

University of Mumbai
Examination 2020 under cluster 7

**Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021
to 20th January 2021**

Program: **Information Technology**

Curriculum Scheme: Rev2016

Examination: TE Semester VI

Course Code: ITC603 and Course Name: Cloud Computing & Services

Time: 2 hour

Max. Marks: 80

Q1. (40Marks)	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	What is the term that refers to, time sharing to store database and compute power for a fee ?
Option A:	High performances Computing
Option B:	Clusters
Option C:	Utility computing
Option D:	Distributed Computing
2.	Name the type of Cloud Service Model that provides virtual machines, operating systems, applications, services, development frameworks, transactions and control structures.
Option A:	Infrastructure as a Service
Option B:	Platform as a Service
Option C:	Software as a Service
Option D:	Virtualization as a Service
3.	In the Cloud Architecture a layer that provides the basic software management for the physical servers and can be implemented as an operating system, hypervisor and virtual machine monitor and/or clustering middleware.
Option A:	Software Kernel
Option B:	Cloud Application Layer
Option C:	Cloud Software Infrastructure Layer
Option D:	Hardware and Firmware
4.	Among the given essential characteristics, which is not a characteristics of NIST model but a characteristics of Cloud Computing ?
Option A:	Rapid Elasticity
Option B:	Resource Pooling
Option C:	Multi-tenancy
Option D:	On demand Self Service
5.	Which of the following category of virtualization provides a Vitrual Machine Environment (VME) that completely simulates the underlying hardware
Option A:	Full Virtualization
Option B:	Paravirtualization
Option C:	Hardware-assisted virtualization
Option D:	Operating System virtualization

6.	Which among the following is not true for Paravirtualization?
Option A:	Xen Provides paravirtualization
Option B:	Modified OS is used in paravirtualization
Option C:	A guest OS is compiled before the installation inside a virtual machine
Option D:	It maximizes the processing overhead
7.	System Virtual machine is also named as
Option A:	Real Machine
Option B:	Software machine
Option C:	Hardware machine
Option D:	Virtual Manager
8.	Virtualization simulates the interface with a physical object in cloud service models which does not include one of the following ways:
Option A:	Multiplexing
Option B:	Aggregation
Option C:	Emulation
Option D:	Regression
9.	What component in AWS and OpenStack provides Identity and Authorization Services
Option A:	Lambda and Cinder
Option B:	IAM and Keystone
Option C:	IAM and Dashboard
Option D:	EC2 and Keystone
10.	What is not an advantage of using CSG(Cloud Storage Gateway)
Option A:	Facilitates use of unlimited storage space in the cloud
Option B:	No need to purchase for expansion, thus supporting Pay per use billing
Option C:	Resource Oriented SOA
Option D:	Snap shot based protection and backups
11.	The meta data in CDMI is associated with
Option A:	Containers and Objects
Option B:	Client
Option C:	Security
Option D:	Virtualization
12.	The Image services in AWS and Openstack are provided respectively by
Option A:	S3 and Dashboard
Option B:	EBS and Dashboard
Option C:	AMI and Glance
Option D:	ELB and Swift
13.	Which is not a type of Saas application
Option A:	Billing and invoicing
Option B:	Help desk application
Option C:	CRM application
Option D:	one drive

14.	Service Supported by Openstack _____
Option A:	IAAS
Option B:	PAAS
Option C:	SAAS
Option D:	CAAS
15.	Which of the following service is used by Compute node
Option A:	Cider
Option B:	Nova
Option C:	Glance
Option D:	Vlan
16.	Which of the following service are not offered by OpenStack?
Option A:	Glance
Option B:	Cinder
Option C:	Communication
Option D:	Swift
17.	The cloud computing in which wireless network, in order to bring rich computational resources to mobile users, network operators, as well as cloud computing providers know as ____
Option A:	Cloud Computing
Option B:	IoT
Option C:	Mobile Cloud Computing
Option D:	Fog Computing
18.	In Chubby file system communication is take place using _____
Option A:	API Call
Option B:	RPC Call
Option C:	RMI Call
Option D:	Function Call
19.	To perform operation in BigTable _____ is used
Option A:	MapReduce
Option B:	Key& Value
Option C:	Spark
Option D:	Hives
20.	What is not done by Database as a service
Option A:	tuning
Option B:	configuration
Option C:	patching
Option D:	network maintenance

Q2 (20 Marks)	Solve any Two Questions out of Three -10 marks each
A	Write a note on Cloud cube Model
B	Explain Xen virtualization with the help of its architecture

C	Explain Everything as a service(XaaS) with examples.
---	--

Q3. (20 Marks)	Solve any Two Questions out of Three - 10 marks each
A	Write advantages and disadvantages of Mobile Cloud Computing
B	Explain the significance of network interface,security group and ACL for Amazon VPC.
C	Explain Cloud data management interface in detail.

University of Mumbai
Examination 2020 under cluster 7 (Lead College: _____)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January
2021 to 20th January 2021
Program: Information Technology
Curriculum Scheme: Rev.2016
Examination: TE Semester VI
Course Code: ITC604 and Course Name: Wireless Network

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	What is the IEEE standard for WiMAX?
Option A:	IEEE 802.11d
Option B:	IEEE 802.13e
Option C:	IEEE 802.16a
Option D:	IEEE 802.2d
2.	WCDMA uses _____ to spread the baseband signal over a 5 MHz spectrum.
Option A:	Direct Sequence Spread Spectrum
Option B:	Frequency Hopping Spread Spectrum
Option C:	Code Division Multiple Access
Option D:	Frequency Division Multiple Access
3.	In piconet, all communication between devices takes place between _____ and _____

Option A:	Master, slave
Option B:	Master, master
Option C:	Slave, slave
Option D:	Master, bridge
4.	In physical layer of IEEE 802.11 WLAN architecture, the FHSS system define ____ pseudo random hopping channels
Option A:	69
Option B:	79
Option C:	89
Option D:	99
5.	What is Mi-Fi?
Option A:	Mobile Fidelity
Option B:	Brand name for Novatel Wireless portable devices which provides mobile WiFi connection
Option C:	Mobile Wireless Fidelity
Option D:	5G connection
6.	Wired equivalent Privacy (WEP) algorithm uses the ____ encryption scheme
Option A:	RSA
Option B:	RC4
Option C:	AES
Option D:	DES
7.	During tunneling from the HA to FA, minimum encapsulation combines encapsulation header and IP header words into

Option A:	Five words
Option B:	Six words and checksum of the header
Option C:	Six words and checksum of the packet through the tunnel
Option D:	Seven or eight words
8.	MANET stands for Mobile ad-hoc Network also called as ____
Option A:	wireless network
Option B:	wired network
Option C:	wireless ad-hoc network
Option D:	Vehicular ad-hoc network
9.	In wireless ad-hoc network _____
Option A:	access point is not required
Option B:	access point is must
Option C:	nodes are not required
Option D:	nodes are required
10.	VANET is a term used to describe the _____ formed over vehicles moving on the roadway.
Option A:	Private network
Option B:	spontaneous ad hoc network
Option C:	Public network
Option D:	Public and Private network
11.	In _____ the issues of fail utilization of networking resources at the node level are less important than just accomplishing the overall goal.
Option A:	Wireless Sensor Network
Option B:	Wired Sensor Network
Option C:	Public network
Option D:	Private network
12.	Which of the following is not a functional area of the Cisco Unified Wireless Network?
Option A:	AP
Option B:	ACS
Option C:	Client
Option D:	Controller
13.	Which protocol is used for communication between an AP and a WLC?
Option A:	LWAPP

Option B:	STP
Option C:	LDAP
Option D:	TCP
14.	AMPS and NMT are
Option A:	1G systems
Option B:	2G systems
Option C:	3G systems
Option D:	4G systems
15.	Which of the following is not a technique of Hand over procedure
Option A:	MAHO
Option B:	Soft hand off
Option C:	Hard hand off
Option D:	Cell splitting
16.	Which of the random access methods provides the best performance
Option A:	ALOHA
Option B:	Slotted Aloha
Option C:	1-persistent CSMA
Option D:	Non-persistent CSMA
17.	Which of the following multiple access schemes, allows a user to use only a part of the total BW
Option A:	TDMA
Option B:	FDMA
Option C:	CDMA
Option D:	SDMA
18.	Which scheme offers a strong reduction in ISI
Option A:	CDM

Option B:	OFDM
Option C:	SDM
Option D:	TDM
19.	Well known DSP-based mechanism, DFT and IDFT are basic signal processing techniques in implementation of
Option A:	FDM
Option B:	CDM
Option C:	TDM
Option D:	OFDM
20.	Typically, the processing gain for the spread spectrum systems lie between ____
Option A:	10 and 40 dB
Option B:	20 and 60 dB
Option C:	30 and 70 dB
Option D:	40 and 80 dB

Q2. (20 Marks Each)	Solve any Four out of Six	5 marks each
A	Explain in detail hidden terminal and exposed terminal problems with respect to WLAN.	
B	Explain Mobile IP with neat diagram	
C	Differentiate Between MANET and VANET	
D	Explain Advantages and Disadvantages of Wireless Sensor Networks	
E	List the advantages of CDMA over FDMA and TDMA	
F	Differentiate between DSSS and FHSS	

Q3. (20 Marks Each)	Solve any Four out of Six	5 marks each
A	Differentiate between LMDS and MMDS of WLL.	
B	Write in detail about need of internet firewall for trusted system in wireless network	
C	Explain Cisco Unified Wireless Network Architecture.	
D	Discuss different Wireless Network Design Considerations.	
E	Can CSMA/CD be used in cellular wireless networks? If not, why?	
F	List and explain advantages and disadvantages of Wireless networks.	

University of Mumbai
Examination 2020 under cluster 7

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: Information Technology

Curriculum Scheme: Rev2016

Examination: TE Semester VI

Course Code: ITDLO6022 and Course Name: Software Architecture

Time: 2 hours

Max. Marks: 80

Q1	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which one of the following statements does not describe best the goals of architecture representation
Option A:	Prescribe the architectural constraints of the components and connectors to any desired level of granularity
Option B:	Separate aesthetics from engineering
Option C:	Express different aspects of the architecture in an appropriate view or manner
Option D:	Implementation, testing and maintenance post deployment
2.	Which one of the following statements does not describe best the Architecture Description Language
Option A:	must allow for the description of a system as a composition of components and connectors
Option B:	must allow a designer to focus on high level concerns without having to think about programming language constructs such as for loops, classes, methods etc
Option C:	describe a composite structure separately from its elements so that the composition can be reasoned about as an atomic element and support the dynamic reconfiguration of system in terms of restructuring compositions without knowing their internal structure
Option D:	Perform testing and maintenance post deployment
3.	According to IEEE 1471, which one among the following is not applicable to view points
Option A:	specifies the modeling language to be used
Option B:	specify the rules and practices for creating, representing and analysing views
Option C:	Specify analysis techniques to be used in creating models of a view
Option D:	specifies a minimum amount of information that an architectural description must contain in order to conform to the standard
4.	According to IEEE 1471, Traceability is
Option A:	the capability to semantically relate design elements or concepts across models and views

Option B:	The feasibility of constructing a system can be determined in part by the information in the corresponding view
Option C:	Capacity to specify a minimum amount of information that an architectural description must contain in order to conform to the standard
Option D:	a specification for the techniques and model of constructing views
5.	According to IEEE 1471, the example of inconsistencies in view is
Option A:	there are several classes of objects represented in the object model but these classes are not directly represented in database schema
Option B:	we cannot interpret the class diagram accurately without understanding the class diagram notation
Option C:	There is a communication gap between the stakeholders
Option D:	There is a lack of understanding of architectural design
6.	According to IEEE 1471, An architectural assessment is important in
Option A:	determining the quality of an architecture as represented in an architecture description and to help predict the quality of the application that will be developed according to the description
Option B:	semantically relating design elements or concepts across models and views
Option C:	specifying viewpoints along with the methods for generating the models that form the design views
Option D:	Specifying the feasibility of constructing a system can be determined in part by the information in the corresponding view
7.	Which one among the following words are not applicable to the scope of design in software design
Option A:	Origin
Option B:	Organisation
Option C:	Technology
Option D:	Queuing channel
8.	Which one among the following words are not applicable to General methodology of design in software design
Option A:	Purposeful thinking
Option B:	Analysis
Option C:	Synthesis
Option D:	Source code
9.	Purpose of IEEE 1471 is
Option A:	To specify a minimum amount of information that an architectural description must contain in order to conform to the standard
Option B:	to encapsulate portions of the system so that implementation changes can be localized
Option C:	To present a virtual presentation layer and map user interface archetype objects to physical presentation objects

Option D:	To provide input and output services to human users and other systems
10.	According to IEEE 1471, Which one statement among the following is not an architectural framework goals
Option A:	Facilitate architecture assessment
Option B:	Improve the productivity of software development teams by using standardized means for design representation
Option C:	Improve interoperability of information systems
Option D:	specifies a minimum amount of information that an architectural description must contain in order to conform to the standard
11.	Which of the following is applicable to process view point in 4+1 view model
Option A:	takes into account some non-functional requirements
Option B:	represents the functional requirements
Option C:	focuses on the actual software module organization on the software development environment
Option D:	Mapping the software to the hardware
12.	Which of the following is applicable to logical view point in 4+1 view model
Option A:	takes into account some non-functional requirements
Option B:	represents the functional requirements
Option C:	focuses on the actual software module organization on the software development environment
Option D:	Mapping the software to the hardware
13.	Consider the Reference Model for open Distributed Processing. Which statement among the following is applicable to Information view point.
Option A:	which defines the types of information to be exchanged between systems
Option B:	which expresses the functional design of the system, drawing on the information types where appropriate to ensure consistency
Option C:	provides a set of generic middleware concepts and solutions, providing templates for transforming the computational specification into a concrete implementation
Option D:	expresses the resources available to support the resulting system and policies for the selection of suitable resource components and technologies, including declaration of standards to be used throughout the system implementation
14.	Which one among the following statement is not applicable to dev ops
Option A:	Move at high velocity so you can innovate for customers faster, adapt to changing markets better, and grow more efficient at driving business results
Option B:	Decrease the frequency and pace of releases

Option C:	Ensure the quality of application updates and infrastructure changes so you can reliably deliver at a more rapid pace while maintaining a positive experience for end users
Option D:	Move quickly while retaining control and preserving compliance
15.	Which statement among the following is applicable to repository systems in common architectural styles
Option A:	are characterized by how the data flows in the system
Option B:	are characterized by an activation model that involves a main thread of control that performs operation invocations
Option C:	a shared data source approach to information passing
Option D:	Invocation of an operation is decoupled from the execution such that the caller and the called can exist in separate software processes and possibly distributed across multiple processors
16.	Which statement among the following is applicable to independent in common architectural styles
Option A:	are characterized by how the data flows in the system
Option B:	are characterized by an activation model that involves a main thread of control that performs operation invocations
Option C:	a shared data source approach to information passing
Option D:	Invocation of an operation is decoupled from the execution such that the caller and the called can exist in separate software processes and possibly distributed across multiple processors
17.	Which one of the following words is applicable to decomposition the software design operators
Option A:	it is the operation of separating distinct functionality into distinct components that have well defined interfaces
Option B:	it is the operation of duplicating of component to enhance reliability and performance
Option C:	It involves merging the components to form a single component or removing layer or interfaces between the components to form a new system
Option D:	hides implementation details
18.	Which one of the following words is applicable to replication the software design operators
Option A:	it is the operation of separating distinct functionality into distinct components that have well defined interfaces
Option B:	it is the operation of duplicating of component to enhance reliability and performance
Option C:	It involves merging the components to form a single component or removing layer or interfaces between the components to form a new system
Option D:	hides implementation details

19.	Which statement written below is best applicable to the splitting in modular operators
Option A:	is the operation of separating a set of design tasks as represented in a design structure matrix into multiple groups
Option B:	allows one module to be replaced by another module that adheres to the same design rules
Option C:	means using the module of one system in another system
Option D:	takes some or all of the hidden information from the module and makes it visible as new design rules
20.	Which statement written below is best applicable to the substituting in modular operators
Option A:	is the operation of separating a set of design tasks as represented in a design structure matrix into multiple groups
Option B:	allows one module to be replaced by another module that adheres to the same design rules
Option C:	means using the module of one system in another system
Option D:	takes some or all of the hidden information from the module and makes it visible as new design rules

Q2.	Solve any Two Questions out of Three (10 marks each)
A	Describe the different types of software architectures
B	Write a short note on Vitruvian Triad
C	Describe the different models used in architecture design

Q3.	Solve any Two Questions out of Three (10 marks each)
A	Explain Architectural Description Language with suitable examples
B	Explain with suitable diagram Seeheim reference model
C	Write a short note on 4+1 view model of architecture

University of Mumbai
Examination 2020 under cluster 7

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: **Information Technology**

Curriculum Scheme: 2016

Examination: TE Semester VI

Course Code: ITDLO6023 and Course Name: Digital Forensic

Time: 2 hour

Max. Marks: 80

=====

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	A free tool that is used to enlist listening ports for all the processes.
Option A:	listen
Option B:	listp
Option C:	fport
Option D:	flport
2.	How many major components are there in incident response methodology
Option A:	9
Option B:	3
Option C:	7
Option D:	5
3.	Which is not a step in preparing the response toolkit
Option A:	Searching information
Option B:	Tag a response toolkit media
Option C:	Check the dependencies
Option D:	creating checksum

4.	which of the following is not a part of CSIRT team:
Option A:	Security analysts
Option B:	Lead investigator
Option C:	Information Lead
Option D:	HR/legal representation
5.	Which is the last component/stage of incident response methodology
Option A:	Resolution
Option B:	Data analysis
Option C:	Reporting
Option D:	Initial response
6.	The goal of the which phase is to implement host-based, network-based, and procedural counter measures
Option A:	Reporting
Option B:	Detection of incident
Option C:	initial response
Option D:	Resolution
7.	command can be used to show the history of the commands that was currently accessed on the system.
Option A:	history
Option B:	log
Option C:	record
Option D:	hist
8.	Which of the following is not the role of Crime scene technicians

Option A:	Marking and recording the evidence
Option B:	transporting evidence
Option C:	packaging the evidence
Option D:	Chain of order
9.includes reviewing all the data collected during investigation
Option A:	Forensic analysis
Option B:	Forensic checking
Option C:	Error Finding
Option D:	Review
10.	What should be the response strategy for DoS attack?
Option A:	Interview with people
Option B:	Reconfigure router to minimize effect of the flooding.
Option C:	Seal the organization
Option D:	Keep track of time
11.	command can be used to show the history of the commands that was currently accessed on the system.
Option A:	history
Option B:	log
Option C:	record
Option D:	hist
12.	Network-based evidence information can not be obtained from
Option A:	IDS logs
Option B:	Verbal Communication

Option C:	Router logs
Option D:	Firewall logs
13.	Which of the following is not the requirement for evidence admissibility
Option A:	Evidence should be competent
Option B:	Evidence should be relevant
Option C:	Evidence should be obtained legally
Option D:	Evidence should look real
14.	Digital forensics is all of them except
Option A:	Extraction of computer data
Option B:	Preservation of computer data
Option C:	Interpretation of computer data
Option D:	Manipulation of computer data
15.	Clicking a link which is there in your email which came from an unknown source can redirect you to _____ that automatically installs malware in your system.
Option A:	that vendor's site
Option B:	security solution site
Option C:	malicious site
Option D:	software downloading site
16.	which of the following is not the volatile data for live response
Option A:	System date and time
Option B:	USB
Option C:	Currently running process
Option D:	Currently logged on users

17.	Which command is used to display current running process
Option A:	psloogedon
Option B:	plist
Option C:	ps
Option D:	pslog
18.	Which phase involves data collection and data analysis.
Option A:	Reporting
Option B:	Resolution
Option C:	Investigation
Option D:	Initial response
19.	Which is not the variations of live response
Option A:	Initial live response
Option B:	Pre-initial live response
Option C:	In-depth response
Option D:	Full live response
20.	During data collection, what is the standard way of obtaining remote logs from a centralized host
Option A:	chklog
Option B:	ChkLog
Option C:	logs
Option D:	SYSLOG

Q2)	Solve any Two Questions out of Three 10 marks each
A	<i>List & explain the different types of evidence in Digital Forensic</i>
B	<i>Explain volatile data collection procedure in window systems.</i>
C	<i>What are the steps involved in computer evidence handling ?Explain in detail.</i>

Q3)	Solve any Two Questions out of Three 10 marks each
A	<i>Explain RAID techniques in detail.</i>
B	<i>Explain procedure to investigating routers.</i>
C	<i>Explain guidelines for incident report writing.Give one report writing examples..</i>

University of Mumbai
Examination 2020 under cluster 7

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: **Information Technology**

Curriculum Scheme: Rev2016

Examination: TE Semester VI

Course Code: ITDLO6024 and Course Name: Multimedia Systems

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	I want to set up my laptop for online classes to Learning Management Portal. Which of the following will be best supported Multimedia System Architecture?
Option A:	Workstation Architecture
Option B:	IMA Architecture
Option C:	Network Architecture
Option D:	Internet Architecture
2.	If I called my friend through the whatsapp Calls; Which one is the best suitable technology for that?
Option A:	Hypertext
Option B:	Hyper speech
Option C:	HDTV
Option D:	DSP
3.	Fractals are_____ images
Option A:	a visible
Option B:	a Non-visible
Option C:	an abstract
Option D:	a black and white
4.	The use of photo-shop to make image more darker and sharper to highlight the image, is the part of multimedia application. What is the type of that application?
Option A:	Document Image
Option B:	Image Enhancement
Option C:	Digital Image
Option D:	Image Animation
5.	To upload my assignment on Google classroom, if I use mobile scanner application to scan a paper, save it as PDF and upload. what is the type of multimedia element of uploaded file?
Option A:	Image
Option B:	Holographic Image
Option C:	Document Image
Option D:	Photographic Image
6.	Which of the following is not the type of Lossless Compression?

Option A:	Packbits Encoding
Option B:	CCITT Group 3 2D
Option C:	CCITT Group 4 2D
Option D:	CCITT H.261
7.	To remove the redundancy in image, in image compression methodology JPEG uses _____.
Option A:	Quantization
Option B:	Zig-zag coding
Option C:	DCT Function
Option D:	Entropy Coding
8.	Which of the following formatting is not supported by RTF?
Option A:	Character Set
Option B:	Font Table
Option C:	Image Table
Option D:	Color Table
9.	In video compression, _____, holds only the changes in the image from the previous frame.
Option A:	B - frames
Option B:	I - frames
Option C:	C - frames
Option D:	P - frames
10.	If you are a Guitar player and u want to store played music into digital form, which of the following is most suitable file format?
Option A:	TIFF
Option B:	RIF
Option C:	MIDI
Option D:	MPEG 1 - Layer 3(MP3)
11.	Which of the following is best suited application class for TV?
Option A:	Unidirectional Real-Time
Option B:	Streaming
Option C:	Bidirectional Real-Time
Option D:	Interactive Real-Time
12.	If I am using 3D glass to watch the Movie, then which of the following feature of multimedia I am enjoying?
Option A:	Full Motion Video
Option B:	Stereo Audio
Option C:	Sequential Codacs
Option D:	Virtual Reality
13.	Converting paper into document image which of the following component of multimedia is efficiently used?
Option A:	Printer
Option B:	Plotter
Option C:	Scanner

Option D:	Camera
14.	Which of the following is not a class of data types categorization in multimedia Database?
Option A:	Variable Size Media
Option B:	Dynamic Media
Option C:	Dimensional Media
Option D:	Static Media
15.	_____ it is responsible for assigning identification for all multimedia object types.
Option A:	An user interface service agent
Option B:	A component service agent
Option C:	An object directory service agent
Option D:	A component object store
16.	Which of the following is not the specific type of multimedia server?
Option A:	Print Server
Option B:	Data-processing server
Option C:	document database server
Option D:	document imaging server
17.	Object request broker ensures that each component sub object is available and ready for retrieval on demand, is the _____ element of object sever.
Option A:	Object recompilation
Option B:	Playback control
Option C:	Format conversions
Option D:	object directory manager
18.	What is use of CCD in digital Camera?
Option A:	to capture image size
Option B:	to capture distance between image and camera
Option C:	to capture illuminance factor on image
Option D:	to capture color of image
19.	To design multimedia application, which of the following is least concern?
Option A:	size of data
Option B:	speed and mode of data transmission
Option C:	type of data to be transfer or stored
Option D:	security of data
20.	In MDBMS, _____ is not a type of data structure.
Option A:	Raw Data
Option B:	Real-time data
Option C:	Descriptive data
Option D:	Registering data

Q2.	Solve any Two Questions out of Three	10 marks each
A	MPEG Encoder	

B	Write short note on Middleware in Distributed Workgroup Computing
C	Write short note on Streaming Stored Audio/Video.
Q3.	
A	Solve any Two (Differentiate in between) 5 marks each
i.	Lossless and Lossy Compression
ii.	RIFF and TIFF
iii.	Relational Database and Multimedia Database
B	Solve any One 10 marks each
i.	What are the design issues of multimedia authoring system? Explain in brief.
ii.	What is mean by distributed multimedia system? Explain with its components?

University of Mumbai
Examination 2020

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: BE information technology engineering

Curriculum Scheme: Rev 2016

Examination: Third Year Semester VI

Course Code: ITDLO6025 and Course Name: Green IT

Time: 2 hour

Max. Marks: 80

=====

Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	Which of the following is not BREEAM Standards.
Option A:	Increase energy efficiency
Option B:	Lower Power consumption
Option C:	lower GHG emissions data centres
Option D:	lower GHG emissions of buildings
Q2.	Role of ISO 14048 standard is _____ .
Option A:	Life cycle assessment. Principles and framework
Option B:	Life cycle assessment. Data documentation format
Option C:	Life cycle assessment. Goal and scope definition and inventory analysis
Option D:	Life cycle assessment. Life cycle interpretation
Q3.	Role of ISO 14041 is standard _____ .
Option A:	Life cycle assessment. Principles and framework
Option B:	Life cycle management. Life cycle impact assessment
Option C:	Life cycle assessment. Goal and scope definition and inventory analysis
Option D:	Life cycle assessment. Life cycle interpretation
Q4.	ISO 14000 series has following standard _____ .
Option A:	Vocabulary
Option B:	Specification
Option C:	Family of standards on environmental management systems
Option D:	GHG accounting and verification
Q5.	What is the last stage of SITS curve?
Option A:	Sustainable product design
Option B:	SITS innovation platform
Option C:	Sustainable processes
Option D:	Legal, compliance, standards and risk management
Q6.	'green supply chain' is included in which stage of SITS curve?
Option A:	Sustainable product design
Option B:	Legal, compliance, standards and risk management
Option C:	Sustainable processes
Option D:	Stakeholder engagement and collaboration

University of Mumbai
Examination 2020

Q7.	Main factors of SITS value curve graph are ___ & ____.
Option A:	service value, time
Option B:	Product value,time
Option C:	Energy, time
Option D:	Total value,time
Q8.	What is core feature of sustainability reporting ?
Option A:	Strategy definition
Option B:	Employee Performance
Option C:	Motivation
Option D:	Triple bottom line
Q9.	Reduce energy consumption by 10% of its current level per year for three years"" this statement can be taken as Key Performance Indicator for measuring the green strategies implemented by the company"
Option A:	Economic outcome
Option B:	Technical
Option C:	Process
Option D:	People
Q10.	The "Natural Step" sustainability framework defines four system conditions, derived from the _____, for a sustainable society
Option A:	Laws of Thermodynamics
Option B:	Laws of Motion
Option C:	Law of Gas particle
Option D:	Laws of Cooling
Q11.	Which of the following which is not a stage of Life-Cycle Assessment?
Option A:	Goal and scope definition
Option B:	Inventory analysis
Option C:	Impact assessment
Option D:	Return on Investment Analysis
Q12.	_____ is a measure of recovering the waste energy generated due to heating of computer and servers and reusing it outside of the data centre such as heating office space or homes.
Option A:	Carbon usage effectiveness
Option B:	Environmental consumer chargeback
Option C:	Data centre computer efficiency
Option D:	Energy reuse effectiveness
Q13.	Optimizing the protocols in their design through removal of support for _____ versions.
Option A:	changed
Option B:	older
Option C:	Newer

University of Mumbai
Examination 2020

Option D:	updated
Q14.	ICMPv6, there may be an opportunity to reduce the amount of _____ associated with the protocol
Option A:	Accuracy
Option B:	redundancy
Option C:	performance
Option D:	reliability
Q15.	Primary contributions in the IEEE Standard _____ az include a low-power state for activation during idle periods and times of low utilization.
Option A:	802.11
Option B:	802.3
Option C:	805.5
Option D:	808.8
Q16.	In UDP there is _____ of overhead in UDP packets prior to the encapsulation of application data.
Option A:	16 bits
Option B:	32 bits
Option C:	64 bits
Option D:	132 bits
Q17.	According to Energy Star, data centers can reduce energy costs by what percentage for every 1°F increase in server inlet temperature _____ .
Option A:	Upto 1%
Option B:	Upto 2%
Option C:	Upto 5%
Option D:	Upto 15%
Q18.	What provides the fundamental virtual machine upon a server can be built?
Option A:	Power system
Option B:	Software as a service
Option C:	Infrastructure as a service
Option D:	Service-oriented architecture
Q19.	DCIM stands for ?
Option A:	Data cooling infrastructure management
Option B:	Data centre information management
Option C:	Data centre infrastructure management
Option D:	Data centre information management
Q20.	What is server management?
Option A:	Server management is the process of monitoring and maintaining servers to operate at peak performance
Option B:	Ensure server hardware performance

University of Mumbai
Examination 2020

Option C:	Verify that the task has been configured to run in unattended mode
Option D:	Make sure the time is properly synchronized on the computer
Q2	Solve any Two Questions out of Three 10 marks each
A	Explain Sustainable software Methodologies 10M
B	Explain life cycle of a device or hardware in details 10M
C	Describe strength and weakness of G- readiness framework 10M

Q3	Solve any Two Questions out of Three 10 marks each
A	Briefly describe and compare the major system level energy management schemes 10M
B	Explain Objectives of green networking 10M
C	What are the key elements of data centre in IT infrastructure 10M

University of Mumbai
Examination 2020 under cluster 7

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: Information Technology

Curriculum Scheme: Rev2016

Examination: TE

Semester VI

Course Code: ITDLO6021 and Course Name: Advanced Internet Programming

Time: 2 hour

Max. Marks: 80

=====

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The technique to calculate placement of keywords on a page to increase density of keywords is called _____
Option A:	Keyword Cloaking
Option B:	Keyword Stuffing
Option C:	Keyword MetaUse
Option D:	Keyword overuse
2.	Pages linked from other search engines are?
Option A:	SERP
Option B:	Crawling pages
Option C:	Indexed pages
Option D:	SEP
3.	XML is designed to _____ and store data.
Option A:	Transport
Option B:	Design
Option C:	Verify
Option D:	Analyse
4.	Disadvantage of AJAX is
Option A:	AJAX executes on client browser
Option B:	The data up on the page is event driven, instantiated by the user
Option C:	On using the back button on the browser, the previous data before asynchronous update, is reloaded.
Option D:	AJAX module may not work if JavaScript is disabled
5.	Which HTTP status code is used to show the website down for maintenance?
Option A:	200
Option B:	301
Option C:	402
Option D:	503
6.	Which of the following is not an important factor as per local search?
Option A:	City and state appear in landing page title
Option B:	Domain Authority of website
Option C:	Platform of development

Option D:	Consistency of structured citations
7.	Which strategy is used for comparing web analytics tools and make an optimal decision from a diverse set of choices.
Option A:	One-Bucket Strategy
Option B:	Two-Bucket strategy
Option C:	Three-bucket strategy
Option D:	Four-bucket strategy
8.	In RESTful Architecture , every content is seen as _____ .
Option A:	Response
Option B:	request
Option C:	Resource
Option D:	query
9.	The hyphen sign (-) is used in search engines for?
Option A:	as AND
Option B:	as OR
Option C:	as NOT
Option D:	as inclusion
10.	In order to perform domain restricted search on Google, use the following special operator?
Option A:	inurl:
Option B:	allinurl:
Option C:	site:
Option D:	in site:
11.	----- permits the identification of resource without hinting at its location and the way of dereferencing it.
Option A:	URL
Option B:	URN
Option C:	URI
Option D:	RDF
12.	_____ means that the behaviors of the customers must be connected to the objectives of the business
Option A:	Clickstream
Option B:	Multiple Outcome Analysis
Option C:	Experimentation and Testing
Option D:	Customers Feedback
13.	In order to find pages having the most backlinks/the most powerful backlinks with the keyword in the anchor text, use which of the following operators in Google?
Option A:	in site:
Option B:	in anchor:
Option C:	in text:
Option D:	in title:
14.	Which among the following will produce less results in Google search engine?

Option A:	black shirt
Option B:	"black" shirt
Option C:	"black" "shirt"
Option D:	"black shirt"
15.	Which tool is most commonly used for web analytics and is free of charge?
Option A:	Google Analytics
Option B:	Radian6
Option C:	AlteranSM2
Option D:	Social Radar
16.	_____ are used to define the block-oriented control flow of the basic activities in BPEL process.
Option A:	Partner links
Option B:	Handlers
Option C:	Variables
Option D:	Structured activities
17.	Clickstreams answers which of the following key questions associated with web analytics 2.0?
Option A:	What
Option B:	How Much
Option C:	Why
Option D:	What else
18.	The RDF triplet, object-attribute -value known as -----
Option A:	Triple
Option B:	Statement
Option C:	Sentence
Option D:	Scheme
19.	The actions a user can take to achieve milestones or steps that help the visitors in reaching the end goal are referred to as _____
Option A:	Macro Conversion
Option B:	Micro Conversion
Option C:	Metric Conversion
Option D:	Total Conversion
20.	For what purpose, OrderedCcollection is used SKOS?
Option A:	Labelling
Option B:	Documentation
Option C:	Grouping
Option D:	Subject indication

Q2 (20 Marks)	Solve any Two Questions out of Three	10 marks each
A	What is JSON? Explain the two data structures used in JSON.	

B	How does the SEO practitioner play an important role in the success of the website? What steps the practitioner must follow in order to generate an SEO plan before website development?
C	Explain Semantic Web and its components. Also mention the challenges for Semantic Web.

Q3 (20 Marks)	Solve any Two Questions out of Three	10 marks each
A	Define Business Process Execution Language(BPEL) for Web Services.	
B	What is a search query? How can the query be refined using various operators, in order to generate more specific search results? Also explain the sections of SERP with respect to Google Search engine.	
C	Explain A/B Testing and Multi Valued Testing along with their pros and cons.	

University of Mumbai
Examination 2020 under cluster 7

**Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021
to 20th January 2021**

Program: Information Technology

Curriculum Scheme: Rev/2016

Examination: TE Semester VI

Course Code: TEITC601 and Course Name: Software Engineering with Project Management
Time: 2 hour Max. Marks: 80

=====

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	RAD stands for
Option A:	Relative Application Development
Option B:	Rapid Application Development
Option C:	Rapid Application Document
Option D:	Random Application Development
2.	Which of the following is not a software development life cycle model?
Option A:	Agile
Option B:	RAD
Option C:	Prototype
Option D:	Autonomous
3.	Which is not one of the types of prototype of Prototyping Model?
Option A:	Horizontal Prototype
Option B:	Vertical Prototype
Option C:	Diagonal Prototype
Option D:	Domain Prototype
4.	User requirements are expressed as _____ in Extreme Programming.
Option A:	implementation tasks
Option B:	Objectives
Option C:	Scenario
Option D:	Functionalities
5.	The process together the software requirements from Client, Analyze and Document is known as _____ .
Option A:	Requirement engineering process
Option B:	Requirement elicitation process

Option C:	User interface requirements
Option D:	Software system analyst
6.	Which one is not a size measure for software product?
Option A:	LOC
Option B:	Halstead's program length
Option C:	Function Count
Option D:	Cyclomatic Complexity
7.	FP Stands for.....
Option A:	Function Point
Option B:	Fusion Point
Option C:	Function Parameter
Option D:	Fusion Parameter
8.	_____ allows us to infer that different members of classes have some common characteristics.
Option A:	Realization
Option B:	Aggregation
Option C:	Generalization
Option D:	dependency
9.	The importance of software design can be summarized in a single word which is:
Option A:	Efficiency
Option B:	Accuracy
Option C:	Quality
Option D:	Complexity
10.	Object that collects data on request rather than autonomously is known as
Option A:	Active Object
Option B:	Passive Object
Option C:	Multiple instance
Option D:	Multiplicity
11.	In the context of object oriented software engineering component contains
Option A:	attributes and operations
Option B:	instances of each class
Option C:	roles of each actor

Option D:	set of collaborating classes
12.	Which of the following is not a characteristics common to all design method
Option A:	configuration management
Option B:	functional component representation
Option C:	Quality assessment guidelines
Option D:	Refinement heuristics
13.	Clear box testing, glass box testing and transparent box testing are also known as :
Option A:	White-Box Testing
Option B:	Unit Testing
Option C:	Black-Box Testing
Option D:	Gray-Box Testing
14.	Configuration Status reporting that provides accurate status and current configuration data to developers, testers, end users, customers and stakeholders through admin guides, user guides, FAQs etc. is sometimes also called as :
Option A:	Access Control
Option B:	Status Accounting
Option C:	Synchronization Accounting
Option D:	Version Control
15.	Which is a software development process that involves synchronized application of a broad spectrum of defect prevention and detection strategies in order to reduce software development risks, time, and costs?
Option A:	Concurrent Testing
Option B:	Development testing
Option C:	Integration Testing
Option D:	Component Interface Testing
16.	State which of the 4 P's of the project involves around SubjectMatter expert
Option A:	Product
Option B:	Process
Option C:	Project
Option D:	Project team
17.	How job will be done, How mich resources is needed, states which principal of Barry Bohem
Option A:	Project sizing
Option B:	Empirical Estimation

Option C:	W5HH
Option D:	Project monitoring
18.	A document used to solicit bids, quote, or proposal from prospective supplier is which document
Option A:	Request for Proposal
Option B:	Requirement for Proposal
Option C:	Document for Proposal
Option D:	bid for proposal
19.	Mention who summarizes the entire project plan
Option A:	Planning framework
Option B:	Planning Proposal
Option C:	Project charter
Option D:	Project proposal
20.	Ensuring the project is in right track with right problem with respect to right project is known as
Option A:	Flexibility
Option B:	Durability
Option C:	Feasibility
Option D:	Ability

Q2. A	Solve any Two out of Three	5 marks each
i	Explain White Box and Black Box testing.	
ii	Differentiate Prescriptive and Evolutionary models.	
iii	Construct and explain Risk Identification Framework.	
B	Solve any one	10 marks each
i	Explain different techniques of Project Scheduling and Budgeting.	
ii	Construct and explain Unified Process.	

Q3.A	Solve any Two Questions	5 marks each																																	
i	Explain ITPM																																		
ii	Construct and explain PMBOK knowledge areas																																		
ii	What is Project? What are attributes of the project?																																		
B	Solve any one question	10 marks each																																	
i	Explain Requirement engineering steps in detail.																																		
ii	Develop a network diagram using the AON technique and calculate the critical path and PERT activity analysis using the information given below.																																		
	<table border="1"> <thead> <tr> <th>Activity</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> <th>I</th> <th>J</th> </tr> </thead> <tbody> <tr> <td>Estimation</td> <td>1</td> <td>3</td> <td>4</td> <td>2</td> <td>1</td> <td>3</td> <td>3</td> <td>1</td> <td>2</td> <td>5</td> </tr> <tr> <td>Predecessor</td> <td>None</td> <td>A</td> <td>B</td> <td>B</td> <td>C</td> <td>C,D</td> <td>E</td> <td>F</td> <td>G,H</td> <td>I</td> </tr> </tbody> </table>	Activity	A	B	C	D	E	F	G	H	I	J	Estimation	1	3	4	2	1	3	3	1	2	5	Predecessor	None	A	B	B	C	C,D	E	F	G,H	I	
Activity	A	B	C	D	E	F	G	H	I	J																									
Estimation	1	3	4	2	1	3	3	1	2	5																									
Predecessor	None	A	B	B	C	C,D	E	F	G,H	I																									

University of Mumbai

Examination 2020 under cluster 7(Lead College: _____)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: TE Information Technology

Curriculum Scheme: Rev2016

Examination: TE Semester VI

Course Code: ITC602 and Course Name: Data Mining and Business Intelligence

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry 2 marks each.
1.	Which of the following is not a step, in knowledge discovery (KDD) process?
Option A:	Data cleaning
Option B:	Data integration
Option C:	Data stamping
Option D:	Data transformation
2.	Which of the data mining functionalities are used to find frequent patterns?
Option A:	Generalization
Option B:	Association and Correlation Analysis
Option C:	Classification
Option D:	Clustering
3.	Attribute Color with values {gray, pink, yellow, blue} are an example of: _____.
Option A:	Continuous attribute
Option B:	Nominal attribute
Option C:	Ordinal attribute
Option D:	Numeric attribute
4.	_____ routines attempt to fill in missing values, smooth out noise while identifying outliers, and correct inconsistencies in the data.
Option A:	Data Reduction
Option B:	Numerosity reduction
Option C:	Dimensionality reduction
Option D:	Data cleaning
5.	What is the Euclidian distance between point A(5,4) and point B(1,1)?
Option A:	4
Option B:	7
Option C:	5
Option D:	3
6.	Both _____ and _____ are distributive measures.
Option A:	quartile and inter-quartile
Option B:	mean and median
Option C:	sum and count
Option D:	median and midrange

7.	Gini Index is used as an attribute selection measure in _____ algorithm.
Option A:	CART
Option B:	CHAID
Option C:	C4.5
Option D:	ID3
8.	Info(D) is also known as the _____ of D.
Option A:	Entropy
Option B:	Average
Option C:	Mode
Option D:	Mean
9.	A quiz question had names of 6 algorithms of which the student had to select only the classification algorithms. A student identified 3 of them as classification algorithms. During evaluation it was found that 2 of the algorithms identified by the student were indeed classification algorithms. The student was unable to identify 2 other classification algorithms in the list. The recall is:
Option A:	0.5
Option B:	0.33
Option C:	0.66
Option D:	1
10.	A tree structure called _____, is commonly used to represent the process of hierarchical clustering.
Option A:	Decision tree
Option B:	Dendrogram
Option C:	Flowchart
Option D:	Binary Tree
11.	When an algorithm uses the _____, to measure the distance between clusters, it is sometimes called a nearest-neighbor clustering algorithm.
Option A:	mean distance
Option B:	maximum distance
Option C:	minimum distance
Option D:	average distance
12.	Algorithm that can discover non-convex shape clusters is
Option A:	K-means
Option B:	DIANA
Option C:	AGNES
Option D:	DBSCAN
13.	Consider a set of five 2-dimensional points $p_1=(0, 0)$, $p_2=(0, 1)$, $p_3=(5, 8)$, $p_4=(5, 7)$, and $p_5=(0, 0.5)$. Euclidean distance is the distance function. The k-means algorithm is used to cluster the points into two clusters. The initial cluster centers are p_1 and p_4 . The clusters after two iterations of k-means are:
Option A:	$\{p_3, p_4, p_5\} \{p_1, p_2\}$
Option B:	$\{p_1, p_2, p_5\} \{p_3, p_4\}$
Option C:	$\{p_1, p_2, p_4\} \{p_3, p_5\}$
Option D:	$\{p_1, p_4, p_5\} \{p_2, p_3\}$

14.	When is sub-itemset pruning done?
Option A:	A frequent itemset P is a proper subset of another frequent itemset Q
Option B:	Support (P) = Support(Q)
Option C:	When a frequent itemset P is a proper subset of another frequent itemset Q and Support (P) = Support(Q)
Option D:	confidence(P)=support(Q)
15.	Which of the following does not accept null transactions?
Option A:	max_confidence
Option B:	Lift
Option C:	cosine measure
Option D:	all_confidence
16.	Which of the following is the property of Apriori algorithm?
Option A:	All nonempty subsets of a frequent itemset must also be frequent
Option B:	It mines all frequent patterns by constructing a FP tree
Option C:	Based on the kinds of rules
Option D:	All itemsets must be frequent
17.	Quantitative association rules are_____.
Option A:	intradimensional association rule
Option B:	hybrid-dimensional association rules
Option C:	multidimensional association rules
Option D:	multilevel association rule
18.	To develop business intelligence system for a credit card company that helps in identifying fraudulent transactions from a dataset having genuine as well as fraudulent transactions, which data mining task should be applied?
Option A:	Association
Option B:	Clustering
Option C:	Feature Extraction
Option D:	Classification
19.	A/An _____mathematical model is a material representation of a real system, whose behavior is imitated for the purpose of the analysis.
Option A:	Analogical
Option B:	Symbolic
Option C:	Iconic
Option D:	Stochastic
20.	Decisions are _____ when they affect the entire organization or at least a substantial part of it for a long period of time.
Option A:	Tactical
Option B:	Technical
Option C:	Strategic
Option D:	Operational

Q2	
A	Solve any Two 5 marks each

i.	List and describe five primitives for specifying data mining task.																																																							
ii.	Find Mean, median, mode for the given data, Show box plot also. 1,1,13,13,15,15,16,19,20,20,21,21,22,23,24 30,40,45,45,45																																																							
iii.	Explain multilevel association rule with a suitable example.																																																							
B	Solve any One 10 marks each																																																							
i.	Use Naïve Bayesian classification technique for the following dataset. Show how we can classify new tuple: (Homeowner-Yes, Status- Employed, Income -Average)																																																							
	<table border="1"> <thead> <tr> <th>ID</th> <th>Homeowner</th> <th>Status</th> <th>Income</th> <th>Defaulted</th> </tr> </thead> <tbody> <tr><td>1</td><td>No</td><td>Employed</td><td>Average</td><td>Yes</td></tr> <tr><td>2</td><td>No</td><td>Business</td><td>Average</td><td>No</td></tr> <tr><td>3</td><td>No</td><td>Employed</td><td>Low</td><td>No</td></tr> <tr><td>4</td><td>Yes</td><td>Business</td><td>High</td><td>No</td></tr> <tr><td>5</td><td>No</td><td>UnEmployed</td><td>Average</td><td>Yes</td></tr> <tr><td>6</td><td>No</td><td>Business</td><td>Low</td><td>No</td></tr> <tr><td>7</td><td>Yes</td><td>UnEmployed</td><td>High</td><td>No</td></tr> <tr><td>8</td><td>No</td><td>Employed</td><td>Average</td><td>Yes</td></tr> <tr><td>9</td><td>No</td><td>Business</td><td>Low</td><td>No</td></tr> <tr><td>10</td><td>Yes</td><td>Employed</td><td>High</td><td>No</td></tr> </tbody> </table>	ID	Homeowner	Status	Income	Defaulted	1	No	Employed	Average	Yes	2	No	Business	Average	No	3	No	Employed	Low	No	4	Yes	Business	High	No	5	No	UnEmployed	Average	Yes	6	No	Business	Low	No	7	Yes	UnEmployed	High	No	8	No	Employed	Average	Yes	9	No	Business	Low	No	10	Yes	Employed	High	No
ID	Homeowner	Status	Income	Defaulted																																																				
1	No	Employed	Average	Yes																																																				
2	No	Business	Average	No																																																				
3	No	Employed	Low	No																																																				
4	Yes	Business	High	No																																																				
5	No	UnEmployed	Average	Yes																																																				
6	No	Business	Low	No																																																				
7	Yes	UnEmployed	High	No																																																				
8	No	Employed	Average	Yes																																																				
9	No	Business	Low	No																																																				
10	Yes	Employed	High	No																																																				
ii.	Use any hierarchical clustering algorithm to cluster the following into 3 clusters. A1:(2,10), A2:(3,9), A3:(8,4), A4:(5,8), A5:(7,5), A6:(6,4), A7:(1,2), A8:(2,4)																																																							

Q3																	
A	Solve any Two 5 marks each																
i.	Explain any two techniques for finding distance between the clusters in the hierarchical clustering algorithm.																
ii.	Explain Confusion Matrix. Calculate Accuracy, Precision and Recall for the following Confusion Matrix																
	<table border="1"> <thead> <tr> <th>Cancer Classes</th> <th>Yes</th> <th>No</th> <th>Total</th> </tr> </thead> <tbody> <tr><td>Yes</td><td>90</td><td>210</td><td>300</td></tr> <tr><td>No</td><td>140</td><td>9560</td><td>9700</td></tr> <tr><td>Total</td><td>230</td><td>9770</td><td>10000</td></tr> </tbody> </table>	Cancer Classes	Yes	No	Total	Yes	90	210	300	No	140	9560	9700	Total	230	9770	10000
Cancer Classes	Yes	No	Total														
Yes	90	210	300														
No	140	9560	9700														
Total	230	9770	10000														
iii.	What is noisy data? How to handle it?																
B	Solve any One 10 marks each																
i.	Consider the transaction database given in table below. Apply Apriori Algorithm with minimum support of 50% and confidence of 50%. Find all frequent itemsets and all the association rules.																
	<table border="1"> <thead> <tr> <th>Tid</th> <th>Items</th> </tr> </thead> <tbody> <tr><td>100</td><td>1,3,4</td></tr> <tr><td>200</td><td>2, 3, 5</td></tr> <tr><td>300</td><td>1, 2, 3, 5</td></tr> <tr><td>400</td><td>2, 5</td></tr> <tr><td>500</td><td>1, 2, 3</td></tr> <tr><td>600</td><td>3, 5</td></tr> <tr><td>700</td><td>1, 2, 3, 5</td></tr> </tbody> </table>	Tid	Items	100	1,3,4	200	2, 3, 5	300	1, 2, 3, 5	400	2, 5	500	1, 2, 3	600	3, 5	700	1, 2, 3, 5
Tid	Items																
100	1,3,4																
200	2, 3, 5																
300	1, 2, 3, 5																
400	2, 5																
500	1, 2, 3																
600	3, 5																
700	1, 2, 3, 5																

	800 1,5 900 1,3
ii.	Define BI and give its architecture. Explain any business application where data mining can be used.