ECHELON INSTITUTE OF TECHNOLOGY

Roll No. 22BCA(DS)-034

First Sessional Test, March- 2024

BCA (General/Data Science) 2nd Semester

Interview and Group Discussion Skills(IGDS) (AUD 08)

Time: 90 Minutes **[Max Marks: 30]**

Instructions:

1. *Question No. 1. It is compulsory.*
2. *Answer any two questions from PART-B.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

CO-1 Students will analyze core ideas, apply reasoning, and use real-life examples to clearly communicate, driving discussions towards re.olution while effectively utilizing external content. Skills in articulation, fluency, listening, body language, and eye contact are emphasized.

CO-2 Learners will develop leadership qualities, influencing abilities, and teamwork skills, including positive attitude, rapport building, and active team participation.

PART-A

Question	Course Outcomes	Bloom Taxonomy Level	Marks
(i) Explain the significance of understanding the Core Idea when crafting quality content	[CO-1]	(BTL-2)	(1)
(ii) Explain the role of real-life instances in illustrating the effects of high-quality content across diverse industries	[CO-1]	(BTL-2)	(1)
(iii) Explain how data analysis supports the development of insightful content.	[CO-1]	(BTL-2)	(1)
(iv) Outline how reasoning can be applied to devise strategies for enhancing the quality of content.	[CO-1]	(BTL-2)	(1)
(v) Discuss innovative strategies for producing high-quality content in a niche market, providing reasoning to support their relevance and potential efficacy.	[CO-1]	(BTL-2)	(1)
(vi) Describe the importance of having a clear vision or goal when addressing issues.	[CO-2]	(BTL-1)	(1)
(vii) Relate how the strategic utilization of existing content from others can expedite efforts in resolving issues.	[CO-2]	(BTL-1)	(1)
(viii) Describe how reasoning can be employed to develop strategies that help in sustaining focus and motivation while resolving issues.	[CO-2]	(BTL-1)	(1)
(ix) Relate how vision or goal orientation contributes to driving innovation, providing reasoning to support your analysis.	[CO-2]	(BTL-1)	(1)
(x) Describe how maintaining vision or goal orientation contributes to effective problem-solving. Provide examples to justify your answer.	[CO-2]	(BTL-1)	(1)

Q.N.	Question	Course Outcomes	Bloom Taxonomy Level	Marks
2.	(a) Define the core idea of quality content? Provide examples of its impact on different industries or sectors.	[CO-1]	(BTL-1)	(5)
	(b) Explain how having a clear vision or goal can influence the problem-solving and decision-making processes in issue resolution. Provide examples to illustrate this concept.	[CO-2]	(BTL-2)	(5)
3.	(a) Explain the significance of grasping data when crafting high-quality content? Give examples of how analyzing and interpreting data aids in producing meaningful and influential content.	[CO-1]	(BTL-2)	(5)
	(b) Describe all the strategies for maintaining focus and motivation when working towards issue resolution or goal attainment.	[CO-2]	(BTL-2)	(5)
4.	(a) Explain the importance of understanding content for audience engagement and retention. Give examples to show how effectively communicating key ideas and concepts can strengthen connections with readers or viewers.	[CO-1]	(BTL-2)	(5)
	(b) Describe all the ways to encourage a culture of vision or goal orientation in an organization or team? Explain how these strategies can lead to alignment, collaboration, and accountability towards collective objectives.	[CO-2]	(BTL-1)	(5)

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F-32

Roll No. .....

First Sessional , March- 2024
BCA(Data Science) IV Semester
Programming in Java (BCA-DS-212)

Time: 90 Minutes **[Max Marks: 30]**

Instructions:
1. **Question *No.1 is compulsory.***
2. *Answer **any two** questions from PART-B.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

CO-1 *Specify simple abstract data types and design implementations, using abstraction functions to document them.*

CO-2 *Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity.*

PART-A

Q.No.	Question	Course Outcome	Bloom Taxonomy Level	Marks
1.(i)	Explain any two benefits of OOPs over procedural languages.	[CO-1]	[BTL-1]	(1)
(ii)	How Polymorphism can be implemented in Java?	[CO-1]	[BTL-3]	(1)
(iii)	How multiple inheritance is implemented in Java?	[CO-1]	[BTL-3]	(1)
(iv)	State the difference between Expression and Statement.	[CO-2]	[BTL-2]	(1)
(v)	What is the role of JIT?	[CO-2]	[BTL-2]	(1)
(vi)	What is use of Final Keyword?	[CO-2]	[BTL-2]	(1)
(vii)	Why Finalize() method is used?	[CO-2]	[BTL-2]	(1)
(viii)	How are object reference variables assigned?	[CO-2]	[BTL-3]	(1)
(ix)	What is Abstraction?	[CO-1]	[BTL-1]	(1)
(x)	Name any two applications of OOPs.	[CO-1]	[BTL-1]	(1)

PART-B

Q.No.	Question	Course Outcome	Bloom Taxonomy Level	Marks
2.(a)	Write a program for Constructor overloading using class and objects in Java.	[CO-1]	[BTL-3]	(5)
(b)	Write a program to implement Overriding concept.	[CO-2]	[BTL-3]	(5)
3.(a)	Explain Abstract classes.	[CO-1]	[BTL-1]	(5)
(b)	Explain Inheritance and its types.	[CO-2]	[BTL-1]	(5)
4. (a)	What is the difference between Pass by value and Pass by reference?	[CO-1]	[BTL-2]	(5)
(b)	Define Garbage collector working and its important methods?	[CO-2]	[BTL-1]	(5)

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(40)

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Roll No. 22BCA(DS)-034

First Sessional Test, March- 2024

Bachelor of Computer Application -DS IV Semester

SOFTWARE TESTING (GEC-DS-5)

Time: 90 Minutes **[Max Marks: 30]**

Instructions:

1. Question No. 1. It is compulsory.
2. Answer any two questions from PART-B.
3. Different sub-parts of a question are to be attempted adjacent to each other.

CO-1 *The Student will be able to understand the concept of Software.*

CO-2 *The Student will be able to understand the concept of how Software works.*

PART-A

1.

(i) Define Software Testing. [CO-1][BTL-1](1)
(ii) Why testing any Software is important? [CO-1][BTL-2](1)
(iii) Describe psychology of testing. [CO-1][BTL-2](1)
(iv) Explain limitations of testing. [CO-1][BTL-2](1)
(v) Define debugging. [CO-1][BTL-1](1)
(vi) Describe unit testing. [CO-2][BTL-2](1)
(vii) What is black box testing? [CO-2[BTL-2](1)
(viii) Difference between Alpha , Beta and Gamma Testing. [CO-2][BTL-2](1)
(ix) What is system testing? [CO-2][BTL-2](1)
(x) Explain Branch Coverage Testing. [CO-2][BTL-2](1)

PART-B

2. (a) Explain software testing with importance & limitation. [CO-1][BTL-2](5)
(b) Explain Black Box and White Box testing with example. [CO-2][BTL-2](5)

3. (a) Explain Debugging in detail. [CO-1][BTL-2](5)
(b) Explain mutation testing with example in detail. [CO-2][BTL-2] (5)

4. (a) Compare the verification & validation activities. [CO-1][BTL-3](5)

(b) A program reads an integer number within the range [1,100] and determines whether it is a prime number or not. Design test cases for this program using BVC, robust testing, and worst-case testing methods. [CO-2][BTL-3] (5)

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Roll No. 22-BCA(DS)-034

First Sessional Test, March- 2024
B.C.A (Data Science) IV Semester
SCIENTIFIC R PROGRAMMING (BCA-DS-213)

Time: 90 Minutes **[Max Marks: 30]**

Instructions:
1. Question No. 1. It is compulsory.
2. Answer any two questions from PART-B.
3. Different sub-parts of a question are to be attempted adjacent to each other.

CO-1 *Understand basic concepts such as data type and index and use them in their work.*

CO-2 *Demonstrate use of basic functions. Conceptualize and create loops to solve different types of problems.*

PART-A

Q.N.		Question	Course Outcomes	Bloom Taxonomy Level	Marks
1.	i	What are special values in R?	CO-1	BTL-1	1
	ii	Define factors in R with example.	CO-1	BTL-1	1
	iii	What is Recursive list? Give example.	CO-1	BTL-1	1
	iv	How do you manipulate vectors and numbers in R?	CO-1	BTL-2	1
	v	What are lists and data frames in R?	CO-1	BTL-2	1
	vi	Explain recursive function in R with example.	CO-2	BTL-2	1
	vii	Explain working of Switch statement in R.	CO-2	BTL-2	1
	viii	Define objects in R.	CO-2	BTL-1	1
	ix	What are Reference Classes?	CO-2	BTL-1	1
	x	Define Arrays in R.	CO-2	BTL-1	1

PART-B

Q.N.	Question	Course Outcomes	Bloom Taxonomy Level	Marks
2.	(a) Explain various objects used in R.	CO- 1	BTL-2	5
	(b) What are functions in R. Explain apply(), sapply(), lapply() and tapply() functions.	CO- 2	BTL-2	5
3.	(a) What is the role of arguments and return values in functions.	CO- 1	BTL-1	5
	(b) Write a program to implement inheritance in R.	CO- 2	BTL-3	5
4.	(a) Explain array, matrix and dataframe in R.	CO- 1	BTL-2	5
	(b) Explain S3 and S4 classes in R with example.	CO- 2	BTL-2	5

ECHELON INSTITUTE OF TECHNOLOGY, FARIDABAD

Roll No. 22-BCA(DS)-03

First Sessional Test, March- 2024
BCA (Data Science) IV Semester
Computer Network (BCA-DS-214)

Time: 90 Minutes **[Max Marks: 30]**

Instructions:
1. Question No. 1 It is compulsory
2. Answer any two questions from PART-B
3. Different sub-parts of a question are to be attempted adjacent to each other.

CO-1 To develop an understanding of modern network architecture from a design and performance perspective.

CO-2 To introduces the student to the major concept involved in wide area network and local area network

PART-A

Q.N.		Question	Course Outcomes	Bloom Taxonomy Level	Marks
1.	i	Define Networking.	CO-1	BTL-1	1
	ii	What are various methods of Communication?	CO-1	BTL-1	1
	iii	What is the role of a router in a computer network?	CO-1	BTL-2	1
	iv	What is HUB and switches?	CO-1	BTL-1	1
	v	Define Gateway.	CO-1	BTL-2	1
	vi	What is an FTPs?	CO-2	BTL-1	1
	vii	What is Internet?	CO-2	BTL-2	1
	viii	Explain the difference between TCP and UDP protocols.	CO-2	BTL-2	1
	ix	Explain IP Addressing.	CO-2	BTL-2	1
	x	What is Network Protocols?	CO-2	BTL-2	1

PART-B

2.	(a) Explain the functions of 7-layers of OSI model with diagram .	CO- 1	BTL-1	5
	(b) Compare IPv4 and IPv6 addressing. What are the advantages of IPv6 over IPv4?	CO- 2	BTL-2	5
3.	(a) Describe network topology.	CO- 1	BTL-1	5
	(b) Explain the differences between LAN ,MAN and WAN using diagram and examples.	CO- 2	BTL-2	5
4.	(a) Write a short notes on the following : (i) SMTP (ii) TELNET	CO- 1	BTL-2	5
	(b) Write a short notes on the following : (i) ARPANET (ii) TCP/IP	CO- 2	BTL-2	5