SOMAIYA
VIDYAVIHAR

K J Somaiya Institute of Engineering and Information Technology
An Autonomous Institute permanently affiliated to University of Mumbai
Accredited NAAC and NBA, Approved by AICTE, New Delhi

Department of Electronics and Telecommunication Engineering

Academic Year 2021-22

Semester: 8 **Year: LY**

Subject: Optical Communication Networks **Course Code: 1UEXC801**

Question bank

Question No.	1. Optical fiber Communications	BT Level	CO
1	What is meant by the refractive index of a material?	U	CO1
2	What is the purpose of cladding?	U	CO1
3	What are the types of fibers?	U	CO1
4	What is a Graded index fiber?	U	CO1
5	What is a step index fiber?	U	CO1
6	What is the law of refraction?	U	CO1
7	Define Numerical aperture and write its formula.	U	CO1
8	What is skew ray?	U	CO1
9	Define the acceptance angle and write its formula.	U	CO1
10	Define critical angle and write its formula.	U	CO1
11	Write the advantages of optical communication.	U	CO1
12	Write the advantages and disadvantages of single mode fiber.	U	CO1
13	Write the advantages and disadvantages of multi-mode fiber.	U	CO1
14	Assume that there is a glass rod of refractive index 1.5 surrounded by air. Find the critical angle.	U	CO1
15	The refractive index difference of the fiber is 1% Determine the critical angle at the core cladding interface if the refractive index is 1.46.	Ap	CO1
16	The refractive indexes of the core and cladding of a silica fiber are 1.55 and 1.52. Find the critical angle and Numerical Aperture.	Ap	CO1

17	What is total internal reflection?	U	CO1
18	The refractive indexes of the core and cladding of a silica fiber are 1.48 and 1.46. Find the acceptance angle.	Ap	CO1
19	Define phase velocity and group velocity.	Ap	CO1
20	What is the mode field diameter?	U	CO1
21	Draw the schematic diagram of the optical fiber communication system. Explain the function of each block.	U	CO1
22	Define the following terms with respect to optical laws. Reflection. Refraction. Refractive index. Snell's law. Critical angle. Total internal reflection. Acceptance angle. Numerical aperture.	U	CO1
23	Write short notes on the following. Single mode step index fiber. Multimode step index fiber. Multimode graded index fiber.	U	CO1
24	Draw with diagram 1. Acceptance angle 2. Acceptance cone 3. Total internal reflection	U	CO1
25	Explain the difference between meridional and skew ray paths in step index fibers.	U	CO1
26	Describe the ray theory behind the optical fiber communication by total internal reflection.	U	CO1
27	What is the numerical aperture of an optical fiber? Deduce an expression for the same.	U	CO1
28	Explain the phenomenon of total internal reflection using Snell's law with figures and calculations.	U	CO1
29	Distinguish step-index from graded index fibers.	U	CO1
30	With diagrams explain acceptance angle, numerical aperture and total internal reflection.	U	CO1
	Problems on above topic	U	CO1

	2. Transmission characteristics of optical fiber		
1	Define signal attenuation of fiber and write its formula	U	CO2
2	Name three mechanisms caused by absorption.	U	CO2
3	Write notes on broadening of pulse in the fiber dispersion?	U	CO2
4	Write the expression for the phase velocity, group velocity using electric field distribution along the fiber?	U	CO2
5	What are types of scattering losses?	U	CO2
6	What are types of bending losses?	U	CO2
7	Define dispersion in optical fiber.	U	CO2
8	What are the types of dispersion?	U	CO2
9	What is meant by material dispersion?	U	CO2
10	Define Group Velocity Dispersion.	U	CO2
11	What is meant by Intermodal dispersion?	U	CO2
12	What are the types of joints in the fiber?	U	CO2
13	Define Fresnel reflection.	U	CO2
14	What are the types of misalignment?	U	CO2
15	What are the types of fiber couplers?	U	CO2
16	List Out the various loss parameters with four port couples?	U	CO2
17	What factors cause Rayleigh scattering in optical fibers?	U	CO2
18	Discuss absorption losses in optical fibers, comparing the intrinsic and extrinsic absorption mechanisms.	U	CO2
19	Briefly discuss the linear scattering losses in optical fibers.	U	CO2
20	Explain the fiber bend losses with a neat diagram.	U	CO2

21	Explain mechanical splices with neat diagram	U	CO2
22	What is splicing? Explain about fusion splicing?	U	CO2
23	Explain fusion splices with neat diagram	U	CO2
24	Draw and explain various fiber alignment and joint losses.	U	CO2
25	Write notes on fiber splices and connectors.	U	CO2
26	What is meant by 'fiber splicing'? Explain fusion splicing of optical fibers.	U	CO2
27	Explain expanded beam fiber connector with a neat schematic.	U	CO2
28	Discuss the attenuation encountered in optical fiber communication due to: 1. Bending 2. Scattering 3. Absorption	U	CO2
	3. Optical sources and Detectors		
1	Discuss the major requirements of an optical source for use in optical communication systems?	U	CO3
2	Write the advantages and disadvantages of LED	U	CO3
3	Write down the differences between LED and Laser Diodes.	U	CO3
4	Explain the LED configurations used in optical fiber links.	U	CO3
5	Define external quantum efficiency.	U	CO3
6	Define Internal quantum efficiency	U	CO3
7	Mention the advantages of quantum well lasers over DH lasers.	U	CO3
8	What are the advantages of LEDs?	U	CO3
9	For a Photodiode define quantum efficiency and responsivity.	U	CO3
10	Describe the construction and working of Light Emitting Diodes(LED)?	U	CO3

11	Explain the structure of surface emitting and edge emitting LEDs?	U	CO3
12	Discuss about the injection laser diode structures.	U	CO3
13	Draw the schematic of edge emitting double hetero junction LED and explain its working in detail?	U	CO3
14	With schematic representation explain the working principle of PIN photodiodes.	U	CO3
15	What are the requirements of a photo detector and why photodiodes are preferred in fiber optic communication systems?	U	CO3
16	Explain the structure and principle of working of Avalanche Photodiode (APD).	U	CO3
17	Compare the performance of PIN and APD.	U	CO3
18	Discuss various noise sources in photo detectors.	U	CO3
19	Draw and explain surface and edge emitting LEDs.	U	CO3
20	Explain the operation of APD.	U	CO3
21	Draw and explain the structure of Fabry perot resonator cavity for a laser diode.	U	CO3
22	Explain the working of n hetero structure LED.	U	CO3
	4.WDM Concepts and Optical Components		
1	Draw the basic building blocks of the WDM approach.	U	CO4
2	What are the advantages of WDM?	U	CO4
3	Differentiate between circulator and isolator.	U	CO4
4	Explain concept of Bragg Gratting fiber.	U	CO4
5	Write short note on circulator	U	CO4
6	Explain the function of the isolator with a diagram.	U	CO4
7	Write note on coupler	U	CO4

8	Explain Fabry-Perot filters	U	CO4
9	Write note on EDFA	U	CO4
10	Explain the principle of operation of Mach Zehnder Interferometer (MZI)?	U	CO4
11	Discuss the concept of WDM with neat diagram	U	CO4
12	Draw and explain the operation of WDM components	U	CO4
13	What is the need for couplers and isolators?	U	CO4
14	What is the function of an optical amplifier?	U	CO4
15	What are three functional types of optical amplifier?	U	CO4
16	What is the function of a coupler?	U	CO4
17	Explain the function of circulators and isolators.	U	CO4
18	Give the importance of wavelength converters in WDM networks.	U	CO4
19	Discuss the functions of Three port circulator	U	CO4
20	Discuss the functions of Fabry perot filter	U	CO4
21	Explain the principle of operation of a semiconductor optical amplifier (SOA)?	U	CO4
22	What is the function & the principle of operation of a circulator?	U	CO4
23	Explain the function & the Principle of operation of Wavelength Converters?	U	CO4
	5. Optical Networks		
1	Enumerate the various SONET / SDH layers?	U	CO5
2	Explain functional Layers of SONET.	U	CO5
3	What are the benefits of using the SONET/SDH system?	U	CO5
4	What are the elements used in the SONET/SDH system?	U	CO5

5	What does the acronym SONET stand for? What is the SONET?	U	CO5
6	Explain in detail protection architecture of SONET	U	CO5
7	Explain the simple network using SONET equipment?	U	CO5
8	Explain structure of STS-1 layer.	U	CO5
9	Draw the functional block diagram of the SONET/SDH system?	U	CO5
10	Describe in detail about SONET/SDH Ring Architecture?	U	CO5
11	Define STS-1 Signal?	U	CO5
12	Define OC-N signal?	U	CO5
13	Draw the STS-1 signal frame structure?	U	CO5
14	Calculate the data rate of STS-3 Signal	U	CO5
15	Explain the functional block diagram of the SONET/SDH Multiplexing?	U	CO5
16	With a neat diagram, explain the elements of SONET infrastructure.	U	CO5
17	Explain the principle of OTDM in detail.	U	CO5
18	Explain the unique features of broadcast OTDM networks.	U	CO5
19	Explain the Optical Access Network Architecture.	U	CO5
20	Describe in detail about SONET/SDH Ring Architecture?	U	CO5
21	Explain the unique features of broadcast OTDM networks.	U	CO5
22	Describe in detail, the architecture & classification of different types of fiber access networks.	U	CO5
23	Specify the Protection architectures of SONET	U	CO5
24	What is the difference between SONET and SDH?	U	CO5
25	Name the SONET layers	U	CO5

26	What is the function of the section layer?	U	CO5
27	What is the function of a line layer?	U	CO5
28	Explain Add/Drop Multiplexer?	U	CO5
	6. Network Design and Management		
1	Explain Fault management in optical Network	U	CO6
2	Explain different functions of network management.	U	CO6
3	Define crosstalk and mention its type	U	CO6
4	What is the goal of performance management?	U	CO6
5	What are the basic functions of Link Management protocols?	U	CO6
6	Explain network management with a Diagram in optical networks.	U	CO6
7	Explain the topologies related to configuration management.	U	CO6
8	Explain in detail Network management and Protection architectures of SDH.	U	CO6
9	What is the significance of alarm management?	U	CO6
10	Write down the network management functions.	U	CO6
11	Discuss in detail equipment, connection and adaptation management functions of configuration management.	U	CO6
12	Explain the approach used for crosstalk reduction.	U	CO6
13	Describe the fault management with a suitable diagram.	U	CO6

Course coordinator

Swati Shinde

EXTC Dept.

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Department of Electronics and Telecommunication Engineering

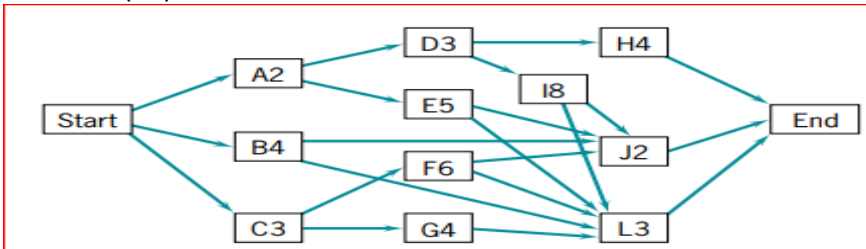
Academic Year 2021-22

Semester: VIII **Year/Program: LY (ALL)**

Subject: Project Management (ILOC) **Course code: 1UILC8041**

Question Bank

Sr. No	Questions	COs	BT
	MODULE-I-Project Management Foundation		
1	Define project management.	CO1	R
2	Explain Negotiations and resolving conflicts in project.	CO1	U
3	Differentiate Project versus Operations.	CO1	A
4	List the necessity of Project Management.	CO1	R
5	Describe Triple Constraints of project.	CO1	U
6	Explain Project Life Cycles stages with diagram.	CO1	R
7	List the Role of Project Manager.	CO1	R
8	Explain Negotiations and Resolving Conflicts in project.	CO1	U
9	List Various Organization Structures and explain any one.	CO1	R
10	List advantages of Using Formal Project Management.	CO1	R
11	Describe Matrix organization structure.	CO1	U
12	List PM knowledge areas as per Project Management Institute (PMI) and explain any two.	CO1	R
13	Compare PLC and SDLC cycles.	CO1	A
14	Implement a “Software upgrade Project” using initiating and Planning Process. Illustrate your answer with the help of Project life cycle diagram	CO1	A
15	Implement a “Bridge Demolition Project” using initiating and Planning Process. Illustrate your answer with the help of Project life cycle diagram.	CO1	A
	MODULE-II-Initiating Project		
1	List simple steps to start any project.	CO2	R
2	Explain the selecting project strategies.	CO2	U
3	List Three particularly common problems in organizations trying to manage multiple projects.	CO2	R
4	List types of Project Selection Models and explain any one.	CO2	R
5	Explain Numeric /Scoring Model for project selection.	CO2	U
6	Explain Nonnumeric Model for project selection.	CO2	U
7	Compare Numeric and Nonnumeric project selection models	CO2	A
8	Explain Project Portfolio Process(PPP)	CO2	U
9	List and explain the contents of Project Proposal.	CO2	R
10	List Stages of Team Development & Growth and explain any one.	CO2	A
11	Explain Forming and Performing stage development team	CO2	R
12	Explain Storming and Norming stage development team.	CO2	U
13	Explain Project Sponsor with example.	CO2	U

<table>
<tr><td>14</td><td>List the contents of Creating project Charter.</td><td>CO2</td><td>R</td></tr>
<tr><td></td><td>MODULE-III-Project Scheduling</td><td></td><td></td></tr>
<tr><td>1</td><td>Describe Project Planning and Scheduling.</td><td>CO3</td><td>U</td></tr>
<tr><td>2</td><td>Explain Work Breakdown Structure (WBS).</td><td>CO3</td><td>U</td></tr>
<tr><td>3</td><td>Draw the Work Breakdown Structure (WBS) of KJSIEIT</td><td>CO3</td><td>U</td></tr>
<tr><td>4</td><td>Explain work package in WBS</td><td>CO3</td><td>U</td></tr>
<tr><td>5</td><td>List advantages Work Breakdown Structure (WBS)</td><td>CO3</td><td>R</td></tr>
<tr><td>6</td><td>Explain Linear Responsibility Chart or matric with example.</td><td>CO3</td><td>U</td></tr>
<tr><td>7</td><td>Describe Interface Co-ordination and Concurrent Engineering in project management.</td><td>CO3</td><td>U</td></tr>
<tr><td>8</td><td>List and explain project cast estimation techniques.</td><td>CO3</td><td>R</td></tr>
<tr><td>9</td><td>Explain Top-Down Estimating and Bottom-Up Estimating Technique</td><td>CO3</td><td>U</td></tr>
<tr><td>10</td><td>Explain Guesstimating and Delphi Technique.</td><td>CO3</td><td>U</td></tr>
<tr><td>11</td><td>Explain PERT and CPM with example.</td><td>CO3</td><td>U</td></tr>
<tr><td>12</td><td>Explain Gantt chart with example.</td><td>CO3</td><td>U</td></tr>
<tr><td>13</td><td>Explain LOC and FP size oriented project estimation metrics.</td><td>CO3</td><td>U</td></tr>
<tr><td>14</td><td>Differentiate Activity on the Node (AON) and Activity on the Arrow (AON) with example.</td><td>CO3</td><td>A</td></tr>
<tr><td>15</td><td>Draw the network diagram using AON for following given data.
Activities: A, B, C, D, E, F, G, H, I, J
Estimated duration: 2, 5, 4, 3, 1, 4, 3, 2, 5, 1
Predecessor: None, A, B, B, B, CD, DE, FG, G, HI
a)Draw network diagram b) Calculate critical path (CPM)</td><td>CO3</td><td>A</td></tr>
<tr><td>16</td><td>Define terms 1) task 2) work package 3) Linear responsibility chart with example.</td><td>CO3</td><td>U</td></tr>
<tr><td>17</td><td>In the web site development project, network shown in following figure, the number alongside each activity designates the activity duration (TE) in weeks.
 

Determine slack/float on all activities.</td><td>CO4</td><td>A</td></tr>
<tr><td>18</td><td>Construct a network for the aerospace launch project below and find its critical path.
<table>
<tr><th>Activity</th><th>TE (weeks)</th><th>Preceding Activities</th></tr>
<tr><td>a: Check controls</td><td>3</td><td>none</td></tr>
<tr><td>b: Check propellants</td><td>5</td><td>a</td></tr>
<tr><td>c: Check personnel</td><td>3</td><td>a</td></tr>
<tr><td>d: Assemble items</td><td>1</td><td>c</td></tr>
<tr><td>e: Move to launch pad</td><td>3</td><td>b</td></tr>
<tr><td>f: Run system tests</td><td>4</td><td>b, d</td></tr>
<tr><td>g: Check astronauts</td><td>2</td><td>c</td></tr>
<tr><td>h: Ground stations go?</td><td>3</td><td>g, f</td></tr>
<tr><td>i: Countdown</td><td>1</td><td>e, h</td></tr>
</table></td><td>CO5</td><td>A</td></tr>
</table>

Sr. No	Questions	COs	BT
	MODULE-IV-Planning Projects		
1	Explain Crashing Project Time with example	CO4	U
2	Explain AOA and AON network diagram methods with example	CO4	U
3	Describe resource allocation in project management	CO4	U
4	Explain resource loading in project management	CO4	U
5	Identify the steps for resource loading	CO4	A
6	Explain Resource leveling with example.	CO4	U
7	Identify issues can be solved by Goldratt's *Critical Chain*	CO4	A
8	Describe Goldratt's Critical Chain with example	CO4	A
9	Identify the typical key stakeholders in a project	CO4	U
10	Identify the Internal stakeholders in project management	CO4	U
11	Identify the External stakeholders in project management	CO4	U
12	Identify the steps involved in project communication plan	CO4	U
13	Identify the basic elements in communication plan	CO4	U
14	Identify the Several common mistakes to managing project risk	CO4	U
15	Identify the step include in risk management processes	CO4	U
	MODULE-V-Projects		
1	Explain Planning Monitoring and Controlling Cycle	CO5	U
2	List and explain five monitoring policies	CO5	R
3	Explain Information Needs and Reporting in project management	CO5	U
4	Explain three distinct types of reports of project management	CO5	U
5	List and explain the ways to Engage Project Stakeholders	CO5	R
6	Explain Project Team in project management	CO5	U
7	List various duties and responsibilities of project manager	CO5	R
8	Explain earned value analysis for measuring overall performance of project	CO5	U
9	Assume that operations on a work package were expected to cost 1,500 Rs. to complete the package. They were originally scheduled to have been finished today. At this point, however, it actually expended 1,350 Rs. and estimate that it has completed two-thirds of the work. a) Determine the cost and schedule variances (page No.453) b) Determine Cost Performance Index (CPI) c) Calculate Schedule Performance Index (SPI)	CO5	A
10	Explain Project Procurement Management	CO5	U
11	Explain project Audit.	CO5	U
12	List and explain different parts of the audit report.	CO5	R
13	Describe Audits and Project Audits.	CO5	U
14	Explain project procurement.	CO5	U
15	Introduce five practices of excellent Leadership in project management.		
16	Introduce excellent Leadership styles	CO6	U
17	Describe the democratic leadership style.	CO6	U
18	Describe the coaching leadership style.	CO6	U
19	Explain Ethics in project	CO6	U
20	Explain ethical leadership in project management	CO6	U
21	Explain unethical leadership in project management	CO6	U
22	Explain multicultural project.	CO6	U
23	Explain virtual project.	CO6	U
24	Explain various type of project termination.	CO6	U
25	Describe termination by addition.	CO6	U
26	Describe termination by Integration.	CO6	U

27	Describe termination by Starvation	CO6	U
28	List and explain nontechnical project termination.	CO6	U
29	Explain termination process.	CO6	R
30	List and explain the elements covered in the final report.	CO6	U
31	Do you think socialization off the job helps or hinders? Explain in brief.	CO6	R
32	How does a project manager, in some cases, work like a politician?	CO6	U

Subject: Incharge

Prof. Prashant Upadhyay

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Academic Year 21-22 (Even)

Department of Electronics and Telecommunication Engineering
Question Bank

Class: **LY** Semester: **VIII** Course Code: **1UEXDLC8034**
Course: **Fundamental of Data Science**

Question No.	Statement of Question	CO	BT Level
	Ch. 1. Introduction To Data Science And Python Programming		
Q . 1.	Explain the Pivot operation	1, 4	U
Q . 2.	Explain how to sort a Data Frame with respect to multiple columns?	1, 2, 3	U
Q . 3.	Define the following terms: Median, Standard Deviation and variance.	1, 2, 3	U
Q . 4.	List all the built-in Data Types used in python	1, 3, 4	U
Q . 5.	Write syntaxes for instructions used to read & write Date in text format with example.	1, 3, 4	U
Q . 6.	Explain how data types are converted from one type to other type	1, 2, 3	U
	Ch. 2 Data Manipulation With Pandas		
Q . 1.	List any 6 features of pandas library	2	U
Q . 2.	Explain Group by functions in Pandas. Illustrate with suitable examples	1,2,3	U
Q . 3.	Explain the difference between pivot() and pivot_table() function?	2, 3	U
Q . 4.	Suppose that the data for analysis includes the attribute salary. We have the following values of salary (in Thousands of INR), shown in increasing order: 30, 36, 47, 50, 52, 52, 56, 60, 63, 70, 70, 110. i. What are the mean, median, mode and midrange of the data? ii. Find first quartile, second quartile and third quartile of the data. iii. Show the boxplot of the data	1,2	U
Q . 5.	Write short note on panda's operation:	2, 3	U

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i. Indexing, sorting, ranking operations using Pandas
ii. Filtering, Mapping operations using Pandas

Ch. 3. Data Cleaning, Preparation And Visualization

Q . 1.	Explain the Roll up operation	3, 4	U
Q . 2.	Explain the Drill Down operation	3, 4	U
Q . 3.	Explain the Slice operation	3, 4	U
Q . 4.	Explain the Dice operation	3, 4	U
Q . 5.	Explain the Pivot operation	3, 4	U
Q . 6.	Explain Data Accuracy	2, 3	U
Q . 7.	Explain Data Completeness	2, 3	U
Q . 8.	Explain Data Consistency	2, 3	U
Q . 9.	Explain Data Quality	2, 3	U
Q . 10.	Compare the contrast between Clean Data and Dirty Data With suitable example	3	U
Q . 11.	Explain the term Missing Data	2, 3	U
Q . 12.	Explain the term duplicate Data	2, 3	U
Q . 13.	Explain the term Data Validation	2, 3	U
Q . 14.	Write the purpose of Data aggregation.	2, 3	U
Q . 15.	Explain meaning of spatial data	2, 3	U
Q . 16.	What are the strategies to handle missing terms?	2, 3, 4	U
Q . 17.	With Suitable example illustrate Data cleansing workflow	2	U
Q . 18.	Describe about Data discretization?	2, 3	U

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Q . 19.	What is Data reduction? Discuss in detail ?	3	U
Q . 20.	Explain Data Integration, Discretization and Transformation	3	U

Ch. 4. Data Mining and Machine Learning

Q . 1.	List Tasks involved in Data Mining	4	U
Q . 2.	List various schemes for warehouse designing	4, 5	U
Q . 3.	Define data Warehouse	4, 5	U
Q . 4.	Explain steps involved in KDD.	4	U
Q . 5.	**A fact Table is deep** Explain this statement	4	U
Q . 6.	**A dimension table is wide** explain this statement	4	U
Q . 7.	Why is data integration required in a data warehouse, more so than in an operational Application?	4, 5	U
Q . 8.	Explain Market Basket Analysis with an example.	4, 5	U
Q . 9.	Explain Frequent Pattern Mining	4	U
Q . 10.	Explain Mining Multilevel Association Rules	4, 5	U
Q . 11.	How to classify data mining systems? Discuss	4	U
Q . 12.	Explain Mining Multilevel Association Rules	4, 5	U
Q . 13.	Discuss how the exceptions defined. Explain how it is handled with example	1, 2, 4	U
Q . 14.	What are steps in designing the data warehouse? Explain in detail	3,4,5	U
Q . 15.	Write about basic concept in Association Rule mining	3, 4	U
Q . 16.	What is the need of preprocessing the data? Discuss.	1, 2, 3	U
Q . 17.	Explain Roll up operation, Drill Down operation, Slice operation, Dice operation and Pivot operation	2, 3, 4	U

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Q . 18.	List advantages and disadvantages of top-down and bottom-up approaches for building data warehouse.	4	U
Q . 19.	Explain about the Three-tier data warehouse architecture with a neat diagram.	4	U
Q . 20.	What is Data reduction? Discuss in detail ?	3, 4	U
Q . 21.	Discuss about Data Mining Task primitives with examples?	3, 4	U
Q . 22.	A Problem based on Apriori Algorithm	4, 5	AP
Q . 23.	A problem based on Association Rule.	4, 5	AP
Q . 24.	Differentiate between top-down and bottom-up approaches for building a data warehouse, List advantages and disadvantages of respective approaches.	4	U

Ch. 5. Model Development and Evaluation

Q . 1.	What is meant by classification?	3, 5	U
Q . 2.	List types of OLAP (Online Analytical Process)	3, 5	U
Q . 3.	Compare classification and prediction methods	4, 5	U
Q . 4.	Define outlier	2, 5	U
Q . 5.	Why Tree pruning is important in decision tree induction?	2, 3, 5	U
Q . 6.	State Issues Regarding Classification and Prediction	3, 5	U
Q . 7.	Describe Classification by Decision Tree Induction	3, 4, 5	U
Q . 8.	Explain Fuzzy set Approach for Classification	3, 4, 5	U
Q . 9.	Explain the Density based clustering methods	4, 5	U
Q . 10.	Explain the Grid based clustering methods	4, 5	U
Q . 11.	What is the drawback of k-means algorithm? How can we modify the algorithm to diminish that problem?	3, 4, 5	U
Q . 12.	Explain Outlier Analysis? Explain Statistical Distribution-Based Outlier Detection.	2, 3, 5	U

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Q . 13.	Write partitioning around methods.	2, 4, 5	U
Q . 14.	Define Clustering? Explain about Types of Data in Cluster Analysis?	3, 4, 5	U
Q . 15.	Describe the data classification process with a neat diagram. How does the Naive Bayesian classification works? Explain.	3, 4, 5	U
Q . 16.	Write and explain about Classification by Back propagation Algorithm.	5, 6	U
Q . 17.	How does the Naïve Bayesian classification works? Explain in detail.	4, 5	U
Q . 18.	Define Clustering? Explain about Types of Data in Cluster Analysis?	3, 4, 5	U
Q . 19.	Problem Based on Decision Tree Classification.	4, 5	AP

Ch. 6. Time Series Models

Q . 1.	Write Short note on Autoregressive with exogenous(ARX)	6	U
Q . 2.	Write Short note on Extended version of ARIMA models	6	U
Q . 3.	Explain in Brief Autoregressive Moving Average(ARMAX)	6	U
Q . 4.	Explain in Brief Autoregressive Integrated Moving average(ARIM)	6	U

Course Outcomes:

1. Relate the concepts of python and mathematical concepts for data science
2. Solve and interpret the concept of exploratory data science and processing of data.
3. Explain the concept of optimization methods
4. Interpret the concept of Data Mining
5. Explain and judge the models for Data Analysis
6. Illustrate the concept of Time Series Models for data science

Course in-charge: Harshawardhan P. Ahire

Verified by:

DQC Member **HoD**

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K J Somaiya Institute of Engineering and Information Technology

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Department of Electronics and Telecommunication Engineering

Academic Year 2021-22

Semester: VIII **Year: LY**

Subject: Finance management **Course Code: 1UILC8042**

Question bank

Question No.	Module_1(Overview of Indian Financial System)	BT Level	CO
1	Explain the meaning of Financial System and characteristics of financial system	U	1
2	Explain the role of financial system.	U	1
3	Explain financial system in India	U	1
4	What are the components of financial system?	U	1
5	What are the financial markets and what are the types of financial markets?	U	1
6	What the characteristics of financial market and role of the financial market?	U	1
7	Distinguish between capital market and money market.	U	1
8	Explain the various modes of fund raising in capital markets.	U	1
	Module_2 (Concepts of Returns and Risks & Time Value of Money)		

1	What is return? Explain the components of returns.	U	2
2	Explain the concept of risk. How it is calculated?	U	2
3	Explain how risk can be reduced.	U	2
4	What is normal distribution? How it can be used for calculating probability of stock returns?	U	2
5	What is coefficient of correlation? What is the relationship between covariance and coefficient of correlation?	U	2
6	Explain how diversification reduces risk.	U	2
7	Explain various motive for time preference for money	U	3
8	Explain an annuity? Why present value of annuity due is higher than annual compounding.	U	3
9	Explain normal distribution	U	3
10	Explain the concept of time value of money.	U	3
	Module_3(Overview of Corporate Finance and Financial Ratio Analysis)		
1	Explain finance management decisions.	U	5
2	Explain objective of corporate Finance.	U	5

3	Explain organization of finance function	U	5
4	Explain financial statements	U	5
5	Explain liquidity ratio.	U	5
6	Explain activity ratio	U	5
7	Explain profitability ratio	U	5
8	Explain capital structure ratio	U	5
9	Explain return ratio	U	5
10	Explain stock market ratio	U	5
11	Explain limitation of ratio analysis	U	5
	Module_4 (Capital Budgeting and Working Capital Management)		
1	Explain importance of capital budgeting	U	6
2	Explain any one capital budgeting technique	U	6
3	Explain net present value method for capital budgeting	U	6
4	Explain internal rate of return method for capital budgeting.	U	6
5	Explain modified internal rate of return method for capital budgeting.	U	6
6	Explain importance of working capital management	U	6
7	Explain the factor affecting working capital needs	U	6
8	Explain the main objective of holding inventory.	U	6
9	Explain economic order quantity inventory management technique.	U	6
10	Explain cash management process	U	6
11	Explain inventory control systems.	U	6
12	Explain the three major aspects to management of receivables.	U	6

	Module_5 (Sources of Finance & Capital Structure)		
1	Explain the different sources of finance.	U	4
2	Explain hybrid financing	U	4
3	Explain sources of short term finance.	U	4
4	Explain risk involved in project financing.	U	4
5	Explain factor affecting capital structure of the company.	U	4
6	Explain net income approach for capital structure.	U	4
7	Explain net operating income approach for capital structure.	U	4
8	Explain Modigliani miller approach to capital structure	U	4
9	Explain the roll of capital structure	U	4
10	Explain elements of capital structure.	U	4
11	Explain short term finance and long term finance.	U	4
	Module_6 (Dividend Policy)		
1	Explain advantages of dividend policy	U	4
2	Explain MM approach in dividend policy	U	4
3	Explain importance of dividend policy	U	4
4	Explain types of dividend policy	U	4
5	Explain factor affecting dividend decision	U	4
6	Explain Walter model	U	4
7	Explain Gordon model	U	4
8	Explain dividend irrelevance MM approach.	U	4

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Department of Electronics and Telecommunication Engineering

Academic Year 2021-22

Semester: __VIII____ **Year: /LY**

Subject: __Natural Language Processing_ **Course Code: 1UEXDLC8031**

Question bank

Question No.	Module 1 (Introduction to NLP)	BT Level	CO
1	What is natural language Processing?	U	1
2	What is the significance of study of NLP in Natural languages?	U	1
3	Elaborate on historically significant achievements in NLP	U	1
4	NLP is an interface between natural languages, AI and ML. Justify your answer with suitable examples.	U	1
5	What are different stages of natural Language Processing? Explain with suitable diagram.	U	1
6	Elaborate on different processes involved in NLP with a block Diagram	**U**	1
7	With examples, explain the grammatical ambiguities in designing NLP solutions	U	1
8	What is a parsing tree? Explain with examples?	U	1
9	What are different grammar categories used in Parsing tree? Explain with a suitable sentence and draw the parsing tree.	E	1
	Module 2 (Morphological Analysis)		
1	What is a morpheme and how it is different from lexeme in morphological Level analysis? Explain with proper examples.	U	2
2	What are the ambiguities at syntax level? Analyze with examples?(	U	2
3	What do you understand by Semantic level ambiguities and how they are resolved by NLP algorithms?		2
4	What is a morpheme and how it is different from lexeme in morphological Level analysis? Explain with proper examples.	U	2
5	What are the ambiguities at syntax level? Analyze with examples?(	U	2
6	What do you understand by Semantic level ambiguities and how they are resolved by NLP algorithms?	E	2

7	Compare derivational and inflectional grammar with suitable examples	An	2
8	Among derivational and inflectional grammar which is more complex to implement in NLP and why?	U	2
9	What is tokenization? How it is achieved in NLP?	U	2
10	How stemming and Lemmatization are useful in morphological level analysis	U	2
11	How do you draw analogy between morphemes, lexemes and stemming process? Explain with relevant examples	E	2
12	What is a regular expression in at morphological analysis. Write at least 6 regular expressions used in English Language in Morphological analysis.	An	2
13	What are different types of regular expressions, Give two example for each category	U	2
14	What are the four important stemming rules used in English for morphological analysis using NLTK	U	2
15	What do you understand by finite Automata? Draw the diagram showing relationship between Regular expression, Finite Automata and Regular language	U	2
16	Explain the rules of Deterministic Finite Automata with a transition status table	U	2
17	What is non deterministic Finite State Automata function? Compare the Tuples used in Deterministic and Non Deterministic Finite automata states with proper examples	An	2
18	How is a Finite State lexicon is built by using basic Morphological Finite State Parsing? Explain with proper examples.	E	2
	Module 3 (Syntax level Analysis)		
1	What is Penn tree bank? Evaluate the different grammatical categories in Penn tree bank.	**E**	3
2	Critically analyze Parts of speech tagging and its relationship with parsing, lemmatization, stemming	An	3
3	What is the significance of PoS in resolving ambiguities at syntax level.	An	3
4	What Probabilistic models are used in N grams and how it is useful in PoS?	U	3
5	Describe Hidden Markov Model and its application in POS.	E	3

6	Elaborate on different types of sub categories used in tagging wrt. Nouns, adjectives, verbs etc with examples.	U	3
7	Explain with example Parsing and tagging with Penn Tree bank.	U U	3
8	Explain briefly 8 different types of POS tagging used in Penn tree bank.	U	3
9	Analyse the Challenges and issues in tagging.	An	3
10	Compare the morphological Analysis with syntax analysis	An	3
11	"The Beautiful women danced to the tunes of music till the dawn" Draw the parsing tree and attach the tags for each word for the given sentence.	Ap	3
	Module 4 (Semantic level Analysis)		
1	Semantic analysis is combining different phrases, Justify this statement	E	4
2	Compare the syntax analysis and Semantic Analysis wrt different steps applied.	An	4
3	What do you understand by compositional Semantics?	U	4
4	Elaborate on different approaches to semantic Analysis	U	4
5	Evaluate the factors which make the semantic analysis difficult	E	4
6	What are different structures used in Semantic Analysis?	U	4
7	Evaluate Homonymy, Polysemy, Synonymy and Hyponymy wrt. Semantic Analysis?	E	4
8	What is wordnet? Elaborate on its structure and relations.	U	4
9	What is Word Sense Disambiguation?	E	4
	Module 5 (Pragmatic and Discourse Analysis)		
1	What are the ambiguity challenges at Pragmatic level ? Explain with relevant examples	U	5
2	Analyze the ambiguities in English language with respect to Discourse level?	An	5
3	What is world knowledge? How it is related to pragmatics?	U	5
4	What do you understand by logical interpretation? Give examples for applying the same.	Ap	5

5	List any 5 applications of Pragmatic Analysis	U	5
6	What are important characteristics of Discourse level analysis	U	5
	Module 6(Applications of NLP)		
1	What are the features used in sentiment analysis?	U	6
2	What are the applications of sentiment analysis in industry and academia?	U	6
3	How the information retrieval is applied to get text information?	Ap	6
4	What functions of NLP are applied in machine Translation?	Ap	6
5	Evaluate the applications and processes used in speech recognition.	E	6
6	How do you identify and segregate the e mail messages based on urgency of tasks?	Ap	6
7	Apply the knowledge of World knowledge in predicting the next word in the sentence" The Horse climbed the steep hill, but it was----------	Ap	6
8	What is the application of NLP in Text to Text Translation?	U	6
9	What processes of NLP are used to get Machine Translation?	U	6
10	Give the example of Chatbot to serve a canteen.	U	6

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QUESTION BANK

Institute Elective: Environmental Management.
Course Code: ECCILO 8029

No	Question	CO	BT Level
	Module 1: Introduction and Definition of Environment		
1	Explain the significance of environmental management.	6	R
2	Describe sustainable development	5	U
3	What are the major environmental issues relevant to India?	3	U
4	Describe the four main types of Natural resources and explain the significance of environmental management for such type.	1	R
5	Describe energy scenario in India.	1	U
	Module 2: Global Environmental concerns		
8	What are biomedical hazards?	3	R
9	Describe Global warming and its deleterious effects on environment.	3	R
10	Comment on Atomic hazards.	3	R
11	Illustrate with example the endangered species in plants and animals.	3	U
12	Comment on biological hazards.	3	R
13	Comment on global environmental concerns.	1	U
14	Describe few man-made disasters and its consequences.	3	U
15	What are chemicals which causes Ozone layer depletion?	3	U
16	What was the reason for Bhopal Tragedy?	3	U
17	Give two examples of Endangered life-species.	3	U
18	What is Green House effect?	3	U
19	Give reasons for Ozone layer Depletion.	3	U
20	Describe industrial disasters with examples.	3	U
21	What is Chipco Movement?	5	U
22	Comment on Green peace movement.	5	U
23	Which are the different layers of Atmosphere?	3	U
	Module 3: Concepts of Ecology		
24	What is an ecological pyramid?	2	R
25	What are the biotic and abiotic factors of ecosystem?	2	U
26	What is carrying capacity?	2	U
27	What is a population in Ecosystem?	2	U
28	What are the different ecosystems? Explain forest ecosystem in detail.	2	U
29	What is Hippo effect?	2	R
30	Explain food chain and food web.	2	R
31	Draw ecological Pyramid and describe the energy transfer with respect to law of thermodynamics.	2	U
	Module 4: Scope of Environment Management		

32	Comment on environmental quality management.	6	R
33	Describe the role and functions of government as a planning and regulating agency	6	R
34	Describe the scope of environmental management	6	U
	Module 5: Total Quality Environmental Management		
35	What is Total Quality Environmental Management?	2	U
36	What are steps in EMS certification?	5	U
37	Describe briefly ISO 14000.	5	U
38	Comment on Corporate Environmental Responsibility ?	5	U
	Module 6: Environmental Legislations		
39	Explain Water Act.	4	U
40	Explain Air Act.	4	U
41	Comment on Forest Act.	4	U
42	Describe Factories Act.	4	U

Course Outcomes:

1. Interpret the concept of environmental management
2. Learn the ecosystem and interdependence, food chain etc. and interpret environment related legislations
3. Identify the environmental issues important to India
4. Learn the regulating policies of Government in environmental management
5. Identify solutions to protect the environment from pollution
6. Examine the quality environmental management.

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Department of Electronics and Telecommunication Engineering

Academic Year 2021-22

Semester: VIII **Year: LY**

Subject: Web Design **Course Code:** 1UEXDLC8024

Question bank

Question No.	Module 1:- Introduction to WWW	BT Level	CO
1	What is URL?	R	CO1
2	Explain HTTP.	R	CO1
3	Explain the procedure of sending the request using HTTP.	R	CO1
4	Describe FTP	R	CO1
5	Explain the W3C Validator	R	CO1
6	Discuss the three- tier Web system architecture	R	CO1
7	Explain the function of a web server	R	CO1
	Module2: Client Side Programming		
1	Explain the process of inserting image in an HTML document	U	CO2
2	Describe TABLE element in an HTML document	R	CO2
3	Explain the difference between P and DIV HTML elements	R	CO2
4	Explain attributes of HTML form tag	R	CO2
5	Explain the process for applying CSS in an HTML document inline style sheet.	R	CO2
6	Discuss any three CSS text properties.	R	CO2
	Module 3: Introduction to JavaScript		

1	Write JavaScript code for adding two numbers and displaying result in an alert box.	Ap	CO3
2	Describe the common advantages of using JQuery	U	CO3
3	Describe the callback functions in JQuery	R	CO3
4	Write a program in JavaScript to demonstrate the use of the if statement in JavaScript.	Ap	CO3
5	Explain data types in JQuery	R	CO3
6	Explain Document Object Model	R	CO3
7	Explain Built-in JavaScript Objects	R	CO3
8	Explain Arithmetic Operators in JavaScript	R	CO3
9	Explain Assignment Operators in JavaScript	R	CO3
10	Explain Comparison Operators in JavaScript	R	CO3
11	Explain Logical Operators in JavaScript	R	CO3
12	Explain Conditional Operators in JavaScript	R	CO3
13	Explain Flow Control Statements in JavaScript	R	CO3
14	Explain Document Object Model in detail.	R	CO3
15	How HTML form is validated using JQuery	R	CO3
16	Explain properties of an Object	R	CO3
	Module 4: Server Side Programming		
1	Explain working of Servlet?	R	CO4

2	What do you know about Servlet? Explain their working in short.	R	CO4
3	Explain the life cycle of Servlet in brief	Ap	CO4
4	What are major shortcomings of Servlets?	R	CO4
5	What are the benefits offered by pages developed using JSP technology	Ap	CO4
6	Give reasons for preferring JSP over Servlet technology	AP	CO4
7	What are the stages of the life-cycle of a JSP page ?	R	CO4
8	Explain features of PHP?	R	CO4
9	List the data types used in PHP ?	R	CO4
10	Explain PHP.	R	CO4
11	How is type casting done in PHP ?	AP	CO4
12	Describe the difference between while loop and do-while loop.	AP	CO4
13	List the type of conditional statements in PHP.	R	CO4
14	Explain the for loop used in PHP.	R	CO4
15	What is Cookie? How it is created and read?	Ap	CO4
16	What is session?	AP	CO4
17	Explain the features of PHP framework?	R	CO4
18	Explain JSP Scripting tags?	AP	CO4
19	Explain declaration tags with example?	AP	CO4
20	Write short note on JSP	AP	CO4

	Module 5 : XML		
1	Explain the rules associated with XML syntax	R	CO5
2	Describe the use of escaping delimiter character in XML	R	CO5
3	List down the common problems associated while using XML attributes.	R	CO5
4	Discuss the use of XML parser.	R	CO5
5	Write short note on XML	R	CO5
6	Explain XML Schema?	R	CO5
7	Explain Dynamic page generation?	R	CO5
8	Explain interactivity, styles, using HTML with respect to XML?	AN	CO5
	Module 6 : Web Development Framework		
1	Explain MVC architecture in detail	R	CO6
2	What is web framework?	R	CO6
3	Why do we need framework?	AP	CO6
4	What are the advantages of using framework?	AP	CO6
5	Explain Laravel framework ?	AP	CO6
6	What are the disadvantages of using framework?	R	CO6
7	Explain Development of web pages using Laravel	R	CO6
8	Write short note on Laravel framework	R	CO6
9	Write short note on web application	R	CO6

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