

**B.E. COMPUTER SCIENCE & ENGINEERING 3<sup>rd</sup> YEAR 2<sup>nd</sup> SEMESTER EXAM- 2021****INTERNET TECHNOLOGIES**

Exam duration: 3 hours

Full Marks: 70

The answer scripts should be written by YOU  
Please write your name and roll no on all pages  
Your scanned answer scripts should reach us in time

**Group A (Total Marks: 30) [CO1 and CO2]****Answer any TWO questions.**

1.	a) Define mobility binding w.r.t IPv6. b) Why and how would you secure binding messages? c) State the different addressing formats of IPv6. Which ones of them are utilized in supporting mobility? How? d) Do you think proxy neighbour advertisement mechanism is better than address resolution protocol? Give reasons in the context of node mobility. e) What will happen if (i) the correspondent node fails to receive a binding update message, (ii) a home agent fails to receive a binding update message?	2+3+4+3+3=15
2.	a) Discuss adaptive streaming. b) State the features of adaptive streaming that are similar to the progressive download and the features dissimilar to progressive download. c) Draw the internet protocol stack used for progressive download based applications. d) How does streaming of audio differ from video if quality of experience is a prime concern?	3+5+2+5=15
3.	a) Why is UDP not sufficient for video streaming applications? Does TCP address those issues? b) What is the most important quality of service parameter for multimedia streaming? How does RTP address that? c) Is RTSP push based or pull based? Give reasons.	6+(2+4)+3=15

**Group B (Total Marks: 10) [CO3]****Answer any ONE question.**

4.	a) "HTTP is a client driven protocol."-Discuss about one strategy adopted to overcome this limitation, especially for smartphone-based clients. b) Discuss about the significance of MIME types for HTTP based applications. Give corresponding code snippets of at least one type.	4+3+3=10
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	c) How is caching decided by the different versions of the HTTP protocol? What do you store in cache here?	
5.	a) How does HTTP and websocket relate in order to establish a connection? Give code snippets to explain the connection setup. b) Given that a web application is developed using the Spring framework, give use cases corresponding to HTTP response codes 3XX, 4XX and 5XX. c) Compare between websocket and HTTP2.0.	3+3+4=10

**Group D (Total Marks: 20) [CO4]**

**Answer any ONE question.**

6.	<p>An online apparel store sells different types of apparels. When a customer enters a generic name, the application asks for other details such as brand names and price ranges. It then displays suitable apparel matching the user's requirements or says "No items are available".</p> <p>a) Write a servlet to handle the request from the client along with required annotations. Highlight how states are handled.</p> <p>b) Create a filter to intercept both get and post requests from a particular webpage for data validation.</p> <p>c) How will you incorporate dependency injection in this application?</p> <p>d) How can you explicitly create a new session?</p>	10+4+4+2=20
7.	<p>A restaurant deploys a web application for taking online orders. The team plans to provide a list of customized platters for home delivery. Answer the following if the application is developed using the Spring framework.</p> <p>a) How can dependency injection be implemented in this application?</p> <p>b) If a customer requests for a particular 'Thali' (platter), write suitable controller function to check if that is available or not. Let's assume that you have a java bean named 'Thali' and corresponding database entry for that. Justify.</p> <p>c) Briefly explain the significance of '@SpringBootApplication' in the context of the mentioned application.</p> <p>d) Discuss about a design pattern apart from dependency injection utilized by Spring. Show how could it be realized w.r.t the current application.</p>	5+6+5+4=20

**Group E (Total Marks: 10) [CO5]**

**Answer any ONE question.**

8.	<ul style="list-style-type: none"> <li>a) What is confidentiality?</li> <li>b) How could it be provided through the web container?</li> <li>c) What is declarative security? Is there any other way of securing web applications?</li> </ul>	2+6+2=10
9.	<ul style="list-style-type: none"> <li>a) Explain the role of '<i>http.csrf().disable();</i>' w.r.t Spring security.</li> <li>b) How are the key pairs kept for HTTPS services in the context of the Spring framework?</li> <li>c) What is the difference between authentication and authorization? Are they handled separately in Spring? Explain with suitable code snippets.</li> </ul>	3+1+6=10