

JALPAIGURI GOVERNMENT ENGINEERING COLLEGE
[A GOVERNMENT AUTONOMOUS COLLEGE]
JGEC/B.TECH/ IT/PE-IT702A/ 2024-25
2024
INTERNET TECHNOLOGY

Full Marks: 70

Times: 3 Hours

The figures in the margin indicate full marks.
Candidates are instructed to write the answers in their own words as far as practicable.

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer *all* questions.

5x2=10

- | | | |
|----|--|---|
| 1. | What is the full form of HTTP? | 2 |
| 2. | What is the purpose of DNS in internet technology? | 2 |
| 3. | What is the full form of IP in "IP Address"? | 2 |
| 4. | What does the term "bandwidth" refer to in networking? | 2 |
| 5. | What is the role of a router in a network? | 2 |

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any *four* questions

4x15 = 60

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|-----|--|---|
| 6. | i) How can you create a basic HTML form that includes input types like text boxes, text areas, checkboxes, list boxes, radio buttons, password fields, popup menus, and hidden fields? | 5 |
| | ii) How are submit and reset buttons implemented in an HTML form, and what is their role in the form's functionality? | 5 |
| | iii) How do the different input types in an HTML form enhance user interaction and facilitate effective data submission? | 5 |
| 7. | i) How can you design a socket program where the client sends lowercase letters, and the server responds with uppercase letters? | 5 |
| | ii) What are the encoding and decoding processes used in the socket communication, and how do they ensure proper data conversion? | 5 |
| | iii) What challenges might arise related to character sets in socket communication, and what measures can be taken to ensure data integrity? | 5 |
| 8. | i) Discuss the role of metadata in search engine optimization (SEO) and website ranking. | 5 |
| | ii) Describe the concept of web cookies and discuss the privacy concerns surrounding their use. | 5 |
| | iii) Discuss the key principles and benefits of RESTful APIs in web development. | 5 |
| 9. | i) How can you develop an Applet to display an analog clock with hour, minute, and second hands? | 5 |
| | ii) What is the programming logic used to achieve smooth movement and real-time updates in the analog clock? | 5 |
| | iii) How can customization features like color and style options be implemented in the analog clock applet? | 5 |
| 10. | i) Define TCP/IP and explain its importance in Internet communication. | 5 |
| | ii) What is DNS and how does it work? Explain the process of resolving a domain name. | 5 |
| | iii) Explain the concept of cookies and their role in user tracking and personalization on the web. | 5 |
| 11. | i) What is a firewall? Discuss its role in network security. | 5 |
| | ii) Compare and contrast IPv4 and IPv6 addressing schemes. Highlight the advantages of IPv6. | 5 |
| | iii) Explain the concept of responsive web design and its importance in today's multi-device usage scenario. | 5 |
| 12. | i) How can you create a simple calculator application using Java RMI that performs basic arithmetic operations? | 5 |
| | ii) Explain the client-server interactions and the process of remote method invocation in a Java RMI-based application. | 5 |
| | iii) What are the advantages of using Java RMI for building distributed applications? | 5 |

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2024

PROJECT MANAGEMENT AND ENTREPRENEURSHIP

Full Marks: 70

Times: 3 Hours

*The figures in the margin indicate full marks.
Candidates are instructed to write the answers in their own words as far as practicable.*

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer *all* questions

1. Define the term "Project Management".
2. What is Project Classification?
3. What is strategic management
4. Define "The Sacred Cow"
5. What is Demand Forecasting?

5x2=10

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any *four* questions

6. (a) Explain about the responsibilities of a project Manager.
(b) Discuss about Project Management as a Profession.
(c) Describe about the 7S of Project Management.
7. (a) What do you know about Project Life Cycle?
(b) Explain about project selection and criteria
(c) List and explain the numeric models of project selection.
8. (a) Describe about Project Initiation and Resource Allocation.
(b) Why is Resource Allocation Needed?
(c) What are the levels of Demand Forecasting?
9. (a) What do you know about delegation of authority?
(b) Explain about Building Project Team.
10. (a) What are the procedures for idea generation?
(b) What do you know about Corporate Appraisal?
(c) Explain about the strengths and Weakness of Corporate Appraisal.
11. (a) Explain about Product Planning and development Process
(b) What are the Causes of New Product Failure?
12. (a) Who is an entrepreneur?
(b) What characteristics define an entrepreneur?
(c) What are the major obstacles in starting a company and becoming entrepreneur?

4x15 = 60

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2024

SOFT COMPUTING

Full Marks: 70

Times: 3 Hours

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GROUP-A

[OBJECTIVE TYPE QUESTIONS]

Answer *all* questions

- ✓1. State De Morgan's law property of Fuzzy set.
- ✓2. Define α -cut property of fuzzy set.
- ✓3. Define Bias and threshold.
- ✓4. What is Fitness Function in GA?
- ✓5. What is multi-point Crossover?

5x2=10

GROUP-B

[LONG ANSWER TYPE QUESTIONS]

Answer any *four* questions

- ✓6. i) Let $U = \text{Flowers} = \{A, B, C, D, E, F\}$ be a universe on which two fuzzy sets, one of Beautiful Flowers and the other one of Fragrant flowers are defined as shown below:
 $P = \text{Beautiful Flowers} = 0.3/A + 0.9/B + 1.0/C + 0.7/D + 0.5/E + 0.4/F + 0.6/G$
 $Q = \text{Fragrant Flowers} = 1.0/A + 1.0/B + 0.5/C + 0.2/D + 0.2/E + 0.1/F + 0.4/G$

4x15=60
10

Compute the Fuzzy sets $P \cup Q, P \cap Q, P', Q', P - Q, P \oplus Q$.

- ✓7. ii) What do you mean by Fuzzy if-then rule?
- ✓i) Compare supervised and unsupervised learning of ANN.
- ✓ii) Discuss architectures of Feedforward Neural Networks, Recurrent Neural Networks (RNNs) & Convolutional Neural Networks (CNNs).
8. i) Let $X = \{a, b, c, d\}, Y = \{1, 2, 3, 4\}$
 $A = \{(a, 0), (b, 0.8), (c, 0.6), (d, 1)\}$
 $B = \{(a, 0), (b, 0.8), (c, 0.6), (d, 1)\}$

5
5
3+3+4
10

Determine the implication relation

1. if x is A THEN y is B
2. if x is A THEN y is B ELSE y is C.

- ✓9. ii) Differentiate between biological neuron vs. ANN.
- i) Find the max-min composition of the following fuzzy sets.

5
10

	y1	y2	y3	y4	y5		z1	z2	z3	z4
$R = x1$	0.1	0.2	0	1	0.7	$S = y1$	0.9	0	0.3	0.4
$x2$	0.3	0.5	0	0.2	1	$y2$	0.2	1	0.8	0
$x3$	0.8	0	1	0.4	0.3	$y3$	0.8	0	0.7	1
						$y4$	0.4	0.2	0.3	0
						$y5$	0	1	0	0.8

- ii) Define Level set of Fuzzy set.

5

10. i) Write short notes on Centre of Sum(Cos) Method and Mean of Maxima Method of defuzzification. 5+5
ii) What do you mean by fuzzy linguistic variables? 5
11. i) Explain in detail the architecture of Mc Culloch – Pitts neuron model and also realize 2 input AND gate using the above neuron model. 10
ii) Discuss about the various types of Soft Computing techniques. 5
12. i) Develop the training algorithm to classify the logical AND function through Hebb learning rule. Show a proper truth table of the training. 10
ii) What is Reproduction in GA? Define Mitosis and Meiosis. 5
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2024

SOFT SKILL AND INTERPERSONAL COMMUNICATION

Full Marks: 70

Time: 3 Hours

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Candidates are instructed to write the answers in their own words as far as practicable.

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer *all* questions:

- ✓1. What are the key aspects of effective communication? 5x2=10
- ✓2. How can storytelling enhance the effectiveness of a technical presentation? 2
- ✓3. Name three soft skills that are crucial for successful project management in engineering. 2
- ✓4. What role does non-verbal communication play in conveying messages? 2
- ✓5. Why is it important for engineers to use visual aids in their presentations? 2

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any *four* questions:

- ✓6. Define the term "Soft Skills." Discuss the importance of Soft Skills in the professional world. 4x15=60
5+10
- ✓7. Discuss the importance of teamwork in achieving project objectives for IT engineers. How does effective teamwork contribute to the timely and successful completion of engineering projects? 10+5
8. "Leadership is not just one skill but a combination of various skills." Discuss. 15
- ✓9. Discuss the role of group discussions in enhancing collaborative problem-solving skills for IT engineers. How do group discussions foster a culture of teamwork and innovation? 10+5
10. Discuss the importance of effective interpersonal communication skills for IT engineers in a collaborative work environment. 15
11. Examine the significance of communication skills in IT engineering interviews. How can candidates effectively demonstrate their ability to communicate complex technical concepts to technical and non-technical interviewers? 10+5
- ✓12. Discuss the key elements of an effective technical presentation for IT engineers. How can engineers tailor their presentations to suit both technical and non-technical audiences? 10+5

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JALPAIGURI GOVERNMENT ENGINEERING COLLEGE

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2024

MOBILE COMPUTING

Full Marks: 70

Times: 3 Hours

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GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer *all* questions

1. What are two different kinds of mobility? 5x2=10
2. Define HLR. 2
3. What is the need for routing? 2
4. What do you mean by roaming? 2
5. What is MSC? 2

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any *four* questions

6. i) Discuss briefly the code division multiplexing techniques. (ii) What are the limitations of mobile computing? 4x15 = 60
8+7
7. i) What is Handoff? What are the reasons for handoff? 8
ii) Describe different types of handoff. 2+5
8
8. i) Describe about the different components of wireless communication system. 8
ii) Write about the characteristics of 3G & 4G technology. 7
9. i) What is frequency reuse? Describe different types of frequency reuse. 5
ii) Define dynamic channel allocation and types of dynamic channel allocation. 5
iii) Describe about the applications of mobile computing. 5
10. i) Explain the working of GSM with the help of a neat diagram. 8
ii) Write three benefits of Wireless Access Protocol(WAP). 3
iii) write the limitations of conventional TCP(for wired network) to be used in mobile networks. 4
11. Write short notes. 5x3
i) Architecture of VANET ii) HTTP iii) ALOHA

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