University of Mumbai
Examination 2020 under cluster 4 (Lead College:Pillai College of Engineering)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: B.E. Computer
Curriculum Scheme: Rev 2016
Examination: BE Semester: VII
Course Code:CSC701 and Course Name: Digital Signal & Image Processing

Time: 2 hour   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.	Determine the given system is $$y(n) = n * x(-n)$$
Option A:	Time Variant
Option B:	Time Invariant
Option C:	Shift Invariant
Option D:	Depends on n
2.	Determine the given signal is $$y(n) = \frac{x(n)}{cos(n)}$$
Option A:	Can't predict
Option B:	BIBO stable
Option C:	BIBO unstable
Option D:	Depends on past inputs
3.	Determine the given signal is $$y(n) = 7a^n$$
Option A:	Stable
Option B:	Can't predict
Option C:	Unstable
Option D:	Depends on space & time
4.	Plot even components for discrete ramp function for the range -3 to 3.
Option A:	1.5 1 0.5 0 0.5 1 1.5 ↑

Option B:	1 1.5 0.5 0 0.5 1.5 1 $\uparrow$
Option C:	−1.5 −1 −0.5 0 0.5 1 1.5 $\uparrow$
Option D:	−1 −1.5 0.5 0 0.5 1.5 1 $\uparrow$
5.	For a given analog signal $$x(t) = 2\sin(480\pi t) + 3\sin(120\pi t)$$ What is the minimum sampling rate to avoid aliasing
Option A:	240Hz
Option B:	60Hz
Option C:	300Hz
Option D:	480Hz
6.	Determine the given signal is $$x(n) = \left(\frac{1}{3}\right)^n u(-n)$$
Option A:	Periodic
Option B:	Aperiodic
Option C:	Periodic with Fundamental period=1/3
Option D:	Periodic with Fundamental period=-1/3
7.	In W_4, twiddle matrix, how many sign changes are there for every row?
Option A:	Row 1:0, Row 2:2, Row 3:3,Row 4: 1
Option B:	Row 1:0, Row 2:1, Row 3:2,Row 4: 3
Option C:	Row 1:3, Row 2:2, Row 3:0,Row 4: 2
Option D:	Row 1:3, Row 2:2, Row 3:1,Row 4: 0
8.	How many complex multiplications are required to convert given signal from time domain to frequency domain and again from frequency domain to time domain in FFT?
Option A:	$N/2 \log_2 N$
Option B:	$2N \log_2 N$

Option C:	$\log_2 N$
Option D:	$N \log_2 N$
9.	Let x(n)={ 1, 2, 3, 4, -1, -2, -3, -4} With 8 Point DFT, evaluate X[0] & X[4] without computing DFT.
Option A:	X[0]=0, X[4]=4
Option B:	X[0]=0, X[4]=0
Option C:	X[0]=4, X[4]=4
Option D:	X[0]=4, X[4]=4
10.	Find energy of the given signal $x(n) = \begin{cases} (1/2)^n & n \geq 0 \\ 3^n & n < 0 \end{cases}$
Option A:	0
Option B:	∞
Option C:	4/3
Option D:	Neither energy nor power signal
11.	For 3 point DFT, X[k]={?, -4+3.46j, ?} Determine X[0] & X[2]
Option A:	**X[0]=cant' predict, X[2]=-4-3.46j**
Option B:	X[0]=X[3]= -4+3.46j
Option C:	X[0]=X[3]= -4-3.46j
Option D:	X[0]= 0, X[3]= -4+3.46j
12.	In Human Eye System, Cones respond to illumination levels vision called as:
Option A:	Scotopic
Option B:	Photopic
Option C:	Fovea
Option D:	Choroid
13.	For e.g. in screen, no of rows are 3200, no. of columns 2400, approximate resolution of screen in Megapixel is
Option A:	10MP
Option B:	12MP
Option C:	8MP
Option D:	4MP

14.	In bit plane slicing, for 4 BPP image how many planes can be possible
Option A:	Depends on application
Option B:	Infinite
Option C:	Image having 256 gray levels
Option D:	Image having 16 gray levels
15.	Image -> Histogram is which type of operation
Option A:	Reversible
Option B:	Irreversible
Option C:	Depends on density
Option D:	Depends on Gray level
16.	The response of the filter based on ranking of pixel is called as:
Option A:	Stochastic Filter
Option B:	Order-Statistic Filter
Option C:	Linear Filter
Option D:	High pass Filter
17.	In which file format we can store multiple images per file
Option A:	BMP
Option B:	TIFF
Option C:	JPEG
Option D:	PDF
18.	The range of values spanned by the gray scale is informally referred as
Option A:	Dynamic Range
Option B:	Sampling
Option C:	Pixel Distribution
Option D:	Pixel Density
19.	Distance Measure for image pixels cannot be done using?
Option A:	Euclidean distance
Option B:	Chessboard distance
Option C:	City Block distance
Option D:	Levenshtein distance
20.	Following mentioned edge detection operators can be used as compass operator
Option A:	Robert
Option B:	Prewitt

Option C:	Laplacian
Option D:	Median filter mask

Subjective:

Q2.	Solve any Four out of Six. (5 marks each)
A	Define: 1) Deterministic and nondeterministic signals 2) Periodic and Aperiodic signals With the help of examples.
B	Compute linear convolution of the causal sequence x(n)={1,2,0,1,2,3}, h(n)={2,2,1} using Overlap Add Method.
C	For a given discrete time signal x(n) $$x(n) = \begin{matrix} 5 & 4 & 6 & -1 & 2 & 1 & -2 \\ & & & \uparrow & & & \end{matrix}$$ Plot i) x(n+4) ii) x(n-1)u(n) iii) x(-n)u(-n+1)
D	Obtain the linear convolution of two sequences defined as x(n)=u(n)-u(n-3) h(n)=u(n-1)+u(n-2)-u(n-4)-u(n-5)
E	x(n) is given. x(n)={1, 2, 3, 1} Perform FFT to convert signal from time domain to frequency domain X[k]. Draw butterfly flow graph.
F	Explain any three properties of DFT.

Q3.	Solve any Four out of Six. (5 marks each)
A	Explain Sampling & Quantization process during image acquisition.
B	Explain image with respect to no. of gray levels. No of gray levels are 2, 8, 64, 256. How it affects on storage as number of gray levels are change.
C	Which is better option High Boost filter or High Pass filter? Derive expression for High Boost Filter.
D	Justify median filter is the best filter to remove salt & pepper noise in an image.
E	Explain Log & Power law transformation with suitable diagrams.
F	Write derivation for Sobel Edge detection operator. What is the advantage of Sobel operator?

University of Mumbai
Examination 2020 under cluster 4 (Lead College: PCE, New Panvel)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021
Program: _**Computer Engineering**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: CSC702 and Course Name: Mobile Communication and Computing

Time: 2 hour   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.	Which one is not an advantage of using frequency reuse?
Option A:	Increased capacity
Option B:	Limited spectrum is required
Option C:	Same spectrum may be allocated to other network
Option D:	Number of base stations is reduced
2.	Direct Sequence Spread Spectrum technique uses
Option A:	Chipping Sequence
Option B:	Frequency Hopping
Option C:	WEP
Option D:	OFDM
3.	Which of the following multiple access techniques are used by second generation cellular systems?
Option A:	FDMA/FDD and TDMA/FDD
Option B:	TDMA/FDD and CDMA/FDD
Option C:	FDMA/FDD and CDMA/FDD
Option D:	FDMA/FDD only
4.	How many users or voice channels are supported for each 200 KHz channel in GSM?
Option A:	Eight
Option B:	Three
Option C:	Sixty four
Option D:	Twelve
5.	Which modulation technique is used by GSM?
Option A:	GMSK
Option B:	BPSK
Option C:	QPSK
Option D:	GFSK
6.	For GSM Security - Algorithms are ?
Option A:	SRES, SIM, RAND
Option B:	IMSI, KC, SRES
Option C:	A3, A5, A8

Option D:	RAND, SRES, Kc
7.	3G W-CDMA is also known as
Option A:	UMTS
Option B:	DECT
Option C:	Digital Cellular System (DCS) 1800
Option D:	Extended Total Access Communications System (ETACS)
8.	Which of the following WLAN standard has been named Wi-Fi?
Option A:	IEEE 802.6
Option B:	IEEE 802.15.4
Option C:	DSSS IEEE 802.11b
Option D:	IEEE 802.15
9.	MACA provide solution for
Option A:	Power Management Problem
Option B:	Multipath Propagation Problem
Option C:	Count to infinity Problem
Option D:	Hidden Terminal Problem
10.	Foreign Agents and Home Agents advertise their presence periodically using
Option A:	Agent solicitations
Option B:	Registration Request
Option C:	Agent Advertisement
Option D:	Registration Replay
11.	Short Interframe Spacing (SIFS) inCSMA algorithm in WLAN
Option A:	Medium Priority, for time bound services
Option B:	Highest Priority : Ack , CTS, Polling response
Option C:	Lowest Priority: for asynchronous data services
Option D:	No priority
12.	Destination-Sequenced Distance vector routing protocol(DSDV) can be viewed as which one of the following?
Option A:	Reactive Routing Protocol
Option B:	Proactive Routing Protocol
Option C:	Hybrid Routing Protocol
Option D:	Multicast routing protocol
13.	The interface between SGSN and GGSN in GPRS is ?
Option A:	G_b
Option B:	G_n
Option C:	G_i
Option D:	G_r

14.	WLAN MAC management functionality _____ ?
Option A:	Synchronisation
Option B:	Congestion Control
Option C:	CSMA/CA
Option D:	Modulation
15.	What is the range of asynchronous user data rates provided by HIPER-LAN?
Option A:	1-100 Mbps
Option B:	50-100 Mbps
Option C:	1-20 Mbps
Option D:	500 Mbps to 1 Gbps
16.	Revere Tunneling may be required in case of
Option A:	Firewall at Foriegn Agent
Option B:	Firewall at Corresponding Node
Option C:	Firewall at Home Agent
Option D:	Firewall at Default Routers
17.	Which of the following specifies a set of media access control (MAC) and physical layer specifications for implementing infrastructure based WLANs?
Option A:	IEEE 802.16
Option B:	IEEE 802.3
Option C:	IEEE 802.11
Option D:	IEEE 802.15
18.	The Mobile TCP enhancement, Using Persistent Mode
Option A:	M-TCP
Option B:	I-TCP
Option C:	Selective Retransmission
Option D:	Snooping TCP
19	UMTS FDD frame structure
Option A:	1920-1980 MHz uplink 2110-2170 MHz downlink
Option B:	1900-1920 MHz uplink 2010-2025 MHz downlink
Option C:	1920-1940 MHz uplink 2110-2125 MHz downlink
Option D:	1980-2020 MHz uplink 2040-2085 MHz downlink
20.	IP Multimedia Subsystem is component of _____
Option A:	LTE-VOLTE
Option B:	LTE
Option C:	HSPA
Option D:	LTE-Advanced

Q2 (20 Marks)	Solve any Four out of Six 5 marks each
A	What are different elements and interfaces used in GSM,
B	Explain Routing Optimization in Mobile IP.
C	Explain GPRS with its architecture.
D	Explain Power management in WLAN (infrastructure based)
E	Compare various Mobile TCP protocols
F	Explain the spread spectrum with its advantages and disadvantages.

Q3. (20 Marks)	Solve any Four out of Six 5 marks each
A	Explain call establishment process for Mobile Terminated call
B	What is Bluetooth? Describe some of its user scenarios.
C	What is the hidden terminal problem? And What is the possible solution?
D	Explain Cellular IP - Micromobilty protocol.
E	Explain functionality of elements of SAE-Enhanced Packet Core (EPC)
F	Compare 2G,3G,4G technologies.

University of Mumbai
Examination 2020 under cluster 4 (Lead College: Pillai College of Engineering)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021
Program: Computer Engineering : SEM VII R2016 scheme CBCGS
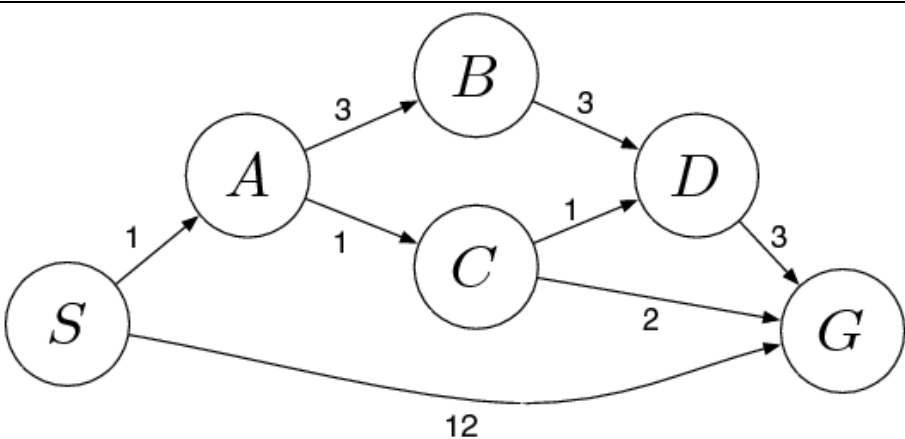
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: CSC703 and Course Name: Artificial Intelligence and Soft Computing

Time: 2 hour   Max. Marks: 80

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1301_R16_BE_VII_CSC703_QP3
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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	In intelligent agent the mapping from percept to action is done by
Option A:	Sensors
Option B:	actuators
Option C:	agent function
Option D:	percept sequence
2.	A vacuum Cleaner world with two location, two sensors - location and dirt , three actions - left, right and suck will have a state space with how many possible states ?
Option A:	6
Option B:	8
Option C:	10
Option D:	12
3.	Apply uniform cost search. Initial state is S, Goal state is G.
Option A:	12
Option B:	4
Option C:	6

Option D:	10
4.	Identify the rule : "If premise P(c) is true for any arbitrary element c in the universe of discourse, then we can have a conclusion as (for all) x P(x)"
Option A:	Universal Generalization
Option B:	Universal Instantiation
Option C:	Existential Instantiation
Option D:	Existential Introduction
5.	If a fuzzy set A is defined on an interval X = [0, 10] of integers by the membership function Membership A(x) = x / (x+2) Then the Alpha cut with Alpha = 0.5 will be given as?
Option A:	{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
Option B:	{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
Option C:	{1, 2, 3, 4, 5, 6, 7, 8, 9, 10,11}
Option D:	{2, 3, 4, 5, 6, 7, 8, 9, 10}
6.	Consider A and B are two fuzzy sets with membership functions Membership A(x) = {0.6, 0.7, 0.1, 0.7, 0.4} Membership(x) = {0.8, 0.2, 0.6, 0.9, 0.5} Then the value of Membership Complement AUB(x) will be
Option A:	{0.2,0.3,0.4,0.1,0.5}
Option B:	{0.8,0.7,0.6,0.9,0.5}
Option C:	{0.5,0.7,0.6,0.8,0.4}
Option D:	{0.2,0.7,0.4,0.1,0.5}
7.	Which function is a continuous function that varies gradually between the values 0 and 1 or -1 and +1?
Option A:	Linear function
Option B:	Sigmoidal function
Option C:	Thresholding function
Option D:	Activation function
8.	A* search is optimal for graph search if it has which property ?
Option A:	Admissible
Option B:	Monotonicity
Option C:	Dominance
Option D:	Dominance
9.	A simple perceptron is
Option A:	auto-associative neural network
Option B:	Competitive network
Option C:	Multilayer feed-back network
Option D:	a single layer feed-forward neural network
10.	Write FOL You can fool some of the people all of the time.
Option A:	(∃x) (∀t) can-fool(x,t)
Option B:	(∃t) (∀x) can-fool(x,t)

Option C:	(∀t) (∃x) can-fool(x,t)
Option D:	(∀x) (∃t) can-fool(x,t)
11.	Back propagation algorithm is based on
Option A:	Evolutionary algorithms
Option B:	Particle swarm optimization
Option C:	Genetic algorithms
Option D:	Gradient descent method
12.	Planning problem combines the following aspects of AI
Option A:	Knowledge Based Systems
Option B:	Logic & Knowledge Based Systems
Option C:	FOL & Logic
Option D:	Search & Logic
13.	Select the correct sequence of operation for generic knowledge-based agent program i. ASK the knowledge-base what action it should perform ii. TELLs the knowledge-base which action is chosen iii. TELLs the knowledge-base what it perceives
Option A:	i, ii, iii
Option B:	ii, i, iii
Option C:	iii, i, ii
Option D:	iii, ii, i
14.	The ------------ determines how fast the weights of NN change.
Option A:	Learning rate
Option B:	Bias
Option C:	Activation function
Option D:	Momentum
15.	A good knowledge representation system must NOT possess the following properties?
Option A:	Representational Accuracy
Option B:	Inferential Adequacy
Option C:	Acquisitional Efficiency
Option D:	Universal Efficiency
16.	A Clause containing at most one positive literal is called _____
Option A:	Definite Clause
Option B:	Horn Clause
Option C:	Unification
Option D:	Resolution
17.	What are the following sequence of steps taken in designing a fuzzy logic machine?
Option A:	Fuzzification -Rule evaluation -Defuzzification
Option B:	Fuzzification -Defuzzification - Rule evaluation
Option C:	Rule evaluation -Defuzzification -Fuzzification
Option D:	Rule evaluation - Fuzzification -Defuzzification

18.	Which of the following is only an unsupervised learning problem?
Option A:	Digit recognition
Option B:	Image segmentation
Option C:	Image compression
Option D:	Image recognition
19.	What is the feature of ANNs due to which they can deal with noisy, fuzzy, inconsistent data?
Option A:	associative nature of networks
Option B:	distributive nature of networks
Option C:	both associative & distributive
Option D:	commutative
20.	Which one is not the characteristics of Expert Systems
Option A:	High performance and responsive
Option B:	User dependent
Option C:	Understandable
Option D:	Reliable

Descriptive questions

Q2	
A	**Solve any Two** **5 marks each**
i.	Give PEAS Description of Online Teaching. Explain which type of agent is required for the same.
ii.	Consider the following initial state and the goal state for a block world problem. Solve the problem using Hill Climbing algorithm, so as to reach from initial state to the goal state. Consider

h1(n) – Add 1 if block is on correct block/ goal pattern, Subtract 1 if on wrong block

and

h2(n) - Add 1 for every block in a correct structure that the block is sitting on, subtract 1 for every block

Note down your observations after solving for h1 and h2 |
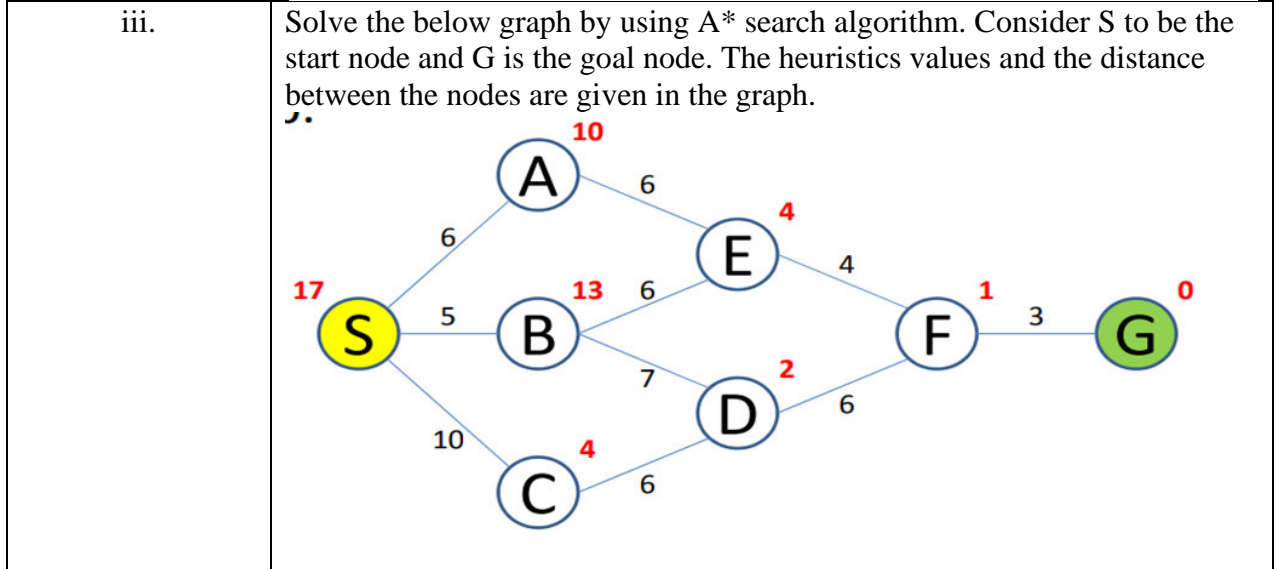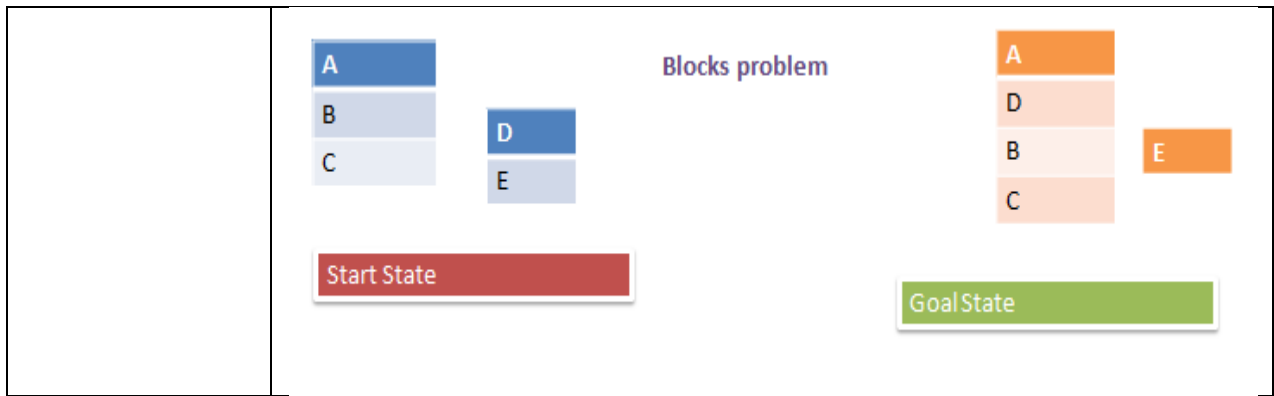
	Blocks problem — Start State, Goal State
iii.	Solve the below graph by using A* search algorithm. Consider S to be the start node and G is the goal node. The heuristics values and the distance between the nodes are given in the graph.
B	**Solve any One** **10 marks each**
i.	Consider the following axioms: 1. Every child loves Santa. 2. Everyone who loves Santa loves any reindeer. 3. Rudolph is a reindeer, and Rudolph has a red nose. 4. Anything which has a red nose is weird or is a clown. 5. No reindeer is a clown. 6. Scrooge does not love anything which is weird. 7. (Conclusion) Scrooge is not a child. Solve by resolution.
ii.	What is perceptron? Give a perceptron model for XOR and AND gate.

Q3	
A	**Solve any Two** **5 marks each**
i.	For the following network calculate the net input given to the output neuron.

ii.	Explain Genetic algorithm steps.
iii.	Write a note on ANFIS system.
B	**Solve any One** **10 marks each**
i.	Consider two inputs I1 and I2. These two inputs have the following linguistic states: I1 : L(low), M(Medium), H(High) I2 : NR(Near), FR (Far), VF(Very Far) The output of any i-th rule can be expressed by the following: $y_i = f(I1, I2) = a_{ji} I1 + b_{ki} I2$; where, $j,k = 1,2,3$. Suppose: $a_{1i} = 1, a_{2i} = 2, a_{3i} = 3$ if I1 = L, M and H, respectively. $b_{1i} = 1, b_{2i} = 2, b_{3i} = 3$ if I2 = NR, FR, and VF, respectively. Calculate the output of FLC for I1 = 6.0 and I2 = 2.2 using Takagi and Sugeno approach.
ii.	Explain Spare tire problem using conditional planning.

University of Mumbai
Examination 2020 under cluster 04 (Lead College: PCE, Panvel)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021
Program: **Computer Engineering**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: CSDLO7031 and Course Name: Advanced System Security and Digital Forensics
Time: 2 hour   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal (02) marks
1.	User works in a company and the company decides how data should be shared is __ type of access control mechanism
Option A:	MACs (Mandatory Access Control)
Option B:	RBACs (Role Based Access Control)
Option C:	LBACs (List Based Access Control)
Option D:	DACs (Discretionary Access Control)
2.	What is the Strong Star Property Rule in Bell-La –Padula (BLP) model?
Option A:	The subject with the same clearance as the object can read and write to the object.
Option B:	The object with the same clearance level as the subject can write to the subject.
Option C:	The subject cannot read to the object.
Option D:	The object cannot read or write to the subject
3.	This is not level in classification in BIBA/ BLP model
Option A:	Top Secret
Option B:	Secret
Option C:	Confidential
Option D:	Classified
4.	A type of the attack where state or condition is changed between the time the security was checked and the access of the resource is known as
Option A:	Linearization attack
Option B:	Covert Channel
Option C:	Race Conditions
Option D:	Salami Attack
5.	A type of the virus which changes its type and signature.
Option A:	Non-resident virus
Option B:	Boot Sector Virus
Option C:	Polymorphic Virus
Option D:	Memory Virus
6.	What is a covert channel?
Option A:	Using a communications channel in a way that was not intended
Option B:	Tunneling software

Option C:	A Trojan removal tool
Option D:	Using a communications channel in the original, intended way
7.	Which of the following is not the type of the Cookies used for authentication?
Option A:	Session Cookies
Option B:	Persistent Cookies
Option C:	Temporary Cookies
Option D:	Zombie Cookies
8.	Which of the following is not example of a web service security (WS-Sec) token
Option A:	A Kerberos ticket
Option B:	A signature algorithm
Option C:	A username and password
Option D:	An X.509 certificate
9.	A Web site that allows users to enter text, such as a comment or a name, and then stores it and later displays it to other users, is potentially vulnerable to a kind of attack what attack is it __
Option A:	Cross-site scoring scripting
Option B:	Cross-site scripting
Option C:	SQL injection
Option D:	Two-factor authentication
10.	This is not the type of the file permission in Unix/ Linux system.
Option A:	Owner Permission
Option B:	Group Permission
Option C:	Other permissions
Option D:	User
11.	This is not the one of the type of phishing attack
Option A:	Email phishing
Option B:	Spear phishing
Option C:	Vishing
Option D:	Web bug
12.	The Key Confirmation Key (KCK) is used to
Option A:	Integrity-protect data between station and the AP
Option B:	Integrity-protect messages between in the four way handshake
Option C:	Encrypt data between the station and the AP
Option D:	Encrypt the message containing the Group Key
13.	Which types of VPNs are used for creating a virtual tunnel between an employee's device and the company's network?
Option A:	Remote access VPNs
Option B:	Site-to-site VPNs
Option C:	Peer-to-Peer VPNs
Option D:	Country-to-country VPNs
14.	The MAC computed in UMTS is used to
Option A:	Authenticate the base station to the SIM card

Option B:	Authenticate the SIM card to the base station
Option C:	Authenticate the MSC/HLR to the SIM card
Option D:	Authenticate the SIM card to the MSC/HLR
15.	It gives its owner the legal right to exclude others from making, using, or selling an invention for a limited period of years.
Option A:	Patent
Option B:	Copyright
Option C:	Trade Secret
Option D:	Trademark
16.	Which of the following is not computer crime
Option A:	Plagiarism
Option B:	Hacking
Option C:	Using Internet to transfer
Option D:	Virus Transferring
17.	Utility or tool used to determining Who Is Logged in to the System during windows investigation is
Option A:	log
Option B:	dir
Option C:	PsLoggedOn
Option D:	dd
18.	What is called as the process of creation of a duplicate of digital media for purpose of examining it?
Option A:	Acquisition.
Option B:	Steganography.
Option C:	Live analysis
Option D:	Hashing.
19.	What is the most significant legal issue in computer forensics?
Option A:	Preserving Evidence
Option B:	Seizing Evidence.
Option C:	Admissibility of Evidence.
Option D:	Discovery of Evidence
20.	Utility/ command used to create a forensic duplicate of a hard drive
Option A:	dd
Option B:	grep
Option C:	ls
Option D:	dir

Q2	**Solve any Four out of Six** **(5 marks each)**
A	Explain in brief Single sign on and Federated Identity management.

B	What are different types of Virus? Explain how virus propagates.
C	Explain multi factor authentication.
D	Write short note on Privacy and Authentication in GSM.
E	Explain rights of employee.
F	Explain qualified forensics duplicate, restored image and mirror image.

Q3	**Solve any Four out of Six**	**(5 marks each)**
A	Explain BIBA model.	
B	Explain file protection mechanism.	
C	Write short note on Account harvesting.	
D	Explain types of phishing.	
E	Compare WEP and WPA.	
F	What are the different ways to recover deleted files from Unix System?	

University of Mumbai
Examination 2020 under cluster 4 (Lead College: Pillai College of Engineering)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: **Computer Engineering**
Curriculum Scheme: Rev 2016
Examination: BE Semester VII
Course Code: CSDLO7032 and Course Name: Big Data & Analytics

Time: 2 hour   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.	Which software tool allows real time data processing in big data?
Option A:	Hive
Option B:	Sqoop
Option C:	Flume
Option D:	PIG
2.	Which one of the following statement is false about Hadoop?
Option A:	It is a distributed framework
Option B:	Processing in hadoop is Map Reduce
Option C:	Name node can communicate with Task tracker
Option D:	It runs with commodity hardware
3.	_____ is used to check the status of all daemons running in the Hadoop
Option A:	Fsck
Option B:	Jps
Option C:	Hadoop fs
Option D:	Distcp
4.	Big data analysis does perform all the tasks mentioned below except
Option A:	Collects data
Option B:	Analyzes data
Option C:	Spreads data
Option D:	Organizes data
5.	In which mode each daemon runs on a single node but there is separate java process for each daemon
Option A:	Local (Standalone) mode
Option B:	Pseudo-distributed mode
Option C:	Fully distributed mode
Option D:	Dual distributed mode
6.	The term _____ is often used to describe Hadoop hardware requirements.
Option A:	Commodity hardware
Option B:	Commodity software

Option C:	Commodity firmware
Option D:	Cluster hardware
7.	There is a need for storing transactional data generated by a Bank's ATM. The data is to be stored in a tabular format. According to CAP theorem, which type of data store is to be used for this?
Option A:	CP
Option B:	AP
Option C:	CA
Option D:	CAP
8.	In NoSQL databases, which term is used to indicate high availability and disaster recovery?
Option A:	Processing
Option B:	Replication
Option C:	Scalability
Option D:	Recovery
9.	Which of the following options are examples of streaming data?
Option A:	Offline processing of credit card transactions stored in the HDFS
Option B:	Analysing a company's performance, based on its annual report
Option C:	Sensors continuously monitoring luggage on a conveyor belt
Option D:	Data of a retail shop
10.	A _____ query P is a query that is issued once over a database D, and then logically runs continuously over the data in E until P is terminated.
Option A:	One-time Query
Option B:	Adhoc Query
Option C:	General Query
Option D:	Continuous Query
11.	Which of the following is not the component of Data Stream Management System?
Option A:	Stream Data Regulator
Option B:	Working Storage
Option C:	Inference
Option D:	Query Processor
12.	A Bloom filter guarantees no
Option A:	False negatives
Option B:	False positives
Option C:	False positives and false negatives
Option D:	False positives or false negatives, depending on the Bloom filter type
13.	What are DGIM's maximum error boundaries?
Option A:	DGIM always underestimates the true count; at most by 25%
Option B:	DGIM either underestimates or overestimates the true count; at most by 50%
Option C:	DGIM always overestimates the count; at most by 50%
Option D:	DGIM either underestimates or overestimates the true count; at most by 25%

14.	What is the Manhattan distance (L1-norm) for the points X=(0, 3, 4, 5) and Y=(7, 6, 3, 1) ?
Option A:	15
Option B:	16
Option C:	14
Option D:	17
15.	Find Hamming Distance for vectors A=10010101111 B=10001001011
Option A:	1
Option B:	2
Option C:	3
Option D:	4
16.	Flajolet-Martin(FM) algorithm is used to_____
Option A:	Count distinct elements in the stream
Option B:	Count frequent items in the stream
Option C:	Count ones in the streams
Option D:	Check item in the stream
17.	_____ system recommend items based on similarity measures between users and/or items.
Option A:	Content-based filtering
Option B:	General filtering
Option C:	Collaborative Filtering
Option D:	User-based filtering
18.	Which of the following term can be used to describe nodes that contain the maximum amount of information about a network?
Option A:	Social Networks
Option B:	Degree Centrality
Option C:	Betweeness Centrality
Option D:	Broadcasters
19.	Pages that are relevant and are linked by many other pages are called as _____
Option A:	Hub
Option B:	Dead end
Option C:	Spider Trap
Option D:	Authority
20.	The First step of Girvan-Newman algorithm is
Option A:	Performing depth-first search
Option B:	Performing breath-first search
Option C:	Applying hashing
Option D:	Applying hashing on betweenness

Q2	Solve any Four out of Six	5 marks each
A	Define Hadoop. What is the limitation in Hadoop 1.X and how this limitation is resolved in Hadoop 2.x?	
B	Explain working of different phases of Map Reduce with one common example?	
C	Explain how to use join operation in mapreduce?	
D	What do you mean by NoSQL databases? What is the alternative to ACID property in Nosql databases?	
E	Determine the distinct element in the following stream using appropriate algorithm. Input stream of integers S = {4, 7, 5, 1, 2, 7, 6} Hash function, h(x) = (3 x + 1) mod 7	
F	What is page rank? How to calculate the page rank of a web graph?	

Q3	Solve any Four out of Six	5 marks each
A	Define HDFS. Discuss the HDFS Architecture and HDFS Commands in brief.	
B	Explain with the example the types of queries fired on stream data	
C	Why Cosine Distance is a Distance Measure? Find the Cosine Similarity between two documents DOC_1: ABC cares me more than XYZ cares me DOC_2: RMM helps me more than ABC cares me	
D	Write a short note on Bloom Filter.	
E	What is a recommendation system? Explain the design of a recommendation system used to recommend movies to users.	
F	What is a community in a Social Network Graph? Explain how the Girvan Newman algorithm finds the different Communities in the graph.	

University of Mumbai
Examination 2020 under cluster no. 04 (Lead College: Pillai College of Engineering, New Panvel)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021
Program: **Computer Engineering**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: CSDLO7033 and Course Name: Robotics

Time: 2 hour   Max. Marks: 80
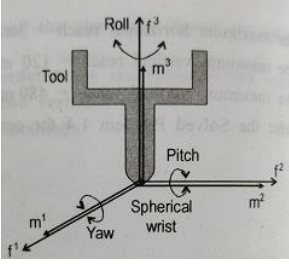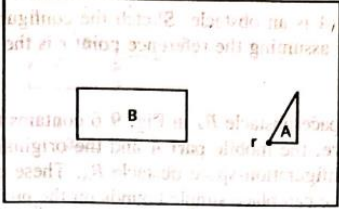
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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	For a functional industrial robot, typically, how many degrees of freedom would the robot have?
Option A:	4
Option B:	5
Option C:	6
Option D:	7
2.	Which of the following terms refers to the use of compressed gasses to drive (power) the robot device?
Option A:	pneumatic
Option B:	piezoelectric
Option C:	hydraulic
Option D:	photosensitive
3.	A work envelope of a Robot is
Option A:	the area space where robot is working
Option B:	the shape created when a manipulator reaches forward, backward, up and down.
Option C:	the cabinet use to keep the robot.
Option D:	not useful to define the application of robot.
4.	The fixed coordinate frame is attached to
Option A:	The shoulder joint of the robot.
Option B:	The elbow joint of the robot.
Option C:	The base joint of the robot.
Option D:	The end effector.
5.	Homogeneous transformation matrix is a
Option A:	3X3 matrix
Option B:	3X4 matrix
Option C:	4X3 matrix
Option D:	4X4 matrix
6.	Input to Direct kinematics is…
Option A:	multiple set of joint parameters

Option B:	one set of joint parameters.
Option C:	multiple set of link parameters.
Option D:	one set of link parameters.
7.	Screw transformation is defined as..
Option A:	rotation about X axis followed by translation about Y axis
Option B:	rotation about Y axis followed by translation about Z axis
Option C:	rotation about Z axis followed by translation about X axis
Option D:	rotation and translation about the same axis
8.	Tool Configuration Space is ….
Option A:	N dimensional.
Option B:	4 dimensional.
Option C:	3 dimensional.
Option D:	6 dimensional.
9.	Input to a Inverse Kinematic problem is
Option A:	a pair of {R, p}
Option B:	set of Joint variables q = {q1, q2, ….., qn}
Option C:	set of link parameters
Option D:	kinematic parameter table
10.	A relay is a type of:
Option A:	sensor.
Option B:	actuator.
Option C:	end effector.
Option D:	controller.
11.	What is the name for information sent from robot sensors to robot controllers?
Option A:	Temperature
Option B:	Pressure
Option C:	Feedback
Option D:	Signal
12.	Each joint of Robot is driven or powered by …
Option A:	Sensors
Option B:	Actuators
Option C:	Drive systems
Option D:	Friction.
13.	There are _____ general approaches to robot programming.
Option A:	3
Option B:	2
Option C:	4
Option D:	5
14.	The uncertainty in task planning is represented as
Option A:	nominal value plus error term
Option B:	nominal value plus exact value
Option C:	exact value plus error term

Option D:	nominal value minus error term
15.	Path planning problem requires a search in
Option A:	two-dimensional space
Option B:	three-dimensional space
Option C:	four-dimensional space
Option D:	six-dimensional space
16.	Robot vision system is used for
Option A:	to automate the manipulation of objects.
Option B:	to control the robot movement.
Option C:	to control the movement of camera
Option D:	to decide the precision of a robot.
17.	Robot vision does not include
Option A:	Image representation.
Option B:	Motion planning.
Option C:	Edge detection.
Option D:	Template matching.
18.	In edge detection algorithm which technique is used to extract vertex pixels directly
Option A:	corner point decoding
Option B:	vertex point decoding.
Option C:	corner point encoding
Option D:	vertex point encoding.
19.	What is the form of Fuzzy logic?
Option A:	Two-valued logic
Option B:	Crisp set logic
Option C:	Many-valued logic
Option D:	Binary set logic
20.	Which of the following is not a Capabilities of Expert Systems?
Option A:	Advising
Option B:	Demonstrating
Option C:	Explaining
Option D:	Expanding

Q2	(Total 20 Marks)	
A	**Solve any Two**	**5 marks each**
i.	Give the difference between Hard and Soft Automation.	
ii.	Explain a 4 axis articulated ROBOT.	
iii.	Describe principle function of robot vision system.	
B	**Solve any One**	**10 marks each**
i.	Consider the robotic tool shown in figure. Sketch the tool position after each position of the following YPR operation. Yaw of 90 degree, Pitch of -90 degree and Roll of 90 degree. Rotations are performed about fixed axes of F frame.	

ii.	Explain the classification of Robots based on drive technology, work space and motion control with example.

Q3.	**(Total 20 Marks)**
A	**Solve any Two** **5 marks each**
i.	Compare and contrast Direct Kinematics and Inverse Kinematics.
ii.	Explain Shrink operators and swell operators.
iii.	What is the role of sensors in robots? Explain any one sensor in detail.
B	**Solve any One** **10 marks each**
i.	Define the following terms with neat diagram showing all the relevant parameters: Joint angle θ_k , Joint distance d_k, Link length a_k and Link twist angle α_k.
ii.	Consider a scene with two polygonal parts shown in the figure, Triangle A is a mobile part and rectangle B is an obstacle. Generate a configuration space induced by A.

University of Mumbai
Examination 2020 under cluster ALL (Lead College: VCET)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **ALL_Institute Level Optional Course 1**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: ILO 701**6** and Course Name: Cyber Security and Laws

Time: 2 hour   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.	Which of the following are wireless attacks?
Option A:	MAC Spoofing , Phishing
Option B:	Eavesdropping,, MAC Spoofing
Option C:	Phishing, Repudiation
Option D:	Eavesdropping , Non- Repudiation
2.	This attack can be deployed by infusing a malicious code in a website's comment section.
Option A:	Cross Site Request Forgery (XSRF)
Option B:	SQL injection
Option C:	HTML Scripting
Option D:	Cross Site Scripting (XSS)
3.	The Objective of Firewalls is to protect?
Option A:	Data Driven Attacks
Option B:	Unauthorized Access
Option C:	Confidentiality
Option D:	Integrity
4.	The user activities are sniff and forward this information as a background process to the attackers
Option A:	Adware
Option B:	Malware
Option C:	Spyware
Option D:	Warms
5.	It is a class of computer threat?
Option A:	Stalking
Option B:	Phishing

Option C:	DOS attacks
Option D:	Soliciting
6.	Someone posing as IT tech requests information about your computer configuration. What kind of attack is this?
Option A:	Whaling
Option B:	Social Engineering
Option C:	Insider Threat
Option D:	Phishing
7.	The Primary objective of worm is to Spread the infection from….
Option A:	computer to computer
Option B:	File to file on a computer
Option C:	Website to website
Option D:	Router to routers
8.	It is usually targeted by nature where the emails are exclusively designed to target any exact user.
Option A:	Algo-based phishing
Option B:	Vishing
Option C:	Domain Phishing
Option D:	Spear phishing
9.	In this attack, someone is repeatedly harassed to individuals or organizations using any electronics means.
Option A:	Identity theft
Option B:	Phishing
Option C:	Cyber stalking
Option D:	Bullying
10.	It is a kind of attempts by individuals to get confidential or sensitive information from a individuals to falsifying their identity?
Option A:	Identity theft scam
Option B:	Phishing scams
Option C:	Spyware scams
Option D:	Trojan horse Scam

11.	It cannot be exploited by assigning or by licensing the rights to others.
Option A:	Designs
Option B:	Patents
Option C:	Copy rights
Option D:	Trademark
12.	Which of following would not gain copyright protection?
Option A:	A DVD
Option B:	An unrecorded speech
Option C:	Written lyrics of a song
Option D:	A hand knitted jumper
13.	Which one of the following statements is true?
Option A:	The definition of an invention is set out in the Patents Act 1977.
Option B:	Copyright must be registered in order to gain protection.
Option C:	A patent must be registered in order to gain protection.
Option D:	The owner of a patent cannot sell it but can prevent others using his invention.
14.	Which one of the following is outside the scope of IT Act 2000
Option A:	Electronic message
Option B:	Electronic Evidence
Option C:	Power of Attorney with digital signature
Option D:	Electronic gift
15.	Which Act casts responsibility on body corporate to protect sensitive personal information and provide punishment for offences by companies.
Option A:	IT Act 2000
Option B:	Indian Evidence Act 1872
Option C:	Indian penal code
Option D:	IT (Amendment)Act 2008
16.	What is the proposed punishment for Cyber Terrorism in IT Act?
Option A:	10 year imprisonment
Option B:	Life Imprisonment

Option C:	5 year imprisonment
Option D:	1 Lac rupees penalty
17.	Which of the following NERC Standard provide cyber-security framework for identification and protection of critical cyber assets to support the reliable operation of BES
Option A:	CIP-001
Option B:	CIP-002
Option C:	CIP-002 through CIP-009
Option D:	CIP-003
18.	Standard CIP-002 is used for
Option A:	Critical cyber asset identification
Option B:	Electronic Security Perimeter
Option C:	Physical Security of Critical cyber assets
Option D:	Sabotage reporting
19.	Which of the following are part of key provisions of Sarbanes-Oxley Act ?
Option A:	Physical Security of Critical cyber assets
Option B:	Bulk Electric System (BES)
Option C:	Critical assets
Option D:	Corporate Responsibility for financial reports
20.	ISO 27000 was originally published in _____ as the BS 7799 by the British Standards Institute (BSI)
Option A:	1995
Option B:	1998
Option C:	2000
Option D:	2012

Q2 (20 Marks)	
A	**Solve any Two** **5 marks each**
i.	Explain Active and Passive Attacks with example
ii.	Explain how Appeal can be made under the IT Act 2000
iii.	Explain Key IT Requirement of GLBA/GLB
B	**Solve any One** **10 marks each**
i.	How Criminal Plan the Attack? Explain various steps

ii.	Explain E-Contracts. Discuss E-Contracts Act 1872.

Q3. **(20 Marks)**		
A	**Solve any Two**	**5 marks each**
i.	Explain Bluetooth Hacking with various tools	
ii.	Explain Vishing, Phishing and Smishing in Cyber Security	
iii.	Explain Key IT Requirement of FISMA	
B	**Solve any One**	**10 marks each**
i.	Explain how Intellectual Property Laws protect the rights of the owner of the Intellectual Property	
ii.	Explain Key features of Indian Information Technology Act 2000.	

University of Mumbai
Examination 2020 under cluster ALL (Lead College:)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **ALL_Institute Level Optional Course 1**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: ILO 7018 and Course Name: EAM

Time: 2 hour   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.	Energy that is available in market for definite price is known as
Option A:	Renewable energy
Option B:	Commercial energy
Option C:	Non-commercial energy
Option D:	Traditional energy
2.	As per the report "BP Statistical Review of World Energy-2014", for how many years the coal reserve in India available for energy production?
Option A:	500
Option B:	300
Option C:	100
Option D:	200
3.	Which source of energy dominates the energy production mix in India?
Option A:	Natural gas
Option B:	Coal
Option C:	Oil
Option D:	Nuclear
4.	Assisting and implementing ENCON recommendation measures and monitoring the performance are done in
Option A:	Pre Audit phase
Option B:	Audit phase
Option C:	Post Audit phase
Option D:	Pre and Audit phase
5.	The height of a column in a pump is called as
Option A:	Horizontal head
Option B:	Static head
Option C:	Multi head
Option D:	Vertical head
6.	What covers study of Variations occurring in energy costs, availability and reliability of supply of energy, energy mix, identify energy conservation technologies, retrofit for energy conservation equipment.
Option A:	Performance assessment

Option B:	Energy Audit
Option C:	Energy reliability
Option D:	Energy planning
7.	Which type of audit offers the most accurate estimate of energy savings and cost?
Option A:	Preliminary Audit
Option B:	Detailed Audit
Option C:	Overall Audit
Option D:	Secondary Audit
8.	Obtaining site drawings like building layout, steam, air distribution, electricity distribution are performed in which phase of audit?
Option A:	Post Audit phase
Option B:	Pre Audit phase
Option C:	Audit phase
Option D:	In between Pre and Post Audit phase
9.	Power factor can be improved by connecting which among these?
Option A:	Semiconductor device
Option B:	Resistors
Option C:	Inductor
Option D:	Static capacitors
10.	Fixed charge and Variable charge are dependent on what factor for HT consumer?
Option A:	Average load ,Energy consumption
Option B:	Energy consumption, Maximum Demand
Option C:	Maximum demand, Energy Consumption
Option D:	Maximum demand ,Peak load demand
11.	Energy savings potential of variable torque applications compared to constant torque application is:
Option A:	Higher
Option B:	Equal
Option C:	Lower
Option D:	Does not depend on Torque
12.	Electronic soft starters are used for motors to:
Option A:	improve the loading
Option B:	provide smooth start and stop
Option C:	achieve variable speed
Option D:	provide jerk during starting
13.	For large space lighting we prefer
Option A:	Time based control
Option B:	day light based controllers
Option C:	Localized Switching
Option D:	Photo sensors
14.	Formation of bubbles in an impeller is called
Option A:	Cavitation

Option B:	Defects
Option C:	Friction
Option D:	Heat burn
15.	If no instrument other than tachometer is available, what method you would suggest for measuring the motor load?
Option A:	Slip method
Option B:	Input power measurement method
Option C:	Line current measurement method
Option D:	Terminal voltage method
16.	In lighting performance assessment ILER stands for
Option A:	International Lighting Energy Regulation
Option B:	Indian Lighting Efficiency Regulation
Option C:	Installed Load Efficacy Ratio
Option D:	Interior Lighting Energy Ratio
17.	To have lighting performance assessment satisfactory to good, ILER value must be
Option A:	0.75 and above
Option B:	0.5 and less
Option C:	between 0.25 to 0.5
Option D:	below 0.25
18.	Which LEED rating system requires durability?
Option A:	LEED for Schools
Option B:	LEED for Commercial Interiors
Option C:	LEED for Homes
Option D:	LEED for Existing Buildings: Operation and Maintenance
19.	Photovoltaic cell converts solar energy into
Option A:	Heat energy
Option B:	Electric energy
Option C:	Mechanical energy
Option D:	Chemical energy
20.	Which insulation material is used for high temperatures
Option A:	Magnesia
Option B:	Polyurethane
Option C:	Expanded Polystyrene
Option D:	Calcium Silicate

Q2	
A	**Solve any Two** **5 marks each**
i.	Explain any FIVE special features of green building.
ii.	Explain advantages of power factor improvement.
iii.	A pump is filling water in to a rectangular overhead tank of 5 m x 4 m with a height of 8 m. The inlet pipe to the tank is located at height of 20 m above ground. Pump suction : 3 m below pump level Overhead tank overflow line : 7.5 m from the bottom of the tank Power drawn by motor : 5.5 kW Motor efficiency η : 92% Time taken by the pump to fill the overhead tank up to overflow level : 180 minutes. Find the pump efficiency.
B	**Solve any One** **10 marks each**
i.	What is the need of energy audit and explain types of energy audit.
ii.	Describe General fuel economy measures in furnaces

Q3	
A	**Solve any Two** **5 marks each**
i.	Explain Benchmarking and its types.
ii.	A 7.5 kW, 415 V, 15 A, 970 RPM, 3 phase rated induction motor with full load efficiency of 86 % draws 7.5 A and 3.23 kW of input power. Find the percentage loading of the motor.
iii.	Explain what is thermal insulations and its benefits.
B	**Solve any One** **10 marks each**
i.	Describe energy saving opportunities in water pumps.
ii.	Explain energy conservation opportunities in lighting controls.

University of Mumbai
Examination 2020 under cluster ALL(Lead College: VCET)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **ALL_Institute Level Optional Course 1**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: ILO 7011 and Course Name: Product Life Cycle Management

Time: 2 hour   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.	_____ is not a phase under product life cycle management
Option A:	Introduction
Option B:	Growth
Option C:	Maturity
Option D:	Rotation
2.	In _____ phase extensive advertisement is needed for product promotion
Option A:	Introduction
Option B:	Growth
Option C:	Maturity
Option D:	Decline
3.	In _____ phase profit level reaches to its maximum peak
Option A:	Introduction
Option B:	Growth
Option C:	Maturity
Option D:	Decline
4.	In_____ phase product sales reaches to minimum and profit is also lowest
Option A:	Introduction
Option B:	Growth
Option C:	Maturity
Option D:	Decline
5.	_____ is not a benefit of PLM
Option A:	Product life cycle analysis
Option B:	Profit maximization
Option C:	Decision making
Option D:	Large investment
6.	In _____ design model approach simultaneous and interlinked design activities are carried out
Option A:	Integrated
Option B:	Individual
Option C:	Isolated
Option D:	Dual

7.	_____ engineering is also called as simultaneous engineering.
Option A:	Concurrent
Option B:	Combine
Option C:	Linear
Option D:	Parallel
8.	_____ emphasizes the multidisciplinary approach in the product development process
Option A:	Concurrent engineering
Option B:	Dual engineering
Option C:	Rotational Engineering
Option D:	Realistic engineering
9.	_____ is not a step under new product development.
Option A:	Idea generation
Option B:	Concept development
Option C:	Idea screening
Option D:	Sensitivity analysis
10.	In ____ product is customized according to the customer wishes and product prepared as per specific requirement of customer.
Option A:	Product configuration
Option B:	Product rotation
Option C:	Product division
Option D:	Product linearization
11.	PDM stands for ____
Option A:	Product Data Management
Option B:	Product Development Management
Option C:	Product Dispatch Management
Option D:	Product Distinct Manament
12.	_____ is not the benefit of PDM
Option A:	It centralizes and control data
Option B:	It removes unnecessary data
Option C:	It improves data management
Option D:	It increases cost and time
13.	_____ is not the feature of PDM
Option A:	It facilitates better use of resources
Option B:	Engineering changes can be controlled easily
Option C:	Lead time gets reduced
Option D:	Consumes more time and resources
14.	_____ is not the component of virtual product development
Option A:	Virtual product design
Option B:	Virtual simulation
Option C:	Digital manufacturing
Option D:	Supply chain management

15.	DMU stands for _____
Option A:	Digital Mock up Unit
Option B:	Digital Manufacturing Unit
Option C:	Digital Maintenance Unit
Option D:	Differential Manufacturing Unit
16.	_____ is a realistic rendering technique of creating an image by tracing the path of light
Option A:	Ray tracing
Option B:	Ray casting
Option C:	Radiosity
Option D:	Radiography
17.	DFE stands for _____
Option A:	Design for excellence
Option B:	Design for efficiency
Option C:	Design for environment
Option D:	Design for economy
18.	DFE focuses on _____ factor
Option A:	Economy
Option B:	Energy
Option C:	Efficiency
Option D:	Environment
19.	LCA stands for _____
Option A:	Life Cycle Assessment
Option B:	Life Cycle Analysis
Option C:	Life Cycle Assembly
Option D:	Life Cycle Achievement
20.	LCCA stands for
Option A:	Life Cycle Class Achievement
Option B:	Life Cycle Creative Assessment
Option C:	Life Cycle Combine Assessment
Option D:	Life Cycle Cost Analysis

Q2 (20 Marks)	Solve any Four out of Six 5 marks each
A	*Explain product data management in detail.*
B	*Explain virtual product development tools in detail.*
C	*Explain the concept of sustainable development.*
D	Explain virtual manufacturing in detail.
E	*Explain product data management along with its advantages.*
F	*Explain the framework of life cycle assessment.*

Q3. (20 Marks)	Solve any Two Questions out of Three 10 marks each
A	*Explain life cycle phases in detail.*

| B | *Explain product life cycle strategies in brief.* |
| C | *Explain various product development tools in detail.* |

University of Mumbai
Examination 2020 under cluster ALL(Lead College: VCET)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **ALL_Institute Level Optional Course 1**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: ILO 701**9** and Course Name: Development Engineering

Time: 2 hour   Max. Marks: 80

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0701_R16_ALL_VII_ILO7019_QP1

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following was the first committee on Panchayati raj in India
Option A:	Balwant Rai Mehta
Option B:	Ashok Mehta
Option C:	L.M.Singhvi
Option D:	S. Mohinder Singh
2.	When is National Panchayati Day celebrated
Option A:	23rd December
Option B:	1st June
Option C:	24th April
Option D:	15th September
3.	73rd amendment gave practical shape to which article of the constitution
Option A:	Article 14
Option B:	Article 32
Option C:	Article 40
Option D:	Article 51
4.	The multi-dimensional poverty index is a measure developed by the
Option A:	UNCTAD
Option B:	World Bank
Option C:	International Monetary Fund IMF
Option D:	Oxford poverty and human development initiative , OPHDI , and the UNDP
5.	Which of the following system is established on the basis of direct election
Option A:	Gram Panchayat
Option B:	Block Committee
Option C:	Zila Parishad
Option D:	District
6.	Engagement of local people in development project refers to
Option A:	Economic development
Option B:	Socila development
Option C:	Participatory development
Option D:	Sustainable development

7.	Panchayats are constituted for
Option A:	four years
Option B:	five years
Option C:	six years
Option D:	three years
8.	Bread labour means
Option A:	To earn one's livelihood by engaging in manual labour
Option B:	Hard physical labour
Option C:	Labour for making bread
Option D:	Engaging in agriculture
9.	The Human Development Index ranks the countries based on their performance in the key areas of (1) health, (2) sex-ratio, (3)education (4) access to resources
Option A:	1,2,3
Option B:	2,3,4
Option C:	1,3,4
Option D:	1,2,4
10.	Which one of the following is not a correct statement ?
Option A:	Growth is quantitative and value neutral
Option B:	Development means a qualitative change which is always value positive
Option C:	Positive growth and development refer to changes over a period of time
Option D:	Both growth and development refer to changes over a period of time.
11.	Which of the following elements must always be in the mind of the engineer while performing his duties vis-à-vis Ethics (1)public safety, (2) economy, (3) health, (4) welfare
Option A:	1,2,3
Option B:	1,2,3,4
Option C:	1,4
Option D:	1,3,4
12.	According to Gandhi, ' Enjoy the wealth by renouncing it'is the essence of
Option A:	Trusteeship
Option B:	Sarvodaya
Option C:	Swaraj
Option D:	Ramarajya
13.	The term that refers to principles, values, beliefs that define right or wrong behaviour is
Option A:	Customer satisfaction
Option B:	Innovation
Option C:	Ethics
Option D:	Empowerment
14.	In which five year plan the Panchayat Raj System was introduced in India for the first time
Option A:	First

Option B:	Second
Option C:	Fifth
Option D:	Sixth
15.	Which of the following is an appropriate general principle with regard to engineering ethics
Option A:	The engineer shall regard his duty to the public welfare as paramount to all other obligations
Option B:	The engineer shall regard his duty to the objectives of the company as paramount to all other obligations
Option C:	The engineer shall regard his duty to the Profession of engineering as paramount to all other obligations
Option D:	The engineer shall regard his duty to his excellence as paramount to all other obligations
16.	Those individuals who raise ethical concerns to others inside or outside the organisation are called
Option A:	Entrepreneur
Option B:	Whistle blower
Option C:	Social entrepreneur
Option D:	Social impact management
17.	Which of the following is not a key intervention to improve governance
Option A:	Facilitating independent and inclusive journalism
Option B:	Capacity building of government officials
Option C:	Advocacy for policy design and implementation
Option D:	Employment for all
18.	Which of the following is not in the 11th schedule of subjects
Option A:	Fisheries industry
Option B:	Safe drinking water
Option C:	Markets and fairs
Option D:	Large irrigation projects
19.	The following is not a stated objective of Self Help Groups
Option A:	Provide employment to the members
Option B:	Create awareness about rights
Option C:	Foster a sense of community
Option D:	Entrepreneurship development
20.	Those individuals who raise ethical concerns to others inside or outside the organisation are called
Option A:	Entrepreneur
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Q2	Solve any Four out of Six 5 marks each
A	Explain the provisions of the 74th amendment
B	What is the scope of information and communication technology in rural India
C	Define ethics and ethical dilemma
D	What are the important components of Green Revolution
E	What are the various steps taken for inclusion of women and the members of the reserved category in decision making
F	Why was there a need to set up rural co-operatives

Q3	Solve any Four out of Six 5 marks each
A	Briefly discuss the various rural development schemes in India
B	What is the importance of ethical conduct in business
C	Human Development Index is a barometer of a nation's progress- Comment on this while giving specific examples to prove your point
D	What are self help groups (SHG)? Explain their significance in rural development
E	Discuss any 2 initiatives of the Government of India towards urban development
F	What are the functions of Panchayat Samiti

Program: **ALL_Institute Level Optional Course 1**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: ILO 701**7**
Course Name: Disaster Management and Mitigation Measures

Time: 2 hour   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 occurred as a consequence of earthquake
Option A:	Tsunami
Option B:	Fire
Option C:	Damage to building
Option D:	Drought
2.	Which of the following is NOT the natural cause of flood .
Option A:	River bank erosion
Option B:	Poor natural drainage
Option C:	Heavy rain
Option D:	Deforestation
3.	Terrorism is a _____type of disaster
Option A:	Man made
Option B:	Natural
Option C:	Both natural and man made
Option D:	Neither natural nor man made
4.	World Health Organization (WHO) was established in
Option A:	1950
Option B:	1948
Option C:	1947
Option D:	1960
5.	Who heads NDMA, the apex body for Disaster management
Option A:	Home Minister
Option B:	Finance Minister
Option C:	Prime Minister
Option D:	Home Secretary
6.	Which of the following is a disaster mitigation strategy?
Option A:	Constructing cyclone shelters

Option B:	Giving loans from banks
Option C:	Providing cheap electricity
Option D:	Providing school uniforms to children
7.	Which of the following organization is the apex authority of disaster management in India?
Option A:	NDA
Option B:	NDMA
Option C:	CDMA
Option D:	INDR
8.	If the deficiency of a particular year's rainfall more than 50 % of normal it is termed as
Option A:	Onset of Drought
Option B:	Moderate Drought
Option C:	Severe Drought
Option D:	Simple Drought
9.	Magnitude of earthquake indicates amount of _____.
Option A:	vibrations per second
Option B:	vibrations per minute
Option C:	Oscillations
Option D:	energy released
10.	By which Act, N.I.D.M got the statutory organization status?
Option A:	National Disaster Policy Act 1999
Option B:	NDMP 2019
Option C:	Disaster Management Act 2005.
Option D:	National DM Policy 2009
11.	Amateur Radio is also known as?
Option A:	Ham radio
Option B:	Home radio
Option C:	Pocket radio
Option D:	Silent radio
12.	What are the three phases of disaster management planning?
Option A:	Preparation, Response and Recovery
Option B:	Preparation, Planning and Perception
Option C:	Evacuating, Rebuilding and Re-branding
Option D:	Planning, Evacuating and Recovery
13.	Cyclones, Heat wave , Climate change are part of _____disaster.
Option A:	The Geological Disaster
Option B:	The Hydrological Disasters
Option C:	The Meteorological Disasters
Option D:	The Chemical Disaster

14.	The Indian Tsunami Early Warning Centre (ITEWC) established at Indian National Centre for Ocean Information Sciences is located in
Option A:	Chennai
Option B:	Kochi
Option C:	Goa
Option D:	Hyderabad
15.	In _____ in 2013 cloudburst created the flash flood situation to cause heavy damage to lives and property.
Option A:	Uttarakhand
Option B:	Chennai
Option C:	Kashmir
Option D:	Karnataka
16.	When was the updated & revised National Disaster Management Plan was prepared?
Option A:	2016
Option B:	2019
Option C:	2018
Option D:	2017
17.	Which of the following is the best thing to do during heavy lightning?
Option A:	lie on the ground in an open place
Option B:	Go into a water body
Option C:	Stay indoors, away from metallic doors and windows
Option D:	Stand under a tall tree
18.	The given three actions are arranged for which step i) The planning ii) The training and iii) The supply
Option A:	The prevention step
Option B:	Recovery step
Option C:	The preparation step
Option D:	The recovery step
19.	The Vision of _____ is "To build a safer and disaster resilient India by a holistic proactive technology driven and sustainable development strategy that involves all stake holders and fasters a culture of Prevention, preparedness and Mitigation.
Option A:	N.D.R.F
Option B:	N.D.M.A
Option C:	S.D.R.F
Option D:	N.I.D.M
20.	S.D.R.F Stands for
Option A:	State Disaster Response Fund
Option B:	State Disaster Relief Fund
Option C:	State Dedicated Relief Fund
Option D:	State Dynamic Response Fund

Q2	Solve any Four out of Six	5 marks each
A	State and describe the measures to prevent the global warming.	
B	Define "Nuclear Disaster "and describe the effects of Nuclear disasters in India	
C	What are the long term and short-term effects of disaster?	
D	What are the main phases of Disaster Management?	
E	Describe the importance and the methods to create public awareness in Disaster management?	
F	Explain the role of Government Agencies in Relief fund raising for Disaster management.	

Q3.	Solve any Two Questions out of Three	10 marks each
A	Write detail note on occurrence, causes and measurement of earthquake. List out some of the major earthquakes occurred in India	
B	Explain the role of NGO's in post disaster scenario and during rehabilitation.	
C	State Do's and Don'ts in case of various disasters.	

University of Mumbai
Examination 2020 under cluster ALL(Lead College: VCET)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **ALL_Institute Level Optional Course 1**
Curriculum Scheme: Rev2016
Examination: BE Semester VII
Course Code: ILO 7012 and Course Name: Reliability Engineering

Time: 2 hour   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.	The Bathtub curve indicates failure probability, Which stage is NOT normally associated with the bathtub curve?_____
Option A:	Pulling the plug where production is halted due to unacceptable level of failures
Option B:	Infant-mortality where failures occur early
Option C:	Wear-out where failure increases due to age
Option D:	Normal-life where few failures occur
2.	Three components each with a reliability of 0.9 are placed in series. What is the reliability of the system ?
Option A:	0.729
Option B:	0.125
Option C:	0.00258
Option D:	0.989
3.	. If A is a perfect subset of B and $P(a) < P(b)$, then $P(B - A)$ is equal to _____
Option A:	$P(a) / P(b)$
Option B:	$P(a) P(b)$
Option C:	$P(a) + P(b)$
Option D:	$P(b) - P(a)$
4.	In order to maintain maintainability in the system, repair time must _____
Option A:	be increased
Option B:	be reduced
Option C:	kept constant
Option D:	keeps on changing
5.	What refers to wear out failure_____.
Option A:	Depends upon the subject
Option B:	Depends upon type of the experiment
Option C:	Increasing failure rate
Option D:	Decreasing failure rate
6.	Find median and mode of the messages received on 9 consecutive days 15,11,9, 5,18,4,15,13,17.
Option A:	13,6
Option B:	13,18

Option C:	18,15
Option D:	15, 16
7.	The reliability of a device comprised of various parts functioning in series is the :
Option A:	Product of the reliabilities
Option B:	Sum of the probabilities of the unreliabilities
Option C:	Product of the unreliabilities
Option D:	Sum of the reliabilities
8.	Which among the following exhibits inversely proportional relationship with the reliability?
Option A:	Production cost
Option B:	Maintenance and repair cost
Option C:	Design and development cost
Option D:	Availability
9.	If 'm' is the mean of a Poisson Distribution, then variance is given by _____
Option A:	m^2
Option B:	$m^{1/2}$
Option C:	m
Option D:	$\dfrac{m}{2}$
10.	Which of the following is not considered a reliability design method_____.
Option A:	Parts selection
Option B:	Choice of technology
Option C:	Accessibility
Option D:	Derating
11.	Markov analysis is a technique that deals with the probabilities of future occurrences by_____.
Option A:	Using Bayes' theorem
Option B:	Analyzing presently known probabilities
Option C:	Time series forecasting
Option D:	The maximal flow technique
12.	Skewness of Normal distribution is _____
Option A:	Negative
Option B:	Positive
Option C:	0
Option D:	Undefined
13.	The design function which assigns probability of failures between components or subsystems is called:
Option A:	Significance
Option B:	Prediction
Option C:	Qualification
Option D:	Apportionment
14.	What is MTTR

Option A:	Mean Time To Restore
Option B:	Mean Time To Repair
Option C:	Mean Time To Recovery
Option D:	Mean Time to Restoration
15.	The inherent availability can be calculated for repairable system as:
Option A:	$A_I = \dfrac{MTBF}{MTTF + MTTR}$
Option B:	$A_I = \dfrac{MTTF}{MTTF + MTTR}$
Option C:	$A_I = \dfrac{MTTF}{MTBF + MTTR}$
Option D:	$A_I = \dfrac{MTTR}{MTTF + MTTR}$
16.	Three companies A, B and C supply 25%, 35% and 40% of the notebooks to a school. Past experience shows that 5%, 4% and 2% of the notebooks produced by these companies are defective. If a notebook was found to be defective, what is the probability that the notebook was supplied by A?
Option A:	44⁄69
Option B:	25⁄69
Option C:	13⁄24
Option D:	11⁄24
17.	What would happen, if an equipment possesses reliability and maintainability to the maximum extent in accordance to MTTR?
Option A:	Failure rate is higher & downtime is longer
Option B:	Failure rate is lower & downtime is longer
Option C:	Failure rate is higher & downtime is shorter
Option D:	Failure rate is lower & downtime is shorter
18.	All fault-tolerant techniques rely on
Option A:	Integrity
Option B:	Dependability
Option C:	Redundancy
Option D:	Reliability
19.	What is the Major Key parameter of maintainability?
Option A:	Accessibility
Option B:	Vulnerability
Option C:	RCS
Option D:	Survival
20.	Which of the following is the biggest impact of availability
Option A:	mean time
Option B:	median time
Option C:	downtime
Option D:	maximum time of repair

Q2	**Solve any Four out of Six 5 marks each**
A	Tests performed on a self-diagnostic module for a complex electronic system resulted in correct diagnostics of a known fault 98% of time with only a 1% false reading when it was known there were no faults present. The Probability of a failure (fault) occurring over the test period is 0.005. How reliable is the self-diagnostic module?
B	Consider the system below. Do the following a) Assume that all componentsare identical and independent, and have a reliability R(t). Find the expression for the system reliability. b) Assume the components have exponentially distributed failure times with parameter λ. Develop an expression for the failure rate of the system $\lambda_s(t)$.
C	Explain measures of Availability.
D	Obtain reliability of Parallel system containing of n components, when the reliability of each component is known. Assume that the units are non-repairable.
E	Explain the Failure Mode Effects analysis
F	Explain Reliability Block Diagram with example

Q3	**Solve any Two out of Three 10 marks each**
A	ExplainBath Tub Curve, Hazard rate, failure density and Failure Rate with help of suitable example
B	It is known that 5% of the book bound at a certain bindery have defective bindings. Find the probability that 2 of 100 books bound by this bindery will defective binding using the Poisson approximation to the binomial distribution.
C	Explain Reliability Improvement methods with suitable example