | 10 |
| Q.6 | | Write a detail note on (any two) | 20 |
| | a) | Smart energy applications and IoT technologies. | |
| | b) | Explain challenges in developing IoT applications. | |
| | c) | Smart homes and IoT. | |

ME - COMP Sem - II
Choice Base
23/05/17

Q.P. Code: 16634

[80 Marks]

N.B.:

1. Question No.1 is compulsory.
2. Attempt any **Three** questions out of remaining **Five** questions.
3. Figures to the right indicate full marks.
4. Assume any suitable data wherever required but justify the same.

- Q.1 a) Write a short note on Reconnaissance. 5
- b) What is a Computer Security Incident? 5
- c) List and explain in short the steps of writing a Forensic Report. 5
- d) What is Ethical Hacking? 5
- Q.2 a) Write a detail note on Crimes using mobile phones. 10
- b) Write a detail note on creating a Response Toolkit. 10
- Q.3 a) What are the challenges in evidence handling? 10
- b) What are the goals of network monitoring? 10
- Q.4 a) Explain Evidence Handling Procedures. 10
- b) Write a note on Recovering deleted files on UNIX system. 10
- Q.5 a) Write a detail note on Tools for Forensics Duplication. 10
- b) Explain steps of Live Data Collection from Windows system. 10
- Q.6 Write a detail note on (any two) 20
- a) Data analysis tool NMAP.
- b) Guidelines for writing a Forensic Report.
- c) Incident Response Methodology.

ME (Comp) Choice Based
Sem II Data Science

19/5/2019
Q.P. Code:16984

Time: 3 Hours

Marks: 80

Note: 1. Question 1 is compulsory

2. Answer any three out of remaining questions.
3. Assume suitable data wherever required and justify the same.

- Q1 a) Explain Linear discriminant analysis. [5]
b) What are the differences between supervised learning and unsupervised learning. [5] elaborate with an example.
c) What is the background of the formation of data journalism? [5]
d) Explain cross-validation for accuracy estimation. [5]
- Q2 a) Use PCA to transform 2D data space to 1D data space for the given matrix A. [10]
$$A = \begin{bmatrix} 0 & 1 \\ -2 & -3 \end{bmatrix}$$

b) Explain Maximum Likelihood estimation using expectation-maximization (EM). [10]
- Q3 a) Describe null hypothesis and alternative hypothesis with appropriate example [10]
b) Explain how Gaussian approximation works to a posterior distribution. [10]
- Q4 a) What type of problem were you looking to solve with text mining? How did you know how to text mine? What could be the challenges when text mining? [10]
b) Explain the process of collaborative based Recommendation System with suitable example. [10]
- Q5 a) Draw and describe the information visualization process. [10]
b) What infrastructure is most appropriate for Hadoop? Draw and describe Hadoop Ecosystem Architecture. [10]
- Q6 a) List and explain basic relational operators used in pig. [10]
b) What is the big deal with Big Data? If your company is just starting to consider using Big Data in you marketing research, what would be most useful to include? Explain in Data Science perspective. [10]

ME (CMPN) Sem II (B) 17/5/17

Sub: High Performance Computing (3 Hours)

Q.P. Code: 013969

[Total Marks: 80]

N.B. : 1) Q.1 is Compulsory
2) Solve any 3 out of remaining 5

- Q.1.a Explain the various criteria for classification of parallel computer. Explain Flynn's classification in detail. 10 M
- b What is the significance of
1. Bisection bandwidth 2. Network Diameter 5 M
- c Explain granularity of a parallel system. 5M
- Q.2.a Write a MPI program that prints out a "Hello World" Message from each processor 10 M
- b. What are principles of Message Passing Programming? 10 M
- Q.3.a Explain about process synchronization mechanism with Semaphore. 10 M
- b. Short note on 'SIMD matrix multiplication'. 10 M
- Q.4.a State Amdahl's law?
Suppose we are trying to determine whether it is worthwhile to develop a parallel version of a program solving a particular problem. Benchmarking reveals that 90 percent of the execution time is spent inside functions that we believe we can execute in parallel. The remaining 10 percent of the execution time is spent in functions that must be executed on a single processor. What is the maximum speedup that we could expect from a parallel version of the program executing on eight processors. 10 M
- b. Explain the various levels of parallel processing. 10 M
- Q.5.a Explain in brief Nanotechnology and its impact on high performance computing. 10 M
- b Explain Speedup, efficiency and scalability with suitable Example. 10 M
- Q.6. a Write a note on NVIDIA Tesla GPU. 5M
- b Differentiate a dataflow computer from a control flow computer. 5M
- c What is data Race? 5M
- d. What is meant by grain packing and scheduling in parallel Processing. 5M

ME (CMPN) CBGS Sem II 17/5/17
Sub: Advanced operating system Q.P.Code: 013700
(3 Hours) [Total Marks: 80]

02

N.B : 1) Q.1 is compulsory .

2) Attempt any 3 out of remaining.

3) Assume suitable data wherever required.

Q.1 a) Explain in detail Synchronization in Multiprocessor OS. (10)

b) Discuss the issues of designing Distributed operating system. (10)

Q.2 a) What is the need of Advanced Operating System? Discuss various types of Advanced Operating Systems. (10)

b) What do you mean by Distributed Deadlock? Explain various approaches to distributed deadlock detection, also comment on false deadlock. (10)

Q.3 a) What is mutual exclusion? Explain Lamport's algorithm. (10)

b) Write a note on fault tolerance in multiprocessor operating system. (10)

Q.4 a) Discuss in detail various scheduling strategies for Symbian OS. (10)

b) Describe Two phase Locking protocol. (10)

Q.5 a) Describe Sender-Initiated & Receiver-Initiated Distributed load distribution algorithm. (10)

b) Explain in detail various types of Multiprocessor OS. (10)

Q.6 Write a note on :(Any 2) (20)

a) Requirements of database operating systems.

b) Android OS.

c) Distributed Shared Memory.

d) Cloud OS.