(Time: 3 Hours) **[Total Marks: 80]**

NOTE: 1. Question No 1 is compulsory

2. Attempt any three questions from remaining.

3. Assume suitable data if necessary.

Q1 Attempt ***any four*.**

a) Mention the levels of parallelism available in parallel processing approaches. (05)

b) Differentiate between the SIMD and MIMD architecture. (05)

c) Evaluate the 2-D mesh topology **or** 4-ary hyper tree with n=16. (05)

d) Discuss the term *collective communication* in MPI. (05)

e) Explain the cache coherence problem. (05)

Q2 a) Explain the Foster's design methodology and apply the same to any one sorting algorithm. (10)

b) Explain the term Isoeffciency of Amdahl's law. (10)

Q3 a) Derive the expression for speedup and efficiency by Amdahl's law and comment on the same. (10)

b) Discuss the CUDA memory model neatly. (10)

Q4 a) Write a small program demonstrating functional and compiler directives in OpenMP Paradigm and MPI Paradigm (10)

b) Build and evaluate the $\mathbf{2^3}$ butterfly network topology. (10)

Q5 a) Explain the CPU+GPU architecture and its processing flow. (10)

b) Differentiate between the buffered blocking and non-buffered blocking message passing operation in MPI. (10)

Q6 Attempt ***any two.***

a) Discuss Pregel and PowerGraph in brief. (10)

b) Discuss the fork and join model used by OpenMP. (10)

c) Comment on communication and synchronization issues in parallel computing. (10)

(3 Hours) Total Marks: 80

Instructions: - 1) Question No 1 is compulsory; solve any 3 questions from remaining 5 questions.
2) Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

Q 1 a) You have been asked to do risk assessment of a hospital information system. Discuss the vulnerabilities and build sample confidentiality, integrity and availability determination matrices. (10)

b) What is risk management? Whether risk management process is meant for prevention of future risk or for reducing the risk already happened? Explain. (10)

Q 2) a) Compare and discuss the relationship between risk managers and shareholders. (10)

b) Explain the role of audit committee and how it helps the Organization. What is the need of conducting audit. (10)

Q 3) a) Explain various strategies to control the Risk. (10)

b) Give various steps for preparing final report and post assessment activities in performing the network assessment. (10)

Q4) a) Discuss the assessment of web applications and email services. (10)

b) Explain various phases of security audit process. (10)

Q 5) a) What is the role of CM in security of the organizations also explain three disciplines of CM. (10)

b) What is need of IP network scanning with respect to perforating the assessment and also explain any one IP network scanning tool. (10)

Q 6) Write short notes on (20)

a) ISO 27000 series.
b) ISSP

[3 hours] **[Total Marks: 80]**

NB : 1) **Question 1** is **compulsory.**
2) Attempt any **three** questions from the **remaining** questions.
3) **Assume** suitable **data** wherever applicable.

Q1.	a	Explain the semantic web stack	10
	b	Explain the critical web metrics used in clickstream analysis	10
Q2.	a	Explain how rich internet applications can be developed with help of AJAX	10
	b	Explain various web site design issues.	10
Q3.	a	What is the role of RDF-Schema and OWL in the context of linked data? Why is RDF-Schema insufficient as a knowledge representation?	10
	b	Express the following in RDF/.XML. Mr. Jones has a student named Jack as a mentee, whose student id is 5927. He also has a student named Fred Smith as a mentee, whose student id is 6004 and whose academic advisor is Dr. Nyu.	10
Q4.	a	Explain the paradigm of Web Analytics 2.0	10
	b	Explain how to design a responsive web with HTML5 and CSS	10
Q5	a	Explain A/B testing and multivariate testing for testing websites	10
	b	Explain significance and working of WSDL with an example.	10
Q6.	a	Explain any open source framework for rich internet applications	10
	b	What is SPARQL used as? Explain structure of SPARQL query.	10
