PRN		QP Code	CM-103

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

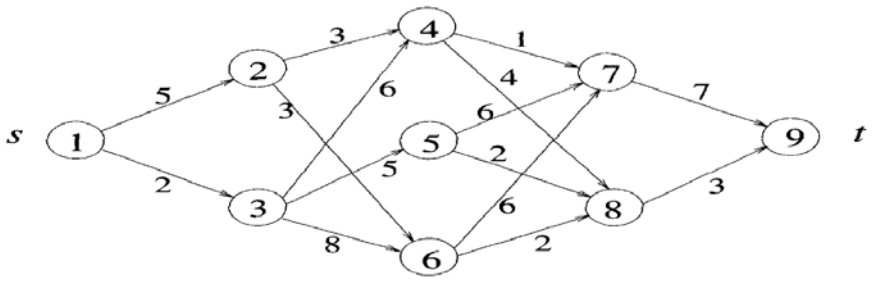
(An Autonomous Institute)

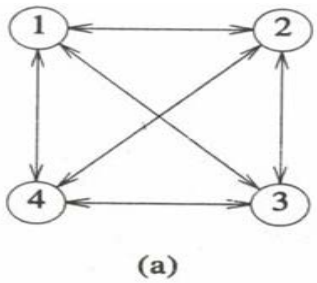
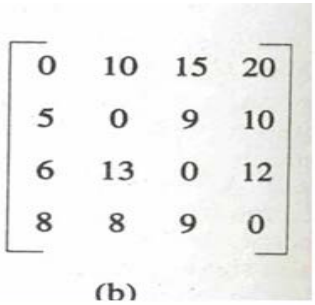
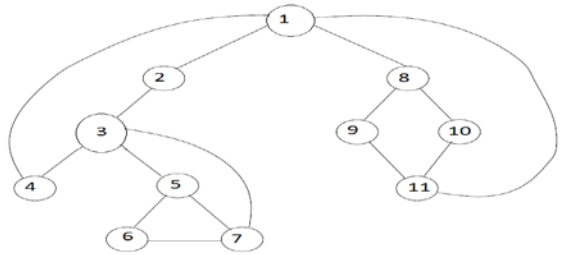
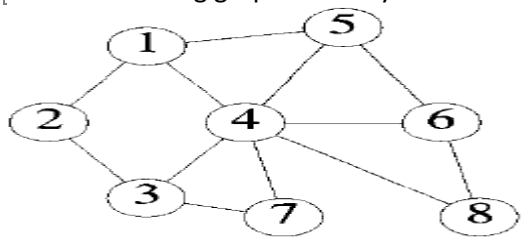
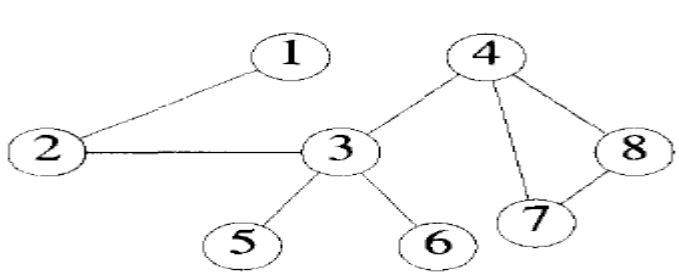
Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (IT)	Day & Date	Friday,21/06/2019
Course Code	ITL301	Time	10 am To 1 pm
Course Title	Design and Analysis of Algorithms	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Explain asymptotic notations O, Ω, θ with suitable example.	8	1	3
	B	Explain Las Vegas and Monte Carlo randomized algorithms with suitable example.	7	1	1
2	A	Solve the following recurrence relation for the choices of a, b and f(n) using master method $(n) = \begin{cases} T(1) & n = 1 \\ aT\left(\frac{n}{b}\right) + f(n) & n > 1 \end{cases}$ 1. a=28, b=3, and f(n)= cn^3 2. a=1, b=2, and f(n)=c	8	3	4
		Attempt any one of B & C			
	B	Device a ternary search algorithm that first tests the element at position n/3 for some equality with some value x, and then checks the element at position 2n/3 and either discovers x or reduces the set size to one-third the size of the original. Compare this with the binary search algorithm.	7	6	5
	C	Device a binary search algorithm that splits the set not into two sets of almost equal size but into two sets, one of which is twice the size of other. How does this algorithm compare with binary search?	7	6	5
3	A	Solve the following instance of Knapsack problem using Greedy approach. n=7, m=15, (p1, p2, p3, p4, p5, p6, p7) = (10,5,15,7,6,18,3) (w1, w2, w3 w4, w5, w6, w7) = (2,3,5,7,1,4,1).	8	3	2
	B	Explain Greedy solution to single source shortest path problem.	7	1	2
4	A	Find a minimum-cost path from s to t in the multistage graph of following figure using forward approach 	8	3	2
		Attempt any one of B & C			
	B	Obtain solution to reliability design problem using dynamic programming approach for three stage system with device types D1, D2, and D3. The costs are \$30, \$20, and \$25 respectively. The cost of the system is to be no more than \$115. The reliability of each device type is 0.9, 0.8 and 0.5 respectively.	7	3	2

Que No		Question	Marks	BL	CO
	C	For following graph obtain solution to travelling sales person problem using dynamic programming approach. The edge lengths are given by matrix  (a)  (b)	7	3	2
5		**Attempt any one of A & B**			
	A	Explain Depth First Search (DFS) and Breadth First Search (BFS) with suitable example	8	1	1
	B	What is an articulation point? What is biconnected graph? How to construct biconnected graph from non biconnected graph?	8	1	1
		Attempt any two of C, D & E			
	C	For the following graphs identify the articulation points using DFS spanning tree 	6	3	1
	D	For the following graphs identify the articulation points using DFS spanning tree 	6	3	1
	E	For the following graphs identify the articulation points using DFS spanning tree 	6	3	1
6		**Attempt any one of A & B**			
	A	Explain backtracking solution to Graph coloring problem	8	1	2
	B	Explain backtracking solution to Hamiltonian cycle problem.	8	1	2
		Attempt any two of C, D & E			
	C	Explain nondeterministic search and nondeterministic sorting algorithms.	6	1	1
	D	Draw and explain commonly believed relationship between P, NP, NP-complete and NP-hard problems.	6	1	1
	E	List and explain NP-hard graph problems	6	1	1

---------- X ---------- X ----------

PRN		QP Code	CM-017

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (IT)	**Day & Date**	Monday,17/06/2019
Course Code	ITL302	**Time**	10 am To 1 pm
Course Title	Database System	**Max.Marks**	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	a) Consider the following database schema, CUSTOMER (c_name, c_street, c_city, acc_num, l_num) ACCOUNT (acc_num, balance, b_id) BRANCH (b_id, b_name, b_city, asset) LOAN (l_num, amount) Solve the following query using SQL: Find all customer name whose name start with S and has at least four character. Find all the customer names who belongs to branch="Downtown" List all the branche names who's asset is > 200000 and avg balance of all customer is more than 100,000	8	3	2
	B	What is the importance of trigger? Give an example for before updation.	7	2	2
2	A	How the specialization, generalization and aggregation are featured, explain with example.	8	2	1
		Attempt any one of B & C			
	B	Explain data abstraction in database	7	2	1
	C	Describe different data models with example.	7	2	1
3	A	Discuss the followings i) sparse index ii) dense index.	8	2	4
	B	What is Dynamic Hashing? Explain insertion and deletion of records in dynamic hashing.	7	2	4
4	A	Write a procedure to compute closure set of attributes and discuss what are all rules used to compute set.	8	2	3
		Attempt any one of B & C			
	B	What is referential integrity? Discuss pitfalls in relational database.	7	2	3
	C	What is decomposition? What are the desirable properties of decomposition?	7	2	3
5		**Attempt any one of A & B**			
	A	Explain two-phase locking protocol with example	8	2	4
	B	How to solve conflictness in serializability	8	2	4
		Attempt any two of C, D & E			
	C	Explain ACID properties of transaction with example	6	2	4
	D	What are the modes or lock used in Multiple Granularity scheme?	6	2	4
	E	Explain Time stamp based protocol?	6	2	4
6		**Attempt any one of A & B**			
	A	Describe Deferred Database Modification technique using log to achieve a recovery in case of a failure.	8	2	4
	B	Explain the purpose of checkpoints? How often should a database system do a checkpoint.	8	2	4

PRN		QP Code	CM-017

Que No		Question	Marks	BL	CO
		Attempt any two of C, D & E			
	C	Write a note on shadow paging	6	2	4
	D	Explain different failure types	6	2	4
	E	Explain Log based Buffering	6	2	4

---------- X ---------- X ----------

PRN		QP Code	CM-214

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (IT)	Day & Date	Wednesday,26/06/2019
Course Code	ITL303	Time	10 am To 1 pm
Course Title	Machine Learning	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Describe various machine learning problem categories	8	2	1
	B	Calculate Performance measures of classification model using given data	7	3	2

Predicted	Corrected
1	1
0	1
0	0
1	1
0	0
0	0
1	1
1	0
1	0
0	0

2	A	Explain neural network model representation and notations with neat diagram	8	2	1
		Attempt any one of B & C			
	B	Describe Binary classification with example	7	2	1
	C	Describe Multiclass classification with example	7	2	1
3	A	Define following term with example: i) Simple Linear Regression ii) Multivariate Linear Regression	8	1	1
	B	Derive following formula using gradient descent algorithm $\theta_j := \theta_j - \alpha \frac{1}{m} \sum_{i=1}^{m} (h_\theta(x^{(i)}) - y^{(i)}) x_j^{(i)}$	7	6	1

<table>
<tr><th>Que No</th><th></th><th>Question</th><th>Marks</th><th>BL</th><th>CO</th></tr>
<tr><td>4</td><td>A</td><td>Consider following dataset and Construct Decision Tree using ID3 Algorithm
Dataset=
<table><tr><th>Sr. No.</th><th>Age</th><th>Competition</th><th>Type</th><th>Profit</th></tr><tr><td>1</td><td>Old</td><td>Yes</td><td>Software</td><td>Down</td></tr><tr><td>2</td><td>Old</td><td>No</td><td>Software</td><td>Down</td></tr><tr><td>3</td><td>Old</td><td>No</td><td>Hardware</td><td>Down</td></tr><tr><td>4</td><td>Mid</td><td>Yes</td><td>Software</td><td>Down</td></tr><tr><td>5</td><td>Mid</td><td>Yes</td><td>Hardware</td><td>Down</td></tr><tr><td>6</td><td>Mid</td><td>No</td><td>Hardware</td><td>Up</td></tr><tr><td>7</td><td>Mid</td><td>No</td><td>Software</td><td>Up</td></tr><tr><td>8</td><td>New</td><td>Yes</td><td>Software</td><td>Up</td></tr><tr><td>9</td><td>New</td><td>No</td><td>Hardware</td><td>Up</td></tr><tr><td>10</td><td>New</td><td>No</td><td>Software</td><td>Up</td></tr></table></td><td>8</td><td>3</td><td>3</td></tr>
<tr><td></td><td></td><td>Attempt any one of B & C</td><td></td><td></td><td></td></tr>
<tr><td></td><td>B</td><td>Describe naïve Bayes classifier with example</td><td>7</td><td>2</td><td>1</td></tr>
<tr><td></td><td>C</td><td>Explain K Nearest neighbor with example</td><td>7</td><td>2</td><td>1</td></tr>
<tr><td>5</td><td></td><td>Attempt any one of A & B</td><td></td><td></td><td></td></tr>
<tr><td></td><td>A</td><td>Consider below dataset of age of visitors to the website. Group them into 2 clusters by considering initial centroid C1=16 and C2=22 using K means clustering algorithm. Halt algorithm when there is no any change in the cluster
Dataset=
15,15,16,19,19,20,20,21,22,28,35,40,41,42,43,44,60,61,65</td><td>8</td><td>3</td><td>3</td></tr>
<tr><td></td><td>B</td><td>Consider below dataset of age of visitors to the website. Group them into 2 clusters by considering initial centroid C1=16 and C2=22 using K means clustering algorithm. Halt algorithm when there is no any change in the cluster
Dataset=
15,16,18,18,19,20,21,21,22,28,35,40,41,42,43,44,60,61,65</td><td>8</td><td>3</td><td>3</td></tr>
<tr><td></td><td></td><td>Attempt any two of C, D & E</td><td></td><td></td><td></td></tr>
<tr><td></td><td>C</td><td>Describe K Means Clustering algorithm with example</td><td>6</td><td>2</td><td>1</td></tr>
<tr><td></td><td>D</td><td>Describe agglomerative clustering with example</td><td>6</td><td>2</td><td>1</td></tr>
<tr><td></td><td>E</td><td>Describe various linkages method used in hierarchical clustering algorithm</td><td>6</td><td>2</td><td>1</td></tr>
<tr><td>6</td><td></td><td>Attempt any one of A & B</td><td></td><td></td><td></td></tr>
<tr><td></td><td>A</td><td>Explain Text preprocessing with example</td><td>8</td><td>2</td><td>1</td></tr>
<tr><td></td><td>B</td><td>Explain Collaborative Filtering based Recommendation System</td><td>8</td><td>2</td><td>1</td></tr>
<tr><td></td><td></td><td>Attempt any two of C, D & E</td><td></td><td></td><td></td></tr>
<tr><td></td><td>C</td><td>Explain Popularity based Recommendation System</td><td>6</td><td>2</td><td>1</td></tr>
<tr><td></td><td>D</td><td>Explain Content based Recommendation System</td><td>6</td><td>2</td><td>1</td></tr>
<tr><td></td><td>E</td><td>Explain Classification based Recommendation System</td><td>6</td><td>2</td><td>1</td></tr>
</table>

---------- X ---------- X ----------

PRN		QP Code	CM-059

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third YearB.Tech. (IT)	Day &Date	Wednesday,19/06/2019
Course Code	ITL304	Time	10 am To 1 pm
Course Title	System Programming	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Explain in detail Program Generation activity of language processing.	8	2	1
	B	Explain in detail concept of Symbol table.	7	2	1
2	A	Discuss the pass structure of assemblers. How is the problem of forward reference resolved in single pass & two pass translations?	8	2	2
		Attempt any one of B & C			
	B	Discuss two variants of intermediate code in assemblers with example.	7	2	2
	C	Write & explain algorithms used for two pass assembler in detail.	7	2	2
3	A	What are expansion time loops, explain with help of example? Explain the following facilities for expansion time loops: REPT and IRP	8	2	2
	B	List & Explain macro preprocessor tasks involved in macro expansion.	7	2	2
4	A	Explain Program relocation and linking in detail.	8	2	3
		Attempt any one of B & C			
	B	Explain different types of loaders and their respective functions in detail	7	2	3
	C	Discuss about 'self-relocating programs' in detail	7	2	3
5		**Attempt any one ofA&B**			
	A	Explain Java language environment in detail.	8	2	3
	B	How partial results are handled in compilation of expressions? Show code generation actions for the expression a*b+c*d by describing code generation routine..	8	3	3
		Attempt any twoof C, D & E			
	C	Explain the following optimizing transformation with examples i) Common sub expression elimination ii) Frequency reduction iii) Strength reduction	6	2	3
	D	Explain parameter passing mechanisms in detail with example.	6	2	3
	E	Explain different data structures used in compilers in detail	6	2	3
6		**Attempt any one ofA&B**			
	A	What is software tool? Explain any three software tools for program development.	8	2	4
	B	Write short note on: LEX and YACC	8	2	4
		Attempt any twoof C, D & E			
	C	Explain in detail Debug Monitors	6	2	4
	D	Write short note on User Interfaces	6	2	4
	E	Write short note on Editors	6	2	4

---------- X ---------- X ----------

PRN		QP Code	CM-159

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third YearB.Tech. (IT)	Day &Date	Monday,24/06/2019
Course Code	ITL305	Time	10 am To 1 pm
Course Title	Operating Systems	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	What is multiprocessing system? Compare multiprogramming and multiprocessing operating systems	8	4	1
	B	What is meant by context switch? What are steps performed during context switch?	7	2	2
2	A	What is meant by thread? What are the benefits of multithreaded programming?	8	4	2
		Attempt any one of B & C			
	B	What is a scheduler? What are the criteria recommended for evaluating CPU scheduling algorithms?	7	2	2
	C	Explain short-term, medium-term, and long-term schedulers.	7	2	2
3	A	How to detect deadlock in a resource allocation system with multiple instance of each resource type using resource allocation graph?	8	3	4
	B	How deadlock avoidance is used to handle deadlocks?	7	2	4
4	A	What is Mutual Exclusion? What are the three requirements that a solution to the critical-section problem satisfy?	8	2	3
		Attempt any one of B & C			
	B	State and explain solution to readers writers problem using semaphore	7	6	3
	C	State and explain solution to Dinning philosopher's problem using semaphore	7	6	3
5		**Attempt any one of A & B**			
	A	Describe and apply the following algorithm a. BEST FIT b. FIRST FIT c. WORST FIT	8	3	5
	B	What is page fault? Consider the reference string 1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5. There are 3 frames allotted in the memory at a time. Remember all frames are initially empty, so your first unique pages will all cost one fault each. Apply FIFO, LRU page replacement algorithms and find the number of page faults.	8	3	5
		Attempt any two of C, D & E			
	C	What are the drawbacks of fixed partition contiguous memory allocation technique? How to overcome them using variable sized partition technique?	6	2	5
	D	What are the drawbacks of contiguous memory allocation? How to overcome them using paging?	6	2	5
	E	Explain the concept of segmentation with neat diagram.	6	2	5
6		**Attempt any one ofA&B**			
	A	Explain with the help of neat diagram Swapping?	8	2	5
	B	Explain the interrupt-driven I / O cycle with a neat block diagram	8	2	5

PRN		QP Code	CM-159

Que No		Question	Marks	BL	CO
		Attempt any two of C, D & E			
	C	Explain use of streams in IO	6	2	5
	D	What are three basic functions provided by the clocks and timers?	6	2	5
	E	What is Thrashing? What is the cause of Thrashing?	6	2	5

---------- X ---------- X ----------

PRN		QP Code	CM-037

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (IT)	**Day &Date**	Tuesday,18/06/2019
Course Code	ITL311	**Time**	10 am To 1 pm
Course Title	Advanced Database System	**Max.Marks**	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Explain the selection operation in query processing.	8	2	1
	B	Write an algorithm for nested loop and block nested loop join.	7	3	1
2	A	Compare RDBMS and ORDBMS database system, and OID and foreign key.	8	3	2
		Attempt any one of B & C			
	B	Explain Inheritance concept with example.	7	2	2
	C	Explain storage and access methods for ORDBMS	7	2	2
3	A	Define star property? Explain mandatory access control	8	2	2
	B	Which are threats to Database? Explain how to protect database against this threats.	7	2	2
4	A	Define replication. Describe Synchronous and Asynchronous replication	8	1	3
		Attempt any one of B & C			
	B	Define Speed-up and Scale-up? Why sheared nothing architecture is attractive?	7	1	3
	C	Describe concurrency control mechanism for distributed DBMS	7	1	3
5		**Attempt any one ofA&B**			
	A	Write BIRCH cluster algorithm.	8	3	4
	B	Write K-Means algorithm and solve suitable example using K-Means.	8	3	4
		Attempt any twoof C, D & E			
	C	Why are views important in decision support environment? How are views related to data warehousing and OLAP? Explain the query modification Technique for answering queries over views and decision.	6	2	4
	D	List the steps of KDD process. Explain counting co-occurrences concept in data mining	6	2	4
	E	Explain multidimensional data model with suitable example	6	2	4
6		**Attempt any one ofA&B**			
	A	Define cloud database. Explain cloud database architecture	8	2	5
	B	Explain Key-Value and Document base data model.	8	2	5
		Attempt any twoof C, D & E			
	C	Explain advantages of Cloud databases	6	2	5
	D	Explain CURD operations using MongoDB database system	6	2	5
	E	Explain Column based and Graph based data model	6	2	5

---------- X ---------- X ----------

PRN		QP Code	CM-078

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third YearB.Tech. (IT)	Day &Date	Thursday,20/06/2019
Course Code	ITL312	Time	10 am To 1 pm
Course Title	Cryptography and Network Security	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Briefly define following substitution operations with example a. Caesar Cipher b. Playfair Cipher	8	2	1
	B	Explain OSI security architecture	7	1	1
2	A	What are the block cipher design principles	8	2	1
		Attempt any one of B & C			
	B	Explain AES encryption process	7	1	2
	C	Explain Linear Cryptanalysis	7	1	2
3	A	Explain Public-Key Cryptosystem to achieve authentication and secrecy	8	1	2
	B	Explain RSA algorithm and perform encryption operation on following input data P=5, q=11, e=3 and M=9	7	3	2
4	A	Briefly explain following applications of cryptographic Hash function a. Message Authentication b. Digital Signaure	8	1	3
		Attempt any one of B & C			
	B	Briefly explain Hash based MAC function(HMAC)	7	1	3
	C	Briefly explain Elgamal Digital signature scheme	7	1	3
5		**Attempt any one ofA&B**			
	A	Explain following public key distribution schemes a. Public announcement b. Publicly available directory	8	1	3
	B	Explain symmetric Key Distribution Scenario using KDC	8	1	3
		Attempt any twoof C, D & E			
	C	Explain X.509 certificate format	6	1	4
	D	Explain X.509 CA Hierarchy to obtain users certificate	6	1	4
	E	Explain Public Key Infrastructure (PKIX) architectural model	6	1	4
6		**Attempt any one ofA&B**			
	A	Explain transmission and reception of PGP message scheme	8	1	4
	B	Explain SSL protocol stack	8	1	4
		Attempt any twoof C, D & E			
	C	Explain S/MIME functionality	6	1	4
	D	Explain applications of IPsec	6	1	4
	E	Explain ESP packet format	6	1	4

---------- X ---------- X ----------

PRN		QP Code	CM-132

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (IT)	**Day & Date**	Saturday,22/06/2019
Course Code	ITL313	**Time**	10 am To 1 pm
Course Title	Unix Internals	**Max.Marks**	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Draw and Explain the structure of buffer pool and free list header in which Mod 5 hash queue function is used	8	2	1
	B	with neat block diagram of system kernel, explain architecture of Unix OS	7	2	1
2	A	Explain process of conversion of pathname to inode with algorithm "namei"	8	2	1
		Attempt any one of B & C			
	B	Explain algorithm for releasing inode("iput" algorithm)	7	2	1
	C	Explain algorithm for assigning new inodes ("ialloc" algorithm)	7	2	1
3	A	List the system calls that returns the file descriptors for use in other system call? Explain any one in detail?	8	2	2

	B	Draw the data structure of File system when following system calls are executed:
		fd1=open("/etc/passwd", O_RDONLY);
		fd2=open("/etc/local", O_RDONLY);
		fd3=open("/etc/local", O_RDONLY);
		fd4=open("/etc/local", O_WRONLY);
			7	3	2

4	A	What is context of process? Explain with diagram components of the Context of a process?	8	2	3
		Attempt any one of B & C			
	B	Explain saving the context of process?	7	2	3
	C	Explain algorithm for allocating a region	7	2	3
5		**Attempt any one of A & B**			
	A	Write a short note on i)User ID of process ii) Shell	8	2	3
	B	Explain exit system call with algorithm	8	2	3
		Attempt any two of C, D & E			
	C	Explain algorithm for booting the system	6	2	3
	D	Explain various system call for time	6	2	3
	E	Describe scheduling parameters used in process scheduling	6	2	3
6		**Attempt any one of A & B**			
	A	Explain algorithm for allocating space from maps(malloc) with example	8	2	4
	B	Write a short note on i)Device Driver ii)Streams	8	2	4

Que No		Question	Marks	BL	CO
		Attempt any two of C, D & E			
	C	Describe demand paging with data structure	6	2	4
	D	Explain Expansion swap with example	6	2	4
	E	Explain Fork swap with example	6	2	4

---------- X ---------- X ----------

PRN		QP Code	CM-188

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third YearB.Tech. (IT)	Day &Date	Monday,25/06/2019
Course Code	ITL314	Time	10 am To 1 pm
Course Title	Internet of Things	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	With the help of diagram describe home automation application.	8	2	1
	B	Explain identification technology used in IoT.	7	2	1
2	A	With help of diagram describe any 2 components of RFID middleware.	8	2	2
		Attempt any one of B & C			
	B	Explain RFID tag in detail.	7	2	2
	C	With the help of diagram describe monostatic RFID reader.	7	2	2
3	A	Compare three layers and five layers architecture of IoT.	8	4	3
	B	Explain Fog architecture used in IoT.	7	2	3
4	A	Compare different topologies used in ZigBee WPAN	8	4	2
		Attempt any one of B & C			
	B	Explain Bluetooth WPAN technology in detail.	7	2	2
	C	Describe LTE user plane protocol stack at the E-UTRAN.	7	2	2
5		**Attempt any one ofA&B**			
	A	Explain components used in Message queue Telemetry Transport protocol in detail.	8	2	3
	B	With suitable diagram describe CoAP packet format.	8	2	3
		Attempt any twoof C, D & E			
	C	Explain messaging models used in Constrained Application Protocol.	6	2	3
	D	Explain any two constrains of Representational State Transfer protocol.	6	2	3
	E	Describe quality of service provided by Message Queue Telemetry Transport protocol.	6	2	3
6		**Attempt any one ofA&B**			
	A	Write the code for blink an LED without delay in Arduino.	8	3	4
	B	Write the code for blink an LED on pin no.8 with delay in Raspberry-Pi	8	3	4
		Attempt any twoof C, D & E			
	C	Explain different types of Microcontrollers.	6	2	4
	D	With the help of examples explain Sensors and Actuators.	6	2	4
	E	Which are the important factors we have to consider while building the device?	6	2	4

---------- X ---------- X ----------

PRN		QP Code	CM-241

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (EL/ET)	Day &Date	Thursday,27/06/2019
Course Code	CSLOE2	Time	10 am To 1 pm
Course Title	Introduction to Java Programming	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Explain following features of java. a. Object oriented b. Platform independent c. Portable d. High Performance	8	2	2
	B	What is identifiers, variables and data-types in java?	7	1	1
2	A	Briefly explain static modifier and final modifier in java with example	8	2	2
		Attempt any one of B & C			
	B	What are the different logical operator available in java explain with example	7	1	1
	C	What are the different assignment operator available in java explain with example	7	1	1
3	A	Construct a program to read 5 elements from user into array and display on console?	8	3	2
	B	Explain use this keyword in java with example?	7	2	3
4	A	Explain the following terms with respect to exception handling. i) try ii) catch	8	2	4
		Attempt any one of B & C			
	B	What are the built in exceptions available in java?	7	1	4
	C	What is scope of inner class and its members? Explain with example	7	1	3
5		**Attempt any one ofA&B**			
	A	What are the different uses of super keyword in java? Explain with example	8	1	3
	B	Briefly define what is an abstraction in java and how to achieve abstraction in java with example	8	2	3
		Attempt any twoof C, D & E			
	C	Briefly explain polymorphism and its types with example	6	2	3
	D	How to call abstract methods from abstract class explain with example	6	2	3
	E	What are the rules for method overriding using super keyword?	6	1	3
6		**Attempt any one ofA&B**			
	A	Compare between Interfaces and abstract Classes	8	4	4
	B	Describe the levels of access protection available for packages	8	2	4
		Attempt any twoof C, D & E			
	C	How to implement and interface? Explain with example?	6	2	4
	D	How to achieve multiple inheritance using interface? Explain with example?	6	2	4
	E	How to create a package? Explain with example	6	2	4

PRN		QP Code	CM-241

Que No	Question	Marks	BL	CO

---------- X ---------- X ----------

PRN		QP Code	CM-266

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (TC/TT/MMTT/TPE)	Day & Date	Friday,28/06/2019
Course Code	ELLOE1	Time	2:30 pm To 5:30 pm
Course Title	PLC & SCADA	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1		**Attempt any five of A, B, C, D, E & F**			
	A	Explain any one type of Photoelectric Sensor	4	2	1
	B	Write operating principal of Inductive Proximity Sensor	4	2	1
	C	Write note on Relay	4	2	1
	D	Explain Absolute Encoder in Detail	4	2	1
	E	Explain any one non-Contact type Sensors	4	2	1
	F	Write note on Flow Measurement	4	2	1
2	A	What are different types of PLC's?	4	2	2
		Attempt any one of B & C			
	B	Write Ladder Logic Program for following Logic gates with truth tables 1) OR 2) AND 3) NOT 4) NOR 5) NAND 6) XOR	12	3	2
	C	Explain Advantages and Disadvantages of Programmable logic controller	12	2	2
3	A	Explain with example Latching of Output	4	2	3
		Attempt any one of B & C			
	B	Explain in Detail Different types of timers used in PLC	12	2	3
	C	With the help of connection Diagram draw and explain Ladder program to turn OFF 3 Motor sequentially with delay of 5 seconds	12	3	3
4		**Attempt any two of A, B & C**			
	A	State advantages disadvantages of Convectional ,PLC based control system	8	2	2
	B	Explain Always on Always OFF and Oscillator Circuit	8	3	2
	C	Write features of Ladder Diagram and their advantages.	8	2	2
5		**Attempt any two of A, B & C**			
	A	Write & Explain Ladder program to generate Pulse on output with on Time 10 second Off time 5 Sec	8	6	3
	B	Develop Ladder Program to control Batch Process.	8	6	3
	C	Explain Failsafe Design in PLC	8	2	3
6		**Attempt any two of A, B & C**			
	A	What is SCADA? Explain SCADA systems	8	2	4
	B	Explain functions of SCADA system in details	8	2	4
	C	Explain benefits and Application of SCADA systems	8	2	4

---------- X ---------- X ----------

PRN		QP Code	CM-240

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination –Makeup 2018-19

Class - Program	Third Year B.Tech. (CS/IT)	Day &Date	Thursday,27/06/2019
Course Code	ETL0E1	Time	10 am To 1 pm
Course Title	Fundamentals of Embedded Systems	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1		**Attempt any fiveofA, B, C, D, E & F**			
	A	i) Which microcontroller is present in Arduino UNO board? ii) What is the difference between setup() and loop() function in sketch of Arduino IDE?	4	2	3
	B	Explain the syntax and use of following library functions of Arduino i) digitalWrite ii) pinMode	4	2	3
	C	Answer following questions i) How many digital pins are there on the Arduino UNO board? ii) How many analog pins are used in Arduino Mega board? iii) What the pre built circuit boards that fit on top of Arduino called as? iv) What is the program written with the IDE for Arduino called as?	4	2	3
	D	Answer the following i) What does IDE stand for? ii) Which Arduino board allows sewn into clothing? iii) What does p refer to in ATmega328p iv) Which is the default boot loader of the Arduino Uno	4	2	3
	E	Enlist four Arduino boards' names. State features and microcontroller used in the board for any two of them	4	2	3
	F	What are the advantages of Arduino?	4	2	3
2		**Attempt any twoofA, B & C**			
	A	i) Draw and explain block diagram of mode 2 of timer 0 in 8051. ii) Explain TMOD SFR in detail.	8	3	2
	B	i) Write interrupts available in 8051 with their vector address. ii) Explain IE and IP registers in detail. Explain how 8051 services simultaneous and pending interrupts?	8	3	2
	C	What is serial communication? How is this achieved with 8051 using RS232 standards? For the 8051, if the crystal frequency is 11.0592 MHz, what will be the baud rate with TH1 = -3 and TH1 = -12, for SMOD = 0 and SMOD = 1;	8	3	2
3		**Attempt any twoofA, B & C**			
	A	i) Write an embedded C program to generate square wave of 1KHz on pin P1.0 of 8051 using timer 0. Assume crystal frequency of 12MHz. ii) Write an 8051 C program to toggle only pin P1.5 continuously every 250ms. Use Timer 0, mode 2 (8-bit auto-reload) to create the delay	8	4	2
	B	Write embedded C program to continuously transmit "DKTE Ichalkaranji" with baud rate of 4800 bps to terminal connected to serial port of 8051. Crystal frequency is 11.0592 MHz	8	4	2

PRN		QP Code	CM-240

Que No		Question	Marks	BL	CO
	C	i) Write embedded C program to send out value 22H serially one bit at a time via P1.2. The LSB should go out first. ii) How the code segment is accessed in embedded c programming?	8	4	2
4		**Attempt any twoofA, B & C**			
	A	Interface ADC 0809 to 8051. Write a program to convert analog input to digital which is applied to Port1.	8	6	2
	B	Draw interfacing diagram of 16x2 LCD with8051 ports. Write a program to display the message Kolhapur	8	6	2
	C	Interface LM35 sensor and LCD to 8051. Write algorithm/ flowchart/program to display the temperature on LCD	8	6	2
5		**Attempt any twoofA, B & C**			
	A	i) Draw and explain functional pin out of 8051. ii) Explain function of ALE, PSEN, RST and XTALI-XTAL2 pins in 8051.	8	2	1
	B	i) Explain how stack is implemented in 8051. ii) What is difference between microprocessor and microcontroller?	8	2	1
	C	Draw and explain architecture of 8051	8	2	1
6		**Attempt any twoofA, B & C**			
	A	Draw interfacing diagram of dc motor with Arduino Uno board. Write a program to operate the motor	8	6	4
	B	Draw Arduino based detailed interfacing diagram of LM35 temperature sensor. Write in detail program to display the temperature on LCD	8	6	4
	C	Draw interfacing diagram of 16x2 LCD with Arduino Uno board. Write a program to display the message "DKTE TEI Ichalkaranji"	8	6	4

---------- X ---------- X ----------

PRN		QP Code	CM-264

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (TT/TP/TC/TF)	**Day & Date**	Friday,28/06/2019
Course Code	ITLOE1	**Time**	2.30 pm To 5.30 pm
Course Title	Enterprise Resource Planning and E-Commerce	**Max.Marks**	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	List and explain various core processes in a manufacturing company.	8	2	1
	B	Describe the Key issues for the success of ERP implementation.	7	1	1
2	A	Illustrate the ERP approach for building the business model.	8	2	1
		Attempt any one of B & C			
	B	Write a note on- ' Customization in ERP implementation'	7	1	1
	C	Write a note on- ' Supply chain management '	7	1	1
3	A	What is SAP R/3? Explain the SAP R/3 Applications.	8	2	2
	B	Explain the treasury management module in SAP R/3.	7	2	2
4	A	Describe major business to business (B2B) business models.	8	1	3
		Attempt any one of B & C			
	B	Explain the E-tailer business model in E-commerce.	7	2	3
	C	Describe the content provider model in B2C business models.	7	2	3
5		**Attempt any one of A & B**			
	A	Describe various Internet marketing technologies used in E-commerce.	8	1	4
	B	Define economic viability. Describe Strategic and financial analysis for viability of online firms.	8	1	4
		Attempt any two of C, D & E			
	C	Describe the online recruitment industry trends.	6	1	4
	D	Describe the use of web transaction logs for marketing.	6	1	4
	E	State the benefits of online auctions.	6	1	4
6		**Attempt any one of A & B**			
	A	Illustrate the types and examples of auctions.	8	2	4
	B	Illustrate the types of E-commerce portals with examples.	8	2	4
		Attempt any two of C, D & E			
	C	Explain the types of social networks and online communities	6	2	4
	D	Explain the online Banking and Brokerage financial services	6	2	4
	E	Explain Marketing automation and CRM systems.	6	2	4

---------- X ---------- X ----------

PRN		QP Code	CM-242

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (ET/EL)	**Day &Date**	Thursday,27/06/2019
Course Code	MELOE1	**Time**	10 am To 1 pm
Course Title	Fundamentals of Mechatronics	**Max.Marks**	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1	A	Define and explain the concept of mechatronics. Enlist advantages and limitations of the same.	8	2	1
	B	Enlist various applications of mechatronics systems. Explain any one in detail with neat sketch.	7	2	1
2	A	Suggest suitable sensors for following quantities, also state principle of the sensor suggested. a. Level b. Velocity	8	4	1
		Attempt any one of B & C			
	B	Explain performance terminology of sensors.	7	2	1
	C	Explain LVDT in detail with neat sketch and applications.	7	2	1
3	A	Enlist various types of ADC. Explain any one in detail with neat sketch.	8	2	1
	B	Explain various signal conditioning processes used in mechatronics systems.	7	2	1
4	A	Classify pumps. Explain any one pump with neat sketch, advantages and limitations.	8	2	1
		Attempt any one of B & C			
	B	Draw ISO symbols of following: Pneumatic Compressor Pressure reducing valve Double acting cylinder Filter FRL unit Hydraulic motor 4/3 tandem centre DC valve with port names	7	1	1
	C	Explain Meter-in circuit in detail with neat sketch, working and application.	7	2	1
5		**Attempt any one ofA&B**			
	A	Define PLC. Explain block diagram and components of PLC with neat sketch.	8	2	1
	B	Explain the concept of Physical Vs Programmed components in PLC.	8	2	1
		Attempt any twoof C, D & E			
	C	Explain Always ON and Always OFF contacts in PLC programming.	6	2	1
	D	Explain w.r.t. PLC: Latching circuit b. Disagreement circuit	6	2	1
	E	Explain the concept of RS-232 Serial Interface in PLC.	6	2	1

PRN		QP Code	CM-242

Que No		Question	Marks	BL	CO
6		**Attempt any one ofA&B**			
	A	In a PLC based automatic ball sorting system, there are three types of balls viz. metal, plastic and glass, are to be sorted. If metallic ball is sensed, actuator A1 will be actuated and will retract touching the limit switch LS1. If plastic ball is sensed, actuator A2 will be actuated and will retract touching the limit switch LS2. If the ball is of glass, no actuators would be actuated and RED light will glow. Devise a ladder program with input-output listing.	8	5	4
	B	Explain the types of timers used in PLC programming with examples.	8	2	1
		Attempt any twoof C, D & E			
	C	Explain PLC system fault finding in detail.	6	2	1
	D	Explain up counter with suitable example.	6	2	3
	E	Explain various terms and symbols related to basic PLC ladder program.	6	2	3

---------- X ---------- X ----------

PRN		QP Code	CM-248

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third Year B.Tech. (IT and CSE)	Day & Date	Thursday,27/06/2019
Course Code	TFLOE1	Time	10 am To 1 pm
Course Title	MERCHANDISING	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1		**Attempt any five of A, B, C, D, E & F**			
	A	Define and explain all the parameters with one example i) Merchandising ii) Merchandiser iii) Merchandise iv) Marketing	4	1	2
	B	Justify the statement- Visual merchandising increases sales of retail.	4	5	2
	C	Explain the role of buying house.	4	2	3
	D	Explain the role of IE, PPC , HR and quality department	4	2	1
	E	List what all can be marketed?	4	1	2
	F	Explain the key concepts of marketing.	4	2	2
2	A	Explain the steps involved in marketing process?	4	2	2
		Attempt any one of B & C			
	B	Illustrate and explain different types of organizational structure. Analyze and explain which type of structure is suitable for small, Medium and large size IT companies.	12	3	1
	C	Explain pre and post shipment documents used for export.	12	2	4
3	A	Divide Boston matrix in four parts and explain how Boston matrix can be used to eliminate the non-performing product.	4	4	2
		Attempt any one of B & C			
	B	Analyze the case and give appropriate solution- An organization is facing a problem of higher lead time and management decided to reduce lead time. After analysis organization found 80% time was getting consumed by pre-production activities. To reduce this time what steps management should take, so that they can reduce lead time significantly.	12	4	2
	C	Analyze the case and give appropriate solution with your marketing knowledge -One of the businessman is planning to open a retail store but he is confused whether he should take franchise for branded retail chain where profit margin is less is or he should take non branded retail where profit margin is high. The decision is stuck as volume plays very important role. How this problem can be solved?	12	4	2
4		**Attempt any two of A, B & C**			
	A	Define sourcing and explain different types of sourcing	8	1	3
	B	Explain different types of samples of product development.	8	2	3
	C	Explain the roles and responsibilities of merchandiser.	8	2	2

PRN		QP Code	CM-248

Que No		Question	Marks	BL	CO
5		**Attempt any two of A, B & C**			
	A	Explain different Inco-terms used in export	8	2	4
	B	Define SEO. Explain with suitable example. How SEO helps in promotion of any product	8	1	4
	C	Define BOM. How merchandiser takes help of BOM in costing.	8	1	2
6		**Attempt any two of A, B & C**			
	A	Explain TIMWOOD wastages and how JIT Technique helps to reduce TIMWOOD wastages	8	2	3
	B	Define Teck-pack. Explain the content of Teck pack	8	1	1
	C	State the different types of merchandiser and explain 6 R for merchandiser?	8	1	2

---------- X ---------- X ----------

PRN		QP Code	CM-250

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third YearB.Tech. (EL/ET)	**Day &Date**	Thursday,27/06/2019
Course Code	TMLOE1	**Time**	10 am To 1 pm
Course Title	TECHNICAL TEXTILE	**Max.Marks**	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1		**Attempt any fiveofA, B, C, D, E & F**			
	A	Differentiate 'Traditional textile & Technical textile	4	1	1
	B	Define - Yarn count. Calculate Denier and Tex from 80's Ne.	4	2	4
	C	What is MIS? State its functions and advantages	4	3	2
	D	Explain the properties & applications of Natural and Synthetic fibres	4	4	3
	E	Define Nonwoven. State its classification and advantages.	4	6	3
	F	Describe different types of yarns	4	2	4
2	A	What are the high Visibility technical fabrics?	4	2	4
		Attempt any one of B & C			
	B	Define wave length of UVA, UVB & UVC. How to minimize the negative effects of UV rays by using technical textiles. Explain in detail.	12	4	4
	C	What are the protective measures to minimize electromagnetic radiations? How to make shielding fabrics?	12	4	4
3	A	What are the anti static fabrics? Describe the classification of protective clothing.	4	1	4
		Attempt any one of B & C			
	B	Compile the technical details of Flame retardant (FR) fibres and fabrics. Discuss the testing of FR fabrics?	12	4	4
	C	Write short note on "Bullet proof jackets". Explain it with principle, kinetic energy dissipation, fibres and fabrics for body armor.	12	6	4
4		**Attempt any twoofA, B & C**			
	A	What is the concept of B2B & B2C? Describe the E-Commerce in detail.	8	4	2
	B	Discuss - E retailing and Logistics in Garment Industry	8	4	2
	C	Describe the role of IT in textile industry. Explain - Textile value chain.	8	3	2

PRN		QP Code	CM-250

Que No		Question	Marks	BL	CO
5		**Attempt any twoofA, B & C**			
	A	Define Technical Textile. State advantages & disadvantages of technical textile. How the technical textiles can be classified. Give three examples in each sector.	8	1	3
	B	What is spinning? Discuss the carded and combed yarn manufacturing with flow chart?	8	1	3
	C	What is weaving and garmenting? Discuss the flow chart of weaving for warp and weft preparation?	8	6	3
6		**Attempt any twoofA, B & C**			
	A	What are the high performance fibres? Explain them with their properties for production of technical textile.	8	4	3
	B	Define Smart Textile. Discuss smart textile with reference to Advantages, Disadvantages. Properties Future design issues	8	1	3
	C	What is composite? Compile the technical details of Fibre Reinforced Composites (FRC).	8	3	4

---------- X ---------- X ----------

PRN		QP Code	CM-245

D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.

(An Autonomous Institute)

Semester End Examination - Makeup 2018-19

Class - Program	Third YearB.Tech. (ME)	Day &Date	Thursday,27/06/2019
Course Code	TPLOE1	Time	10 am To 1 pm
Course Title	Machine Maintenance	Max.Marks	100

Instructions :

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

Que No		Question	Marks	BL	CO
1		**Attempt any fiveofA, B, C, D, E & F**			
	A	Compare breakdown maintenance and planned maintenance.	4	4	3
	B	Explain the terms MTBF & MTTR with suitable examples.	4	3	1
	C	Which properties of lubricant affect its selection?	4	3	1
	D	What is vibration monitoring? Explain with example	4	2	2
	E	Write a note on Erection, commissioning of a machine.	4	4	4
	F	Define Budget. Explain the factors responsible for effective budgeting	4	3	2
2	A	Write a note on inventory policy for 'A' category items	4	4	2
		Attempt any one of B & C			
	B	i)What is degree of planning? How it affects cost of maintenance? ii) "Condition based monitoring is planned maintenance at irregular intervals." Explain this statement.	12	5	3
	C	What are various approaches used for maintenance Budgeting? Explain Production Schedule Approach in detail.	12	5	3
3	A	Write a note on 'Debris analysis.'	4	3	2
		Attempt any one of B & C			
	B	Classify the machine failures by different ways. How failure analysis is helpful to improve productivity?	12	5	1
	C	Discuss in detail various types of planned maintenance.	12	6	4
4		**Attempt any twoofA, B & C**			
	A	State any two NDT (nondestructive testing) & their applications in inspection.	8	2	1
	B	State reasons for machine vibration & its effect on machine performance.	8	3	2
	C	"Performance monitoring is useful tool for condition based maintenance." Explain with suitable example.	8	4	4
5		**Attempt any twoofA, B & C**			
	A	Explain benefits of effective planning with suitable example.	8	4	4
	B	Under what conditions synthetic oils are preferred? State their types & uses.	8	3	1
	C	Explain different types of schedules for maintenance operations.	8	6	2
6		**Attempt any twoofA, B & C**			
	A	What are the primary functions of inventory management? Why are they termed as primary?	8	3	1
	B	How use of logic gates is beneficial in failure analysis?	8	3	3
	C	Explain VED analysis used for inventory management.	8	5	2

---------- X ---------- X ----------