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K J Somaiya Institute of Engineering and Information Technology
An Autonomous Institute Permanently Affiliated to the University of Mumbai

DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year (2021-22) Even SEM

Subject: Big Data Analytics (BDA) **Course Code:** 1UITC801
Class: LYIT **SEM:** VIII

Question Bank for End Semester Exams
Module 01

Introduction to Big Data (CO1)

1. What is Big Data? Give some examples of Big Data.
2. What are 5 V's of Big Data? Explain two examples of big data case studies and indicate which characteristics are satisfied by these cases.
3. Write a short note on Big Data and its characteristics. How is analysis of Big Data being useful for organization?
4. What are the advantages of Big Data Analytics? Explain the real time applications of Big Data?
5. List different types of data and hence explain structured, Semi Structured and Unstructured data by giving example.
6. Explain following terms with respect to Big Data Analytics:
   a) Characteristics
   b) Types
   c) Challenges

Module 02
Introduction to Big Data Frameworks (CO2)

7. Explain HDFS architecture with diagram.
8. Explain Hadoop Ecosystem with core components. Explain its physical Architecture. State the limitations of Hadoop.
9. What is HDFS and what are its features?
10. What a key-value store is? Explain the benefits of using a key-value store.
11. Demonstrate NoSQL case studies.
12. List the use cases of key-value store, Graph store and Document store and explain any one-use case of key-value store in detail.
13. Illustrate Document store APIs along with example.
14. Explain features of MongoDB database.
15. Agility is a NoSQL business driver. Justify.
16. Distinguish between:
    a) RDBMS and NOSQL
    b) Column Store and Column Family.
17. What are the different Architectural Patterns in NoSQL? Explain "Key-Value" store and "Document" store pattern with relevant example.
18. Explain the term NameNode and DataNode with respect to HDFS.

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19. What are JobTracker and TaskTracker? Explain the benefits of block Transfer.
20. What is a secondary NameNode? Does it substitute a NameNode?
21. Explain NoSQL data architecture patterns.
22. Write a short note on:
    a) Hadoop Architectural Model.
    b) Hive and its architecture.
23. Explain Data Bricks advantages over Hadoop Cluster.
24. Explain how real time data computation is done using data bricks using spark.
25. Explain Data Bricks Architecture in detail.
26. How Spark processes big data. Explain with RDD concept.
27. Explain Spark Architecture.
28. How Spark differs from map reduce explain.
29. Explain computational and Model management.

Module 03
MapReduce Paradigm (CO3)

30. Explain MapReduce Programming Model.
31. What is a Role of Combiner in MapReduce Framework? Explain with the help of one example.
32. How does NameNode Tackle DataNode Failures?
33. List Relational Algebra Operations. Explain any two using MapReduce.
34. Explain "Shuffle and Sort" phase and "Reducer" Phase in MapReduce".
35. Write a MapReduce Pseudo code to multiply two matrices. Illustrate with an example showing all the steps.
36. What are the advantages of using MapReduce with Hadoop?
37. Describe in brief Matrix Multiplication using MapReduce programming Module.
38. Show the MapReduce Implementation for the following two tasks with the help of one example:
    a) Matrix-Vector Multiplication.
    b) Computing Group By and Aggregation by Relational Table.
    c) Selection and Projection.

Module 04
Mining Big Data Streams (CO5)

39. Clearly explain the concept of Bloom Filter with the help of an example.
40. Suppose data stream consist of integers 4, 8, 5,7,3,6,2,5,1. Let hash function being used is $h(x)=3x+2$ mod 5. Show how Flajolet Martin will estimate number of distinct elements in this stream.
41. Explain the issues in Data Stream query processing.
42. Distinguish the following:
    a) DBMS and DSMS
    b) PCY, Multistage and Multihash
43. List issues and challenges faced in data stream processing.

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44. Suppose a stream consists of the integers 2,1,6,1,5,9,2,3,5. Let the Hash functions all be of the form h(x) =ax+b mod 16 for some a and b. You should treat the result as a 4-bit binary integer. Determine the tail length for each stream element and the resulting estimate of the number of distinct element if the Hash function is:
   a. h(x) = 2x +3 mod 16
   b. h(x) = 4x+1 mod 16
   c. h(x) = 5x mod 16
45. Define Bloom Filter. Explain the concept of Bloom Filter Algorithm with example.
46. Give the updating Bucket approach of DGIM algorithm.
47. Explain DGIM algorithm for counting ones in stream with example.
48. Give the updating bucket approach of DGIM algorithm.
49. Explain Flajolet Martin algorithm with example.
50. Suppose a data stream consists of the integers 1,3,2,1,2,3,4,3,1,2,3,1. Let the hash function being used is h(x) = (6 xs+1) mod5: estimate the number of distinct in this stream using Flajolet Martin algorithm.
51. Give two applications for counting the number of 1's in along stream of binary values. Using a stream of binary digits. Illustrate how DGIM will find the number of 1's.

Module 05
Big Data Mining Algorithms (CO4)

52. Through an example illustrate how the Triangular array can be used to optimally store and count pairs in a frequent itemset mining algorithm.
53. Find the Jaccard distance and cosine distance between the following pairs of set: X= (0,1,2,4,5,3,) and Y= (5,6,7,9,10,8)
54. Find Cosine distance between the d1 and d2 vectors:

| Index	1	2	3	4	5	6	7	8	9	10
d1										
d2										

55. Give a formal definition of the Nearest Neighbor problem. Show how finding plagiarism in Nearest Neighbor problem. What similarity measures can be used?
56. Explain how CURE algorithm can be used to cluster big data sets.
57. Clearly with diagrams explain how PCY algorithm helps to perform frequent itemset mining on large datasets.
58. Write a short note on Multistage Frequent itemset Mining Algorithm.
59. Explain Park-Chen-Yu Algorithm? How memory mapping is done in PCY?
60. Write a short note on:
   a. PCY Algorithm.
   b. CURE Algorithm.

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61. Imagine there are 100 baskets, numbered 1, 2……, 100 items similarly numbered. Item I is in basket J if and only if I divides J evenly. For example, basket is 24 is the set of items {1, 2, 3, 4, 6, 8, 12, 24}. Describe association rules that have100% confidence.
62. Explain PCY algorithm with suitable example.
63. Explain clearly how the SON partition-based algorithm helps to perform frequent item set mining for large data sets. How does this algorithm avoid false negative?
64. Write a short note on: SON algorithm with MapReduce.
65. Distinguish the following:
    a) PCY, Multistage
    b) Document Data Store and Column Family Data Store.

Module 06
**Big Data Analytics Applications (CO6)**

66. Explain PageRank algorithm with suitable example. Using web graph shown below compute PageRank at every node at end of second iteration. Use teleport factor=0.8
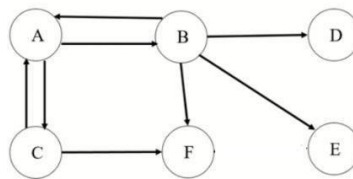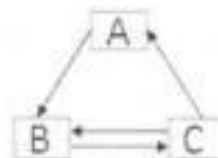

67. Define Hub and Authority. Compute Hub and Authority Score for the following Web.
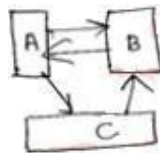
68. Explain HITS algorithm with example.
69. Explain PageRank algorithm with suitable example.
70. Compute Efficient PageRank with the damping factor d=0.8 for web.
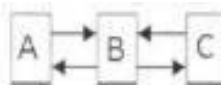
71. Define Hub and Authority. Compute Hub and Authority scores for web.

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72. What is a role and effect of PageRank?
73. Consider the web graph given below with six pages (A, B, C, D, E, F) with directed link as follows:
    A→ B,C
    B →A, D, E, F
    C →A, F
    Assume that the PageRank values for any page m at iteration 0 is PR(m)=1 and Teleportation factor for iteration is β=0.85. Perform the page rank algorithm and determine the rank for every page at iteration 2.
74. Explain the role and effect of damping factor (teleportation) in PageRank Computation.
75. What are different Recommender systems? Explain anyone with example.

Course Incharge

Mrs. Nasim Shah

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DEPARTMENT OF INFORMATION TECHNOLOGY

B. Tech. (Information Technology)
Academic Year 2021-22
Question Bank (ESE)

Module 1:

1. What is Natural Language Processing? Need of NLP.
2. Discuss NLP with some applications.
3. Analyse the usage of feature structures in NLP.
4. What is meant by Lexicon? How is it useful in NLP?
5. Generic NLP System.
6. Explain stages of NLP.
7. Ambiguity and types of ambiguity.
8. Challenges in NLP.
9. Identify and describe the ambiguities in the following sentences.

   i. The man kept the dog in the house.

   ii. Book that flight.

10. Explain the different levels of NLP with example.
11. With a neat diagram describe how a typical NLP system is organised?
12. What is need of parsing of input sentence?

Module 2:

1. Differentiate between different morphemes, with examples.
2. Explain morphological analysis with example.
3. Stemming and Lemmatization with example.
4. Stemming algorithm types.
5. Define Language Model with example
6. Finding n-grams for given corpus.
7. Explain the Morkov assumptions
8. Explain lexicon, lexeme and the different types of relations that hold between lexemes
9. What is role of regular expression and automata in the development of NLP system?
10. Differentiate between inflectional and derivational morphology?
11. Explain 2 step morphological parser with example
12. the performance of unigram, bigram or trigram. Which is better?
13. under-stemming and over-stemming

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14. Briefly explain the morphology operations: compounding, derivation, inflection, with example
15. What is finite state transducer (FST), and what is ITR (Interactive Text Response) used for in computational Linguistics? How is it different from a finite state automata?
16. Write a regular expression to find all instances of the determiner "the".

Module 3:

1. Differentiate between top-down and bottom-up parsing
2. What is Treebank?
3. Define Parsing. List the parsing algorithms
4. Explain the rule based POS tagging with example.
5. Explain the Tree Bank method with example
6. List the disadvantage of probabilistic CFG.
7. Explain why CFG is used to represent natural language in parsing.
8. Algorithm for HMM tagging.
9. ENGTWOL Adverbial-that Rule
10. Identify the head and morphological type (Noun Phrase, Verb Phrase, Adjective Phrase, Adverbial Phrase) of the given sentence segments.
11. Describe the simple Top Down Parsing algorithm
12. Describe open class words and closed class words with examples
13. Short note on Stemmer
14. Short note on POS tagging
15. Construct the parse tree for the given sentence, "The girl plucked the flower with long stick". Discuss the ambiguity arises from the parse tree.
16. Describe following potential problem in CFG such as: 1)Agreement 2)sub Categorization 3)Movement
17. Write a note Stochastic approach for POS tagging.
18. Describe augmented grammar in syntactic analysis.

Module 4(CO4):

1. Analyse the significance of Word Sense Disambiguation in NLP.
2. Explain the WSD method.

For the sentence "I had caught a bass yesterday" what is the definition of the sense of the word "bass" as per the Lesk algorithm, when using senses from wordnet?

    a) Any of various North American freshwater fish with lean flesh (especially of the genus Micropterus)

    b) the lean flesh of a saltwater fish of the family Serranidae

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    c) the lowest adult male singing voice

    d) non technical name for any of numerous edible marine and freshwater spiny-finned fishes.

3. List the semantic rules

4. Define semantic

5. What is difference between syntactic and semantic information?

6. WordNet for English language and its application

7. Relationship Extraction

8. Different techniques for sematic analysis of sentence

9. State the difference between hypernymy and hyponymy and give an example of each

10. State the difference between homonymy and polysemy and give an example of each

11. Analyze the significance of Word Sense Disambiguation in NLP. Explain any one WSD method

12. Explain Cross POS relation.

13. For each sentence, identify whether the different meanings arise from structural ambiguity, semantic ambiguity or pragmatic ambiguity?

    1. Time flies like an arrow

    2. He crushed the key to my heart

14. Why is semantic analysis hard? Justify the same.

15. Write FOPC for the following sentences:

    a) You can fool some of the people all of the time.
    b) All purple mushrooms are poisonous.

16. Explain the role of selectional restriction in semantic interpretation.

Module 5 (CO5):

1. Differentiate between a dialogue and the monologue. Give relevant examples for each scenario

2. Describe discourse segments.

3. Define cohension

4. Define reference resolution

5. Define discourse cohension

6. What do you meant by crosslingual

7. Briefly describe what is meant by reference resolution.

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8. Between the words eat and find which would you expect to be more effective in selection restriction-based sense disambiguation. Explain.

9. Explain the difference of discourse structure from other reference mechanisms

10. What is meant by the semantics of a natural language, and how this differs from the pragmatics?

11. Analyse the reference resolution with example.

12. List the types of referring expressions. Explain any 2 with example.

13. Explain Number Agreement and Person and Case Agreement Semantic Constraints

14. What is meant by knowledge representation?

15. Briefly describe what is meant by reference resolution.

16. Sophia Loren says she will always be grateful to Bono. The actress revealed that the U2 singer helped her calm down when she became scared by a thunderstorm while travelling by a plane. Apply the concept of coreference and give the coreference chains for the above paragraph.

17. Explain Entailment with a suitable example. List the sources of Entailment.

18. Explain Referring Expression and Referent, One-Anaphora

Module 6(CO6):

1. Name any 5 machine translation system. Write the main features of it.

2. Explain the transfer metaphor in Machine Translation

3. Define the following with respect to Information Retrieval: a) Vector Space Model b) Term Frequency   c) Inverse Document Frequency

4. Explain text summarization and multiple document text summarization with neat diagram

5. Analyse how statistical methods can be used in machine translation

6. Explain the architecture of an Information Retrieval system with a neat diagram

7. Explain the process of multi-document summarization.

8. Describe the different components of a typical conversational agent.

9. Explain vector space model of information retrieval

10. Describe transfer model of Machine Translation. List out its three phases

11. Explain direct machine translation

12. Explain the design features of IR with neat diagram.

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13. List different IR model. Explain classical IR models

14. What is sentiment analysis?

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DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year 2021-22
Question Bank

Course Name: Cloud Security
Course Code: 1UITDLC8022)
Year: Last Year (Sem-VIII)
Course Outcomes:
Upon completion of the course, the learners will be able to:
1. Explain different Cloud Computing Services and security aspects involved therein.
2. Describe infrastructure security for cloud.
3. Analyze cloud data security.
4. Apply different components of cloud network security.
5. Apply cloud application security.
6. Discuss legal and compliance domain in cloud security.

Module 01 (CO1)
1. Discuss NIST model of cloud security
2. Discuss deployment model and service model of cloud.
3. Explain challenges faced by cloud computing
4. Discuss benefits of cloud computing
5. Discuss cloud architecture
6. Explain virtualization in cloud computing
7. Discuss Cloud Deployment models
8. Explain Cloud Computing and list different advantages
9. Discuss different components in cloud architecture.
10. Discuss benefits and Challenges of Cloud Computing.
11. Discuss virtualization with type 1 and type 2 hypervisors.
12. Discuss different components of cloud architecture of cloud computing.

Module 02 (CO2)
13. Discuss cloud infrastructure components
14. Discuss the physical environment in cloud computing
15. Explain Networking and networking hardware in cloud computing.
16. Explain Type 1 and Type 2 hypervisors in virtualization.
17. Discuss Management plan within the context of cloud computing.
18. Discuss risk assessment and analysis of the cloud hosting environment.
19. Explain Virtualization risks in cloud infrastructure.
20. Discuss the Countermeasure strategies for the risk associated with cloud infrastructure.
21. Design and plan security control for physical and environmental protection
22. Design and plan security control for system and communication protection
23. Design and plan security control for virtualization systems protections.
24. Explain management of identification, Authentication and Authorization in cloud environments.
25. Explain RPO, RTO and RSL in Business requirements for cloud computing.

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26. Explain the Business continuity plan lifecycle with a neat diagram.
27. Explain different types of risk in Business continuity and disaster recovery.
28. With a neat diagram explain the Business continuity and disaster recovery plan.
29. Design and Plan required security controls in the cloud.

Module 03 (CO3)

30. Explain the cloud data lifecycle with a neat diagram.
31. How storage systems are different between cloud hosting models.
32. Design cloud data storage architecture.
33. How to design security strategies for data protection within a cloud environment
34. Rima wants to apply data security in the cloud. She comes to you , as a cloud security expert, explain to her the privacy acts and how they are related to the cloud environment.

35. Apply the concept of data right management and information right management in cloud data protection.
36. Consider " ABC" as a private cloud and apply the data discovery process in it and relate it to data classification.
37. Consider " ABC " as a public cloud and apply different data discovery techniques on it.
38. Consider " ABC" as a public cloud and apply different Classification techniques on it.
39. Sketch the cloud data lifecycle for SamrtV organization and discuss all phases.
40. SmartV is a very famous organization working as a public cloud to analyze different data discovery techniques on it.
41. Explain the storage system in the cloud .
42. with suitable examples, compare different data discovery techniques in the cloud.
43. Compare different classification techniques in the cloud.

Module 04 (CO4)

44. Discuss Whitelists and Blacklists in cloud
45. Discuss DMZ and Proxies in cloud Security
46. Discuss Software-Defined Networking in the cloud with different applications.
47. Sketch software-defined networking architecture and describe different components in it.
48. Explain types of SDN Control Plane.
49. Discuss Network Features Virtualization in the cloud.
50. Explain Virtual Network Functions.
51. Explain Overlay Networks and Encapsulation with suitable example
52. Discuss virtual private cloud with suitable examples.
53. How is a VPC isolated within a public cloud?
54. Explain the advantages of using a VPC instead of a private cloud?
55. Discuss the Network Address Translation with types in the cloud.
56. Consider two education organization SmartV and EduSmart , implement Remote Dial-in User
57. Authentication Service in any one and show how other organizations are going to access services.

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58. Sketch a Virtual Private Cloud for "Fin.com" organization and discuss different advantages.
59. Discuss Intrusion Detection and Prevention Systems,
60. Discuss Intrusion Prevention system in cloud.

Module 05 (CO5)

61. Discuss Awareness in Application Security
62. Discus AAA for cloud security.
63. Discuss data loss prevention in the cloud.
64. Explain Engress and Ingress filtering in the cloud.
65. Discuss Cloud Software Assurance and Validation in the cloud.
66. Consider the "Fin.com" application and apply the Secure Software Development Lifecycle for it.
67. Apply Identity and Access Management (IAM) Solutions for "SmartV" cloud and list different advantages.
68. Describe Verified Secure Software in the cloud.
69. List and describe Cloud Specific-Risk.
70. Discuss STRIDE and DREAD in the cloud.
71. Discuss Treacherous Twelve: The Top 12 Cloud Security Threats.

72. Discuss AAA framework for private cloud and list advantages of AAA.

Module 06 (CO6)

73. Discuss the legal requirements and unique risks within the cloud environment.
74. Discuss the Privacy Issues and Jurisdictional Variation in cloud security.
75. Discuss the International Legislation Conflicts specific to cloud security.
76. Explain Appraisal of Legal Risks Specific to Cloud Computing.
77. Discuss Legal Requirements and Unique Risks Within the Cloud Environment.
78. Discuss Appraisal of Legal Risks Specific to Cloud Computing.
79. Discuss Privacy Issues and Jurisdictional Variation in cloud security.
80. Describe Audit Processes and Methodologies.
81. Discuss types of Audit Reports.
82. Describe Internal and External Audit Controls.
83. Discuss the Impact of Requirements Programs by the Use of Cloud.
84. Discuss the Assurance Challenges of Virtualization and Cloud.

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DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year (2021-2022)   **EVEN SEM**

Subject: Augmented Reality - Virtual Reality (1UITDLC8033)

Class: LYIT   **SEM: VIII**

Question Bank for ESE

Module 1: Virtual Reality and Virtual Environments

1. Describe in your own words how VR is interactive, immersive and imaginative.

2. Describe virtual reality applications in the domain of Education.

3. Define is telepresence? Explain how it is different from VR.

4. Describe virtual reality applications in the domain of Engineering.

5. Explain the working of Digital Glove.

6. Describe virtual reality applications in the domain of Architecture.

7. Compare the functionality 5DT data glove with digital glove.

8. Describe virtual reality applications in the domain of Medicine.

9. Describe components of Virtual Reality with suitable diagram.

10. Describe virtual reality applications in the domain of Entertainment.

11. Describe the human haptic system.

12. Describe virtual reality applications in the domain of science.

13. Describe working of Visual, Auditory and Haptic Devices.

14. Describe virtual reality applications in the domain of Training.

15. What are gesture input devices?

16. How does the Pinch Glove work?

17. How does the CyberGlove work?

Module 2: Visual Perception & Rendering Visual Perception

18. Describe perception of depth with help of Google Cardboard.

19. Describe perception of motion.

20. Describe detection mechanisms with help of neural circuitry model Reichardt detector.

21. Describe various frame rates and comments on the corresponding stroboscopic apparent motion.

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22. Illustrate implications for VR with perception of stationarity.

23. Describe perception of colour with example of dress colour illusion.

24. Draw and explain CIE color standard with RGB triangle.

25. Describe probability distributions.

26. Describe Visual Rendering.

27. Describe Ray Tracing and Shading Models.

Module 3: Software Technologies

28. Describe VR Environment with Lights and Cameras.

29. How Cullers and Occludes methods applied on object?

30. Describe VR Toolkits.

31. Demonstrate VR software systems with input process, simulation process and rendering process.

32. Demonstrate geometry object with respect to orientation.

33. Describe Tessellations with types.

34. Apply the following terms in the context of virtual environment:
    World Space
    Objects - Geometry, Position
    Tessellated Data
    LODs
    Scripts

35. Compare Cullers with Occuludes.

Module 4: Interactive Techniques in Virtual Reality

36. Bounding volumes are not limited to collision detection, why?
37. Write short noted on Cameras, Perspective, Viewports and Projections.
38. Describe Interaction technique.
39. Classify the Wayfinding? and explain in brief.
40. Apply the Markless and marker tracking of AR.
41. What are scripts? Write a script for anyone scenario in VR.
42. Illustrate Design guidelines for 2D and 3D interfaces.
43. What is VR toolkit? Explain in brief.
44. What is User cantered manipulation technique?
45. Classify and illustrate the techniques used for selection of objects in virtual environment.
46. Explain 3D travel technique.
47. Write down the detail description of travel technique classification.
48. Explain the Bounding volumes hierarchies.

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Module 5: Introduction of Augmented Reality (AR)

49. Define the Challenges with AR and VR. Say your opinion to create even better AR and VR interaction methods.
50. Define Visualization Techniques for Augmented Reality.
51. Explain Target-Based travel Techniques.
52. Describe Application of AR and VR in Digital entertainment and education.
53. Illustration of the human gait cycle with respect to walking metaphor.
54. Demonstrate the real walking and redirected walking is carried put in travel technique.
55. Describe Classification by Task Decomposition.
56. Explain Hand-Based Grasping Techniques with example.
57. Short notes on AR systems and functionality.
58. Describe Gestural Commands.
59. Explain Multimodal System Control Techniques.
60. Write the difference between AR and VR.

Module 6: Applications and Development Tools

61. Describe 3D coordinate system.
62. Define Key issues for ar/vr displays.
63. Describe Key Challenges with AR.
64. What is the most important technical challenges in Virtual Reality?
65. Describe flow of designing and developing 3D interfaces.
66. Sketch 3D user interface for table tannis game.
67. Describe 3D user interface output hardwares 3D visual displays, 3D audio displays and 3D haptic displays.
68. Describe applications of VR in Digital Entertainment.
69. Describe live actions with VR capture.
70. Define the steps for how to build a VR project in Unity.

<u>**Subject Incharge**</u>

Dr. Vaishali Gaikwad

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DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year: 2021-22 (Even Semester)

Course: Explainable AI and Responsible AI (1UITDLC8031)

B.Tech. (Information Technology) – Semester VIII

Question Bank

1. Discuss the need of explaining the AI model.
2. Discuss the need for responsible AI.
3. Explain the concept of interpretability with suitable examples.
4. Identify the reasons that drive the demand for interpretability and explanations.
5. Explain the intrinsic and post-hoc methods of interpretability.
6. Explain the model-specific and model-agnostic methods of interpretability.
7. Explain the local and global methods of interpretability.
8. List and explain the various ways of representing results of the interpretation methods.
9. Explain global model interpretability on a modular level.
10. Explain local interpretability for a single prediction.
11. Explain properties of explanation methods.
12. Explain properties of individual explanations.
13. Explain properties of good explanations.
14. Interpret weight in linear regression for numerical feature, binary feature and categorical feature.
15. Feature importance in linear regression.
16. Examine the problems in linear regression.
17. Interpret weight in logistic regression for numerical feature, binary feature and categorical feature.
18. Compare linear regression and logistic regression models in terms of interpretability.
19. Differentiate GLM and GAM in terms of interpretability.
20. Relate issues in linear regression with GLM and GAM.

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21. Sketch the visualization of decisions of the decision tree.

22. Interpret decisions made by rule-based algorithms with suitable examples.

23. Explain PDP plot with suitable examples.

24. Interpret the information from the PDP plot of bike rental prediction problem.

25. Explain ICE plot with suitable examples.

26. Interpret the information from the PDP plot of bike rental prediction problem.

27. Explain C-ICE plot with suitable examples.

28. Interpret the information from the PDP plot of bike rental prediction problem.

29. Explain ALE plot with suitable examples.

30. Interpret the information from the PDP plot of bike rental prediction problem.

31. Discuss advantages and disadvantages of PDP plot.

32. Discuss advantages and disadvantages of ICE plot.

33. Discuss advantages and disadvantages of ILE plot.

34. Compare results of PDP plot with ILE plot.

35. Discuss LIME model for interpretability.

36. Explain the term Prototypes and Criticisms with suitable examples.

37. List various pros and cons wrt prototypes and criticism.

38. What is Example based explanation and list interpretation methods.

35. Explain model-agnostic interpretation methods in terms of model, explanation and representation flexibility.

36. Explain decision tree interpretation wrt feature Importance.

37. Taxonomy of Interpretability Methods.

38. Explain properties of Explanation Methods.

39. Explain properties of Individual Explanations.

40. Explain the Counterfactual Explanations with the help of Loan Approval System.

41. Illustrate methods and examples of Adversarial Interpretation.

42. Explain interpretability from the use of influential examples.

43. Explain the need for ethical decision making.

44. What are the challenges triggered by ethical decision making?

45. Explain various parameters contributing to ethical decision making.

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46. Apply ethics and responsibility on a particular case study (eg. healthcare).

47. Explain challenges in the use of responsible AI.

48. Enlist various parameters to design Responsible AI

49. Explain the need for Responsible AI

50. List various principles of Responsible AI

51. Explain the role of ethics and democracy in Governance Framework.

52. Discuss governance framework wrt ambiguity in decision making.

53. Draw diagram showing Qualities and principles of responsible AI.

54. Explain transparency achieved form interpretability.

55. Discuss ethical AI.

56. Discuss responsible AI.

57. With the help of case study, discuss ethical requirement in the use AI.

58. With the help of case study, discuss responsibility requirement in the use AI.

59. Discuss pros of explainability.

60. Discuss cons of explainability.

Ms. Reena Lokare

Subject Teacher

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Academic Year 2021-22
Department of Information Technology

FINANCE MANAGEMENT

Sr. No.	Question
Module - 1	**Overview of Indian Financial System**
1	Explain the meaning of Financial System and characteristics of financial system
2	Explain the role of financial system.
3	Explain financial system in India
4	What are the components of financial system?
5	What are the financial markets and what are the types of financial markets?
6	What the characteristics of financial market and role of the financial market?
7	Distinguish between capital market and money market.
8	Explain the various modes of fund raising in capital markets.
Module-2	**Concepts of Returns and Risks & Time Value of Money**
1	What is return? Explain the components of returns.
2	Explain the concept of risk. How it is calculated?
3	Explain how risk can be reduced.
4	What is normal distribution? How it can be used for calculating probability of stock returns?
5	What is coefficient of correlation? What is the relationship between covariance and coefficient of correlation?
6	Explain how diversification reduces risk.
7	Explain various motive for time preference for money
8	Explain an annuity? Why present value of annuity due is higher than annual compounding.
9	Explain normal distribution
10	Explain the concept of time value of money.
Module- 3	**Overview of Corporate Finance and Financial Ratio Analysis**
1	Explain finance management decisions.
2	Explain objective of corporate Finance.
3	Explain organization of finance function
4	Explain financial statements
5	Explain liquidity ratio.
6	Explain activity ratio
7	Explain profitability ratio
8	Explain capital structure ratio
9	Explain return ratio
10	Explain stock market ratio
11	Explain limitation of ratio analysis

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Module 4	Capital Budgeting and Working Capital Management
1	Explain importance of capital budgeting
2	Explain any one capital budgeting technique
3	Explain net present value method for capital budgeting
4	Explain internal rate of return method for capital budgeting.
5	Explain modified internal rate of return method for capital budgeting.
6	Explain importance of working capital management
7	**Explain the factor affecting working capital needs**
8	Explain the main objective of holding inventory.
9	Explain economic order quantity inventory management technique.
10	Explain cash management process
11	Explain inventory control systems.
12	Explain the three major aspects to management of receivables.
Module 5	Sources of Finance & Capital Structure
1	Explain the different sources of finance.
2	Explain hybrid financing
3	Explain sources of short term finance.
4	Explain risk involved in project financing.
5	Explain factor affecting capital structure of the company.
6	Explain net income approach for capital structure.
7	Explain net operating income approach for capital structure.
8	Explain Modigliani miller approach to capital structure
9	Explain the roll of capital structure
10	Explain elements of capital structure.
11	Explain short term finance and long term finance.
Module 6	Dividend Policy
1	Explain advantages of dividend policy
2	Explain MM approach in dividend policy
3	Explain importance of dividend policy
4	Explain types of dividend policy
5	Explain factor affecting dividend decision
6	Explain Walter model
7	Explain Gordon model
8	Explain dividend irrelevance MM approach.

Martand Jha
Course Incharge

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Department Information Technology/COMP/ETRX
Question Bank

Semester: VII (IT/COMP/AI-DS) Even-2021-2022

Subject: Project Management   Course code: 1UILC8041

Sr. No	Questions
	UNIT-I
1	Define project management.
2	Explain Negotiations and resolving conflicts in project.
3	Describe Project versus Operations.
4	List the necessity of Project Management.
5	Describe Triple Constraints of project.
6	Explain Project Life Cycles stages with diagram.
7	List the Role of Project Manager.
8	Explain Negotiations and Resolving Conflicts in project.
9	List Various Organization Structures and explain any one.
10	List advantages of Using Formal Project Management.
11	Describe Matrix organization structure.
12	List PM knowledge areas as per Project Management Institute (PMI) and explain any two.
13	Compare PLC and SDLC cycles.
	UNIT-II
14	List simple steps to start any project.
15	Explain the selecting project strategies.
16	List Three particularly common problems in organizations trying to manage multiple projects.
17	List types of Project Selection Models and explain any one.
18	Explain Numeric /Scoring Model for project selection.
19	Explain Nonnumeric Model for project selection.
20	Compare Numeric and Nonnumeric project selection models
21	Explain Project Portfolio Process(PPP)
22	List and explain the contents of Project Proposal.
23	List Stages of Team Development & Growth and explain any one.
24	Explain Forming and Performing stage development team
25	Explain Storming and Norming stage development team.
26	Explain Project Sponsor with example.
27	List the contents of Creating project Charter.

		UNIT-III
	28	Describe Project Planning and Scheduling.
	29	Explain Work Breakdown Structure (WBS).
	30	Draw the Work Breakdown Structure (WBS) of KJSIEIT
	31	Explain work package in WBS
	32	List advantages Work Breakdown Structure (WBS)
	33	Explain Linear Responsibility Chart or matric with example.
	34	Describe Interface Co-ordination and Concurrent Engineering in project management.
	35	List and explain project cast estimation techniques.
	36	Explain Top-Down Estimating and Bottom-Up Estimating Technique
	37	Explain Guesstimating and Delphi Technique.
	38	Explain PERT and CPM with example.
	39	Explain Gantt chart with example.
	40	Explain LOC and FP size oriented project estimation metrics.
	41	Activity on the Node (AON) and Activity on the Arrow (AON) with example.
	42	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)

		UNIT-IV
	43	Explain Crashing Project Time with example
	44	Explain AOA and AON network diagram methods with example
	45	Describe resource allocation in project management
	46	Explain resource loading in project management
	47	Identify the steps for resource loading
	48	Explain Resource leveling with example.
	49	Identify issues can be solved by Goldratt's *Critical Chain*
	50	Describe Goldratt's Critical Chain with example
	51	Identify the typical key stakeholders in a project
	52	Identify the Internal stakeholders in project management
	53	Identify the External stakeholders in project management
	54	Identify the steps involved in project communication plan
	55	Identify the basic elements in communication plan
	56	Identify the Several common mistakes to managing project risk
	57	Identify the step include in risk management processes
	58	**UNIT-V**
	59	Explain Planning, Monitoring and Controlling Cycle
	60	List and explain five monitoring policies
	61	Explain Information Needs and Reporting in project management
	62	Explain three distinct types of reports of project management
	63	List and explain the ways to Engage Project Stakeholders
	64	Explain Project Team in project management
	65	List various duties and responsibilities of project manager
	66	Explain earned value analysis for measuring overall performance of project

67	Assume that operations on a work package were expected to cost $1,500 to complete the package. They were originally scheduled to have been finished today. At this point, however, it actually expended $1,350, 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)
68	Explain Project Procurement Management
69	Explain project Audit.
70	List and explain different parts of the audit report.
71	Describe Audits and Project Audits.
72	Explain project procurement.
73	**UNIT-VI**
74	Introduce five practices of excellent Leadership in project management.
75	Introduce excellent Leadership styles
76	Describe the democratic leadership style.
77	Describe the coaching leadership style.
78	Explain Ethics in project
79	Explain ethical leadership in project management
80	Explain unethical leadership in project management
81	Explain multicultural project.
82	Explain virtual project.
83	Explain various type of project termination.
84	Describe termination by addition.
85	Describe termination by Integration.
86	Describe termination by Starvation
87	List and explain nontechnical project termination.
88	Explain termination process.
89	List and explain the elements covered in the final report.

Subject: Incharge
Dr. Mansing Rathod

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SAMPLE QUESTION BANK

Institute Elective: Environmental Management
Course Code: ECCILO 8029

No	Question
1	What are biomedical hazards?
2	Explain the significance of environmental management.
3	Describe sustainable development
4	What are the major environmental issues relevant to India?
5	Explain food chain and food web.
6	Describe energy scenario in India.
7	What are the different ecosystems? Explain forest ecosystem in detail.
8	Describe Global warming and its deleterious effects on environment.
9	Comment on Atomic hazards.
10	Explain Water Act.
11	Illustrate with example the endangered species in plants and animals.
12	Comment on biological hazards.
13	Comment on global environmental concerns.
14	What is carrying capacity?
15	What is a population in Ecosystem?
16	Explain TQEM.
17	Describe few man-made disasters and its consequences.
18	What is an ecological pyramid?
19	What are the biotic and abiotic factors of ecosystem?
20	What is Total Quality Management.
21	Define hazardous material. Explain the type of hazardous material and its way of disposal.
22	Explain what is meant by loss of biodiversity in environmental management.
23	Define Ecosystem.
24	What is Green House effect?
25	What is Hippo effect?
26	What are chemicals which causes Ozone layer depletion?
27	What was the reason for Bhopal Tragedy?
29	Describe the four main types of Natural resources and explain the significance of environmental management for such type.
30	What are the different ecosystems? Explain forest ecosystem in detail.
31	Describe briefly ISO 14000.
32	What are steps in EMS certification?
33	Describe the role and functions of government as a planning and regulating agency
34	Explain the significance of environmental management.
35	Explain Air Act.
36	Comment on environmental quality management.
37	Describe Environmental Protection Act.
38	Comment on Corporate Environmental Responsibility ?
39	Describe briefly ISO 14000.

40	What are steps in EMS certification?
41	Comment on Forest Act.
42	Describe Factories Act.
43	Give two examples of Endangered life-species.
44	Describe Environmental issues relevant to India
45	What is Chipco Movement?
46	Comment on Green peace movement.
47	Which are the different layers of Atmosphere?
48	Give reasons for Ozone layer Depletion.
49	Describe industrial disasters with examples.
50	Draw ecological Pyramid and describe the energy transfer with respect to law of thermodynamics.

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.