(c) The following JavaScript program has three errors. Find and correct it. Finally, show the output. CLO , [3] C2

```
<script>
 onerror = errorHandler
 document.writ("Welcome to this website") // Deliberate error
 function errorHandler(message, url, line)
{
   out = "Sorry, an error was encountered.\n\n";
   out += "Error: " + message + "\n";
   out += "URL: " + url + "\n";
   out += "Line: " + line + "\n\n";
   out = "Click OK to continue.\n\n";
   alert(out);
   return false;
 }
</script>
```

(d) Using the arguments array, modify the following JavaScript program- CLO5, [3] C3

```
script>
displayItems("Dog", "Cat", "Pony", "Hamster", "Tortoise")
function displayItems(v1, v2, v3, v4, v5)
{
document.write(v1 + "<br>")
document.write(v2 + "<br>")
document.write(v3 + "<br>")
document.write(v4 + "<br>")
document.write(v5 + "<br>")
}
</script>
```

=== Good Luck ===

(c) Consider the following IPV6 addresses and convert the addresses accordingly. CLO1, C2 [1]

i. FE80:0000:0000:0000:0123:4567:89AB:CDEF (compress the address)

ii. FDFF::/7 (expand the address)

(d) Explain tunneling technique for IPV4 to IPV6 migration? What is unique local IPV6 address? CLO1, C2 [2+1]

4. (a) What are the limitations of Network Address Translations (NAT)? CLO1, C2 [2]

(b) Consider the following network topology in Figure 2. Find the mac source and IP addresses for the data transmission from B to D. CLO3, C3 [3]

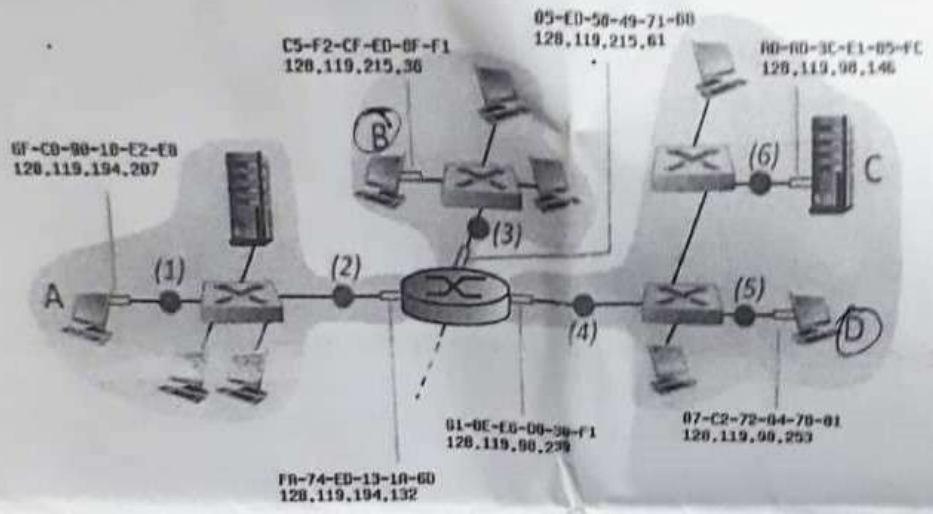

Figure 2: MAC-IP Source

(c) Compare between OSI and TCP/IP reference model. CLO3, C2 [2]

(d) Briefly explain leaky bucket traffic shaping algorithm with suitable diagram. CLO1, C2 [3]

STAMFORD UNIVERSITY BANGLADESH

Department of Computer Science and Engineering
Final Examination, Spring 2023 Semester
CSE 415: Computer Networks
CT: Md. Towhidul Islam Robin
Date and Time: 14/06/23 and 1.30 PM-4.00 PM

Batch: CSE-S-72-(A+C) & CSE-S-73-A
Duration: 2 Hours 30 Minutes

Campus: Siddeswari
Full Marks: 40

*(There are **Four** questions. **Answering all of them is mandatory**. Figures in the right margin indicate CLOs and marks. Writing anything on the question paper is strictly prohibited.)*

1. (a) Suppose, two parties are communicating using Selective Repeat ARQ where header size is m=3. During transmission, ACK 2 is lost and frame 6 is damaged. Is it possible to recover the loss appropriately? Show the frame transmission using block diagram with appropriate explanation. CLO4, C4 [5]

   (b) Assume that, in a Stop-and-Wait ARQ system, the bandwidth of the line is 4 Mbps, and 1 bit takes 5 seconds to make a round trip. What is the bandwidth-delay product? If the system data frames are 2500 bits in length, what is the utilization percentage of the link? What is the utilization percentage of the link if we can send up to 5 frames before stopping and worrying about the acknowledgments? CLO2, C3 [2]

   (c) A corporate network has many hosts but only a small number of public IP addresses. How can you incorporate with this situation? Give an example with suitable diagram with IP addresses assignments. CLO1, C2 [3]

2. (a) Consider the following subnet in Figure 1. Construct a Sink tree and Reverse Path Forwarding Tree for node L and also calculates how many packets will be generated while broadcasting. CLO3, C3 [5]

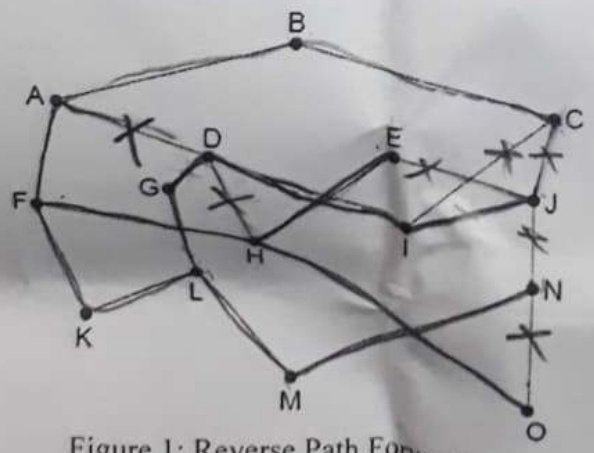

Figure 1: Reverse Path Forwarding

(b) Most websites developed with PHP contain multiple program files that will require access to MySQL and will thus need the login and password details. Therefore, it's sensible to create a single file to store these and then include that file wherever it's needed. Now, create a PHP program named **login.php** by including the username as root and password as mysql. Besides this, add character set and additional options needed to access the database. CLO3, C6

3. (a) Write a JavaScript program that uses arguments array to take a series of strings passed to it and return them as a single string. It converts every character in the arguments to lowercase except for the first character of each argument, which is set to a capital letter. CLO4, C6 [4]

(b) What is the output of the following JavaScript program? CLO6, C2 [3]

```
<script>
test()
if (typeof a != 'undefined') document.write('a = ''' + a + '''<br>')
if (typeof b != 'undefined') document.write('b = ''' + b + '''<br>')
if (typeof c != 'undefined') document.write('c = ''' + c + '''<br>')
function test()
{
a = 123
var b = 456
if (a == 123) var c = 789
}
</script
```

(c) Declare a JavaScript array named animals with elements such as cat, dog, cow, horse, elephant. Calling a built-in function on the array, find out where an element can be found. CLO5, C6 [3]

4. (a) The prototype keyword of JavaScript can save a lot of memory. At first, create javascript program that does not use prototype keyword. Secondly, create the same program using prototype keyword. CLO5, C2 [4]

STAMFORD UNIVERSITY BANGLADESH

Department of Computer Science and Engineering

Final Term Examination, Spring 2023 Semester

CSE 311 : Visual Internet Programming

CT: Tamjid Rahman

Date and Time: ... /06/2023 and 01:30 PM - 04:00 PM

Batch: CSE-S-72-A,B,C, CSE-S-70-A

Duration: 2.5 hours

Campus: Siddeswari

Full Marks: 40

*(There are **Four** questions. **Answering all of them is mandatory.** Figures in the right margin indicate CLOs and marks. Writing anything on the question paper is strictly prohibited.)*

1. (a) The following table named classics containing five author names, their book titles, book types and publication years. Find out and justify whether the classics table satisfy first, second and third normal form. CLO3, CLO1, C5 [5]

Author	Title	Type	Year
Mark Twain	The adventures of Tom Sawyer	Fiction	1876
Jane Austen	Pride and Prejudice	Fiction	1811
Charles Darwin	The Origin of Species	Nonfiction	1856
Charles Dickens	The Old Curiosity Shop	Fiction	1841
Shakespeare	Romeo and Juliet	Play	1594

Table: 1

(b) What is the result of the following MySQL command? CLO3, C1,C2 [5]

EXPLAIN SELECT * FROM accounts WHERE number='12345';

Briefly describe the information it provides.

2. (a) Let's assume that you are working for a wildlife park and need to create a database to hold details about all the types of cats it houses. You are told that there are nine families of cats—Lion, Tiger, Jaguar, Leopard, Cougar, Cheetah, Lynx, Caracal, and Domestic—so you'll need a column for that. Then each cat has been given a name, so that's another column, and you also want to keep track of their ages, which is another. Of course, you will probably need more columns—perhaps to hold dietary requirements, inoculations, and other details, but for now that's enough to get going. A unique identifier is also needed for each animal, so you also decide to create a column for that called id. CLO3, C2 [5]

Show the PHP code to create a MySQL table to hold this data.

(b) Consider a network with 1500 routers. If there is no hierarchy, how many router table entries are required? If the network is partitioned into 15 clusters each with 5 regions where each region contains 20 routers, how many router table entries are required? CLO3, C3 [2]

(d) Consider that the link between router A and router B is cut down. Now, calculate another 4 exchanges for that situation to prove the count to infinity problem. CLO3, C3 [3]

Table 1: Count to Infinity

A	B	C	D	E
*	3	6	8	11

3. (a) Imagine that you are trying to visit mail.sub.com, but you don't remember the IP address the web-server is running on. Assume the following records are on the TLD. CLO4, C3 [3]

Table 2: DNS Record

DNS server:
(www.sub.com, dns.enterprise.com, NS, IN)
(dns.sub.com, 192.168.0.1, A, IN)
(www.sub.com, east1.sub.com, CNAME, IN)
(east1.sub.com, 111.5.0.4, A, IN)
(mail.sub.com, 10.2.174.9, A, IN)
(sub.com, mail.sub.com, MX, IN)

i. In the example given in the problem, what is the IP address of the DNS server for sub.com?

ii. When you make the request for www.enterprise.com, what is the IP address the TLD server returned to your local DNS server?

iii. Assume that the sub.com website is actually hosted on east1.sub.com, what type of record is needed for this?

iv. Now imagine we are trying to send an email to admin@sub.com, and their mail server has the address mail.enterprise.com. What type of record will we receive? What will be the contents (name, value) of the returned record?

(b) Suppose you want to access www.mail.sub.com from your web browser. Write down the steps of getting IP of the website using iterative DNS search using the resource records from Table 3. CLO4, C3 [3]

Table 3: Resource Record

Server Name	IP
Root Server	100.10.0.1
Local DNS	192.168.0.5
TLD Sever	181.0.0.1
Authoritative Server (TYPE A)	8.8.8.8
Authoritative Server (TYPE MX)	15.10.0.4