

University of Mumbai
Examinations Summer 2022

Time: 2 hours 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for the following questions. All the Questions are compulsory and carry equal marks
01	Information security is about protecting information from unauthorized
Option A:	access
Option B:	use
Option C:	modification
Option D:	all of the above
02	Which attack is due to poor programming practices?
Option A:	Spoofing
Option B:	Buffer overflow
Option C:	Sniffing
Option D:	SYN flood
03	Which of the following technologies would best secure the data on a laptop or other device that could be stolen?
Option A:	Data encryption
Option B:	File deletion
Option C:	No access to the floppy drive
Option D:	Steganography
04	The most important responsibility of an information security manager in an organization is:
Option A:	Recommending and monitoring security policies
Option B:	Promoting security awareness within the organization
Option C:	Establishing procedures for security policies
Option D:	Administering physical and logical access controls
05	Which of the following would indicate that an automated production scheduling system has inadequate security controls?
Option A:	Developers have read access to both production and test schedules.
Option B:	Failure of a process will automatically initiate the resetting of parameters.
Option C:	Control statements are frequently changed to point to test libraries.
Option D:	Scheduling personnel have the ability to initiate an emergency override.
06	Audit is a fact-finding process that compares actual results with.....
Option A:	Specified standards and plans
Option B:	Expected results
Option C:	Premature results
Option D:	Preliminary results
07	Does the information security manager need to be most aware of which of the following issues when implementing new security controls?
Option A:	Impact on end users
Option B:	Senior management support
Option C:	System development life cycle
Option D:	Annual loss expectancy
08	The entity that takes advantage of vulnerability is referred to as:
Option A:	threat agent
Option B:	vulnerability agent

Option C:	risk agent
Option D:	attacking agent
09	Among the necessary tools for information security are:
Option A:	Awareness
Option B:	raining
Option C:	Policy
Option D:	All of the above
10	The C.I.A. triangle includes:
Option A:	Confidentiality
Option B:	Intrusion
Option C:	Confidentiality, intrusion and attacks
Option D:	None of the above

Q2.	Solve any Two Questions out of Three (10 marks each)
A	Explain the Layered Approach of Risk Assessment (defense-in -Depth) for an online portal for selling electronic goods.
B	How to measure ROI on security?
C	Predict the basic elements of risk for any database application.

Q3	Solve any Two Questions out of Three (10 marks each)
A	Explain with examples how an organization's assets can be identified and prioritized for risk assessment.
B	What do you mean by Qualitative and Quantitative Risk Assessment?
C	Explain the Cyclic Assessment Approach to Network security assessment.

Q4.	Solve any Two Questions out of Three 10 marks each
A	What do you understand by Asset Characterization? Explain with Examples the elements of Asset Characterization.
B	What are the components of Enterprise Information Security Policy (EISP)? Compare with Issue Specific Security Policy ISSP.
C	Explain how you will provide countermeasures against network scanning.

University of Mumbai

Examinations Summer 2022

Program: Information Technology

Curriculum Scheme: 2016

Examination: ME Semester II

Course Code: MEITC202 and Course Name: High Performance Computing

Time: 2 hours 30 minutes

Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	A processor performing fetch or decoding of various instructions during execution of another instruction is called_____.
Option A:	Parallel Processor
Option B:	Pipeline Processor
Option C:	Supercomputer
Option D:	Scalar processor
2.	SIMT represents_____ of the following.
Option A:	Single instruction, multiple threads
Option B:	Single instruction, multiple tasks
Option C:	Single interface, multiple threads
Option D:	Single interface, multiple tasks
3.	The sequence of steps of Foster's design methodology consists of ...
Option A:	Mapping, Partitioning, Communication, Agglomeration
Option B:	Partitioning, Agglomeration, CommunicationMapping
Option C:	Agglomeration, Partitioning, Communication, Mapping
Option D:	Partitioning, Communication, Agglomeration, Mapping
4	Which of the following is the fastest storage unit in a memory hierarchy?
Option A:	Main Memory
Option B:	Hard Disk
Option C:	Register
Option D:	Cache
5.	Which value has the speedup of a parallel program that achieves an efficiency of 75% on 32 processors?

Option A:	18
Option B:	24
Option C:	16
Option D:	20
6.	What is the diameter of the binary tree switch network?
Option A:	$n \log n$
Option B:	$\log n$
Option C:	$2 \log n$
Option D:	$n^2 \log n$
7.	Fork and join is observed in-----
Option A:	MPI
Option B:	OpenMP
Option C:	CUDA
Option D:	MPI and OpenMP
8.	Select the correct statement:
Option A:	Amdahl's differs from Gustavson's law in terms of isoefficiency
Option B:	Amdahl's differs and Gustavson's law are same and talks about the speedup
Option C:	Amdahl's differs from Gustavson's law in terms of speedup.
Option D:	Amdahl's differs from Gustafson's Law in terms of efficiency
9.	Data parallel programming utilizes _____ data allocation.
Option A:	Implicit
Option B:	Explicit
Option C:	Semi explicit
Option D:	Implicit or semi-explicit
10.	Cost of solving a problem on a parallel system is the product of parallel runtime and _____ used.
Option A:	Number of iterations
Option B:	Number of dependent tasks
Option C:	Number of processors
Option D:	Number of independent tasks

Q2	Solve any Two Questions out of Three 10 marks each
A	Discuss Foster's design methodology in detail.
B	Explain Non-Buffered blocking communication in MPI
C	Mention the principles of linear pipelining.

Q3.	Solve any Two Questions out of Three 10 marks each
A	Design the parallel algorithm steps for any one sorting algorithm
B	Derive the Gustafson-Barsis's Law for speedup. Compare Gustafson-Barsis's Law with Amdahl's Law
C	Explain granularity of a parallel system.

Q4.	Solve any Two Questions out of Three 10 marks each
A	Write a program to display a parallel hello world using MPI directives.
B	Discuss the speedup formula stated by Amdahl. State its limitations.
C	Discuss about the different parallel algorithm in SIMD architectures

University of Mumbai
Examinations Summer 2022
Master of Engineering
Program: Information Technology
Curriculum Scheme: Rev 2016
Examination: ME Semester II

Course Code: ME-ITC203 and Course Name: Advanced Web Technology

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. 20 Marks
	All the Questions are compulsory and carry equal marks
1.	What is not true about bounce rate
Option A:	It is actionable on multiple levels
Option B:	It measures customer behavior
Option C:	It is the percentage of sessions on your website with only one page view.
Option D:	It is the number of visitors getting an error on the page.
2.	Which of the following tag is used for audio in HTML5?
Option A:	<bgsound>
Option B:	<audio>
Option C:	<video>
Option D:	<canvas>
3.	-----is an XML-based standard for describing, publishing, and finding web services.
Option A:	WSDL
Option B:	XML
Option C:	UDDI
Option D:	SOAP
4.	Which of the following feature makes the Ajax unique?
Option A:	It can work with all the databases
Option B:	It is a server-side application can also be used to create servers
Option C:	It can use Python & C++ for programming
Option D:	It makes data requests asynchronously
5.	Which of the following CSS property should not be used to make a responsive image?
Option A:	fixed
Option B:	float
Option C:	max-width
Option D:	margin-right
6.	Which below CSS property best describes how an image or video fits into a container?
Option A:	object-move
Option B:	position-adjust
Option C:	object-fit
Option D:	position-hide

7.	Semantic Web Technology that will be responsible for assisting retrieved information interpretation, Web searches and to communicate among agents is
Option A:	Agents
Option B:	Logic
Option C:	Meta Data
Option D:	Ontology
8.	Multivariate testing is a
Option A:	Technique for testing changes to many different elements all at the same time on one web page
Option B:	Technique for testing different variety of users on your website and discover how your system behaves in extreme conditions.
Option C:	Technique for testing two or more versions of a page on your website.
Option D:	Form of acceptability testing that takes place before the website is made available to the public.
9.	In modern websites what is the common usage for JSON?
Option A:	To store information remotely.
Option B:	To send and receive bits of data.
Option C:	To store information locally.
Option D:	To send and store data locally or remotely.
10.	RDF is a
Option A:	Programming language
Option B:	A tool
Option C:	Markup language
Option D:	Resource

Q2	Solve any Two Questions out of Three	10 marks each
A	Explain any five elements of form design and construct a sample form using it.	
B	What is meant by web analytics? Explain updated paradigm of web analytics 2.0 with the help of diagram.	
C	What is a Responsive Website? Explain the steps for creating responsive website with example.	

Q3	Solve any Two Questions out of Three	10 marks each
A	Explain and compare between Open-Source Frameworks: Django, Drupal and Joomla.	
B	Write a short note on i. Restful Web Services ii. Web Ontology language (OWL)	
C	Explain the need for RDFS with an example.	

Q4	Solve any Two Questions out of Three	10 marks each
A	Explain the web services security specification.	
B	Explain the working of web application using JSON with the help of an example.	
C	Explain in detail AJAX web application model with neat diagram.	

University of Mumbai
Examinations Summer 2022

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	At what point in the Ethical Hacking process is the attacker most likely to use a port scanning tool?
Option A:	Attack execution
Option B:	Attack preparation
Option C:	Report writing
Option D:	Information gathering
2.	What is the primary goal of an Ethical Hacker?
Option A:	Avoiding detection
Option B:	Determining return on investment (ROI) for security measures
Option C:	Resolving security vulnerabilities
Option D:	Testing security controls
3.	Which one of the following is used for encrypted data transfer?
Option A:	netcat
Option B:	netstat
Option C:	cryptcat
Option D:	md5sum
4.	The crime scene preservation process includes all but which of the following:
Option A:	confirming system date and time
Option B:	controlling access to the crime scene
Option C:	protecting against unauthorized alterations
Option D:	acquiring digital evidence
5.	Log files are used by the forensic examiner to _____.
Option A:	Associate system events with specific user accounts
Option B:	Verify the integrity of the file system
Option C:	Confirm login passwords
Option D:	Determine if a specific individual is the guilty party
6.	Digital Forensics entails _____.
Option A:	Accessing the system's directories viewing mode and navigating through the various systems files and folders
Option B:	Undeleting and recovering lost files
Option C:	Identifying and solving computer crimes
Option D:	The identification, preservation, recovery, restoration and presentation of digital evidence from systems and devices.

7.	Deleting a file has the effect of preserving its inode until it is reused because
Option A:	The inode is flagged as deleted
Option B:	The inode table entry is moved to the recycle bin
Option C:	Deleted inodes are not accessible to the file system
Option D:	The inode number is added to a deleted files journal entry
8.	When a file is deleted on a UNIX System, the time of its parent directory is:
Option A:	Unchanged
Option B:	Updated
Option C:	Set to epoch time
Option D:	Set to last modified date-time
9.	Powering down a mobile device and removing the battery may cause problems in that.
Option A:	When the battery is removed from a mobile device, the information in memory is lost.
Option B:	Doing so may activate security measures such as lock codes and encryption.
Option C:	The process of removing the battery can cause a capacitive discharge, destroying the device.
Option D:	You now have two pieces of evidence, which have to be documented.
10.	In _____ attacks, the attacker manages to get an application to execute an SQL query created by the attacker.
Option A:	SQL Injection
Option B:	Salami
Option C:	Direct
Option D:	Application

Q2	Solve any Two Questions out of Three	10 marks each
A	What do you mean by incident response methodology? Explain all components of it.	
B	List and explain in brief steps taken to collect live data from Windows Operating System	
C	Write Short notes on Intrusion detection System	

Q3	Solve any Two Questions out of three	10 marks each
A	What are various hacking tools? Explain any two in details.	
B	Define Forensics Duplicate? How will you create forensic duplicate of hard Drive?	
C	Explain the data acquisition procedure for cell phones and mobile devices?	

Q4	Solve any Two Questions out of three	10 marks each
A	Discuss the techniques of email tracing message.	
B	Write a detail note on crimes using mobile phones.	
C	Write a detail note on data analysis tool NMAP.	

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Examinations Summer 2022

Program: Information Technology

Curriculum Scheme: Rev2016 CBCGS

Examination: ME Semester II

Course Code: 34407 and Course Name: Internet of Things

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following is not a fundamental component of an IoT system?
Option A:	Sensors
Option B:	Connectivity and data processing
Option C:	User interface
Option D:	Transformer
2.	What does p refer to an ATmega328p?
Option A:	Production
Option B:	Pico-Power
Option C:	Power-Pico
Option D:	Programmable on Chip
3.	Arduino shields are also called as ____
Option A:	Extra Peripherals
Option B:	Connectivity modules
Option C:	Add on modules
Option D:	Another Arduinos
4.	What is the range of RFID tags which is using the low frequency?
Option A:	Up to 10cms
Option B:	Up to 20cms
Option C:	Up to 50cms
Option D:	Up to 60cms
5.	WMN in network topology stands for ____.
Option A:	Wired mesh network
Option B:	Wireless mesh network
Option C:	Wired mesh node
Option D:	Wireless mesh node
6.	Which one of these is a "real world" application for modbus TCP/IP?
Option A:	separating data traffic
Option B:	sending router updates
Option C:	performing maintenance and repair on remote devices
Option D:	Managing routers
7.	MQTT is ____ oriented.
Option A:	Data
Option B:	Message
Option C:	Network
Option D:	Device
8.	CoAP is specialized in ____
Option A:	Internet applications

Option B:	Device applications
Option C:	Wireless applications
Option D:	Wired applications
9.	As companies move past the experimental phase with Hadoop, many cite the need for additional capabilities, including _____
Option A:	Improved data storage and information retrieval
Option B:	Improved extract, transform and load features for data integration
Option C:	Improved data warehousing functionality
Option D:	Improved security, workload management, and SQL support
10.	Hadoop is a framework that works with a variety of related tools. Common cohorts include _____
Option A:	MapReduce, Hive and HBase
Option B:	MapReduce, MySQL and Google Apps
Option C:	MapReduce, Hummer and Iguana
Option D:	MapReduce, Heron and Trumpet

Subjective / Descriptive questions

Q2	Solve any Two Questions out of Three 10 marks each
A.	Describe IoT communication model. Write an Arduino sketch to blink two LEDs at pin number 7 and pin number 8.
B.	Describe stepwise process to install Apache Hadoop.
C.	Describe IoT Code generator.

Q3	Solve any Two Questions out of Three 10 marks each
A.	Explain different RFID tags. Describe CoAP architecture.
B.	Describe Structural Health Monitoring system.
C.	Describe different business Cases and Issues related to Agriculture.

Q4	Solve any Two Questions out of Three 10 marks each
A.	Describe multi-agent system in IoT protocol and technology. Write a python program to blink the LED which is interfaced to Raspberry Pi at GPIO pin number 7.
B.	Describe Intelligent Transport as IoT application.
C.	Describe ZigBee in detail.

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	In which technique, the search generates all nodes at a particular level before proceeding to the next level to the tree?
Option A:	depth-first search
Option B:	breadth-first search
Option C:	iterative deepening search
Option D:	heuristic search
2.	When will Hill-Climbing algorithm terminate?
Option A:	Stopping criterion is met
Option B:	Global Min/Max is achieved
Option C:	No neighbour has higher value
Option D:	No neighbor has lower value
3.	Wumpus World is a classic problem, best example of _____
Option A:	Single player Game
Option B:	Two player Game
Option C:	Reasoning with Knowledge
Option D:	Knowledge based Game
4.	In which agent is the problem generator present?
Option A:	learning
Option B:	reflexing
Option C:	observing
Option D:	perceiving
5.	UNIFY(Knows(John,x),Knows(y,Bill)) Whom does John know?
Option A:	Bill
Option B:	Jane
Option C:	Elizabeth
Option D:	John

6.	Robot in a maze uses _____ learning
Option A:	Reinforcement
Option B:	Supervised
Option C:	Unsupervised
Option D:	Semi supervised
7.	Which of the following statement is true?
Option A:	Decision Trees can handle only categorical variables
Option B:	Decision Trees can handle only continuous variables
Option C:	Decision Trees can handle both continuous and categorical variables
Option D:	Decision Trees cannot handle both continuous and categorical variables
8.	In Support Vector Machine, the dimension of the hyperplane depends upon
Option A:	the number of features
Option B:	the number of samples
Option C:	the number of output variables
Option D:	choice of designer
9	Which statement is true in binary logistic regression?
Option A:	The dependent variable is continuous.
Option B:	The dependent variable is divided into two equal subcategories.
Option C:	The dependent variable consists of two categories.
Option D:	There is no dependent variable.
10.	Which of the following statement is true
Option A:	Machine learning is a subset of AI
Option B:	AI is a subset of Machine learning
Option C:	AI is a subset of Deep learning
Option D:	Machine learning is a subset of Deep learning

Q2	Solve any Two Questions out of Three (10 marks each)
A	Describe water jug problem and find the solution path in the state space.
B	Discuss model based reflex agents and goal-based agents.
C	Illustrate Depth limited search with an example.

Q3.	Solve any Two Questions out of Three 10 marks each
A	Comment on Decision tree learning.
B	Describe Perceptron Learning rule.
C	What is Deep learning? Elaborate in detail.

Q4.	Solve any Two Questions out of Three 10 marks each
A	Compare Supervised learning and Unsupervised learning.
B	Discuss logistic regression with a suitable example.
C	Describe the steps in designing a learning system.

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Time: 2hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The objective of research is
Option A:	To determine the frequency with which something occurs or with it is associated with something else.
Option B:	To become familiar with a phenomenon.
Option C:	To test a hypothesis of a causal relationship between variables.
Option D:	All of the above
2.	A hypothesis is a
Option A:	Supposition which is based on the past experiences
Option B:	Statement of fact
Option C:	Tentative statement whose validity is still to be tested
Option D:	None of the above
3.	Final stage in the Research Process is
Option A:	Problem formulation
Option B:	Data collection
Option C:	Data Analysis
Option D:	Report Writing
4.	Which of the following is the first step in a research process?
Option A:	Selecting a topic
Option B:	Formulating research problem
Option C:	Development of a hypothesis
Option D:	Report writing
5.	What is the need for conducting research
Option A:	Extension of knowledge
Option B:	Verify and test the existing facts and theories
Option C:	Promote progress in the society
Option D:	All of the above
6.	Which of the following is not a part of skimming
Option A:	Reading the title, keyword & abstract
Option B:	Checking out the length of the paper
Option C:	Finding out the author's origin country
Option D:	Finding out where it is published
7.	_____ is an optional part of the research paper.
Option A:	Title
Option B:	Acknowledgment
Option C:	Abstract
Option D:	References

8.	The goals of the paper should be
Option A:	To allow others to reproduce your results
Option B:	To persuade people of the approach
Option C:	Both A & B
Option D:	None of the above
9.	To formulate the objective of the study one should
Option A:	List the objectives
Option B:	List the assumptions
Option C:	List the limitations of the study
Option D:	All of the above
10.	_____ is not a type of research article
Option A:	Review paper
Option B:	Full-length article
Option C:	Microarticle
Option D:	Macroarticle

Q2.	Answer any Four Questions out of Six (5 marks each)
A	Discuss the concept of skimming a research paper before selecting it for reading.
B	Explain Research Methods and Research Methodology?
C	What is the function of a hypothesis?
D	What is the structure of a research paper?
E	List the goals of a research paper?
F	Discuss the minimum requirements for creating a Research design?

Q3.	Answer any Two Questions out of Three (10 marks each)
A	What are some of the problems encountered by researchers?
B	Explain how to do a literature review for any research work?
C	List and explain the different types of research articles?

Q4.	Answer any Two Questions out of Three (10 marks each)
A	Explain the approach to reading a research paper.
B	Discuss some points which you will consider before selecting any journal for publication?
C	What are the different steps involved in writing a research paper?