FN

SAVITRIBAI PHULE PUNE UNIVERSITY

125-NT

Sem:1 20320

Seat No 16224
Stk. No 3609499
Sub. NT
Centre 338

mination	MCA - Oct/NOV - 22
& Date	Saturday - 11-03-2
ject	Network - - - Technology.
er No.	125 - IT15 Sec -
dium nswer	English.
eat No. : In figure & In words	
	+ + + 1 6 2 2 4
	one six two two four.
ature of ndidate	
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nter No.	+ 0 3 8 8

Instruction to Candidate

1. Candidate has to confirm seat number, subject and centre number printed on Bar code and Write it on attendance sheet.
   विद्यार्थ्याने प्रथम बार कोडवरील आसन क्रमांक, विषय व केंद्र क्रमांक तपासुन योग्य असल्याची खात्री करावी आणि उपस्थिती पत्रकावर नोंदवावी.
2. Paste Bar Code in prescribed space.
   उत्तरपत्रिकेवरील विहित जागेतच बार कोड लावावा.
3. Do not write anything on bar code sticker, otherwise it will be treated as unfairmeans.
   बार कोड स्टिकरवर काहीही लिहू नये, अन्यथा परीक्षा गैरप्रकार समजला जाईल.

Main Answer Book	No. of Supplements	Total
1	+ 0	= 1

Specific remarks of Centre conductor regarding malpractice (in Red ink)

Total	Marks in Figure	Marks in Words	Sign
Examiner	011	Eleven	mfy
Moderator			

Q. No.	Examiner	Moderator
1	0 1	
2	0 2	
3	0 1	
4	0 2	
5	0 4	
6		
7		
8		
9		
10		
11		
12		
Total in Figure	0 1 1	
Total in Words	Eleven	
Signature	mfy	

१. विद्यार्थ्याने उत्तरपत्रिकेच्या मुखपृष्ठावर तसेच पुरवणी उत्तरपत्रिकेवर आणि उपस्थिती पत्रकावर विहित जागेत आसन क्रमांक अंकात व अक्षरात बिनचूक लिहून स्वाक्षरी करावी.

२. उत्तरपत्रिकेवर फक्त निळ्या अथवा काळ्या शाईचा उपयोग करावा, अन्यथा उत्तरपत्रिकेचे मूल्यमापन केले जाणार नाही.

३. उत्तरपत्रिकेच्या पृष्ठक्रमांक ३ पासून लिहिण्यास प्रारंभ करावा.

४. संबंधित प्रश्नाचे अथवा उपप्रश्नाचे उत्तर जेथून सुरु होते तेथेच समासात प्रश्न क्रमांक, उपप्रश्न क्रमांक अचूक व स्पष्ट लिहावा, यासाठी वेगळ्या शाईचा उपयोग करु नये.

५. प्रत्येक पानाच्या दोन्ही बाजूस लिहावे, उत्तरपत्रिका किंवा पुरवणी उत्तरपत्रिकेचे कोणतेही पान फाडू नये, फाडल्यास परीक्षा गैरप्रकार समजून पुढील कार्यवाही करण्यात येईल.

६. पेपर संपण्यापूर्वी १० मिनिटे अगोदर इशारा घंटा होईल, त्यानंतर विद्यार्थ्याने उत्तरपत्रिका व पुरवणी उत्तरपत्रिकेवर होलोक्राफ्ट स्टिकर विहित जागेवरच लावावा.

Candidate shall fill all information about seat number, paper etc. in prescribed space and sign on the answer book and attendance sheet.

Candidate shall use blue or black ink only, Otherwise answer book will not be evaluated.

Candidate shall start writing answers from page no.3 of the answer book.

Candidate shall mention question number, sub question number correctly at the beginning of the same and shall not use ink other than blue or black.

Candidate shall write on both sides of pages. Shall not tear off any page, it will be treated as unfair means.

Warning bell will be given before 10 minutes of the concluding time. Candidate shall paste Hollocraft Sticker at appropriate space on the answer book and supplements.

Examiner and Moderator has to write marks on all given appropriate places only. Examiner should give assessment tick (✓) or (x) in the margin.

Q. No.	Examiner	Moderator	Verification	Revaluation
1	01½			
2	02			
3	01			
4	02			
5	04			
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11				
12				
Total	011			

प्र. क्र /Q.No.

1.

a) i) Router

b) iv) Presentation.

c) ii) Transport.

d) i) bit suffering.

e) iv) framing.

f) iii) divident.

g) i) simple Parity check.

h) iv) checksum

i) iii) unique and universal

j) iii) dotted- decimal Notation.

k) iv) 128 bits.

l) i) RIP

m) i) back bone router

n) i) Ip address.

o) iii) DNS Handler.

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प्र. क्र /Q.No.

1.

p) ii) ~~4/8~~

q) i) Vulnerability attacks.

r) iv) Public ~~V~~oid connect()

s) iii) Both ~~of~~ those.

t) i) Socket.

2.

a) recieved humming code is 11001010101. with even parity.

So all parity bits should be 0's.

Lets compure it with the formcut -

P_1	P_2	D_3	P_4	D_5	D_6	D_7	P_8	D_9	D_{10}	D_{11}
1	0	1	0	1	0	1	0	0	1	1

Lets check for error in recieved humming code.

Firstly, we will use check 1 skip 1.

So, check - P_1 D_3 D_5 D_7 D_9 D_{11}

1 1 1 1 0 1

Sum of 1's is 5 which is odd so, the error is detected at first Parity bit.

Now, use check 2 skip 2.

So, check - P_2 D_3 D_6 D_7 D_{10} D_{11}

0 1 0 1 1 1

Sum of 1's is four (4) which is even. so, no error detected at second parity bit.

Nw, use check 4 skip 4.

So, check -

2.

P_4 D_5 D_6 D_7
0 1 0 1

Sum of 1's is 2 which is even so, no error at parity bit three.

Now, check 8 skip 8
so, check- P_8 D_9 D_{10} D_{11}
0 0 1 1

Sum of 1's is two, which is even. so, no error detected at parity bit four.

The error is detected at only one position which is at first step, and we can correct it by using following method -

(i) check all the steps -
1 0 0 0

(ii) convert this binary number into Decimal number - which is → 8
1000 → 8

(iii) change the bit at the number 8 in given code.

Corrected hamming code is - 11011010101

2.

b. given data - 11101101
with odd parity so all the parity bits should be even 1.

Compare data with standard format.

D_{11}	D_{10}	D_9	P_8	D_7	D_6	D_5	P_4	D_3	P_2	P_1
-	-	1	1	1	0	1	1	0	1	1

Lets check if there is any error in data.

Now, use check 1 skip 1.

check →	P_1	D_3	D_5	D_7	D_9
	1	0	1	1	1

Sum of 1's is 4 which is even so, there is an error at the first priority bit.

(02)

Now, check 2 skip 2

P_2	D_3	D_6	D_7
1	0	0	1

Sum of 1's is two which is even. so, there is an error at patrity bit 2.

Now, check 4 skip 4.

P_4	D_5	D_6	D_7
1	1	0	1

Sum of 1's is 3, which is odd.
So, there is no error at fourth parity bit.

Now, check 8 (skip 8)

P_8	D_4
1	1

Sum of 1's is 2 which is even.
So, there is an error at parity bit.

We can correct the error by using the following steps.

(i) combine all parity bits.
0010

(ii) Search Decimal number for this binary number.
0010 → 2.

(iii) Change 2nd bit of the code.
which is 1 → 0

Now the error free data is 11011001

Hamming code generated for the data 11011011 is 11011001

which is 8 bit hamming code.

प्र. क्र /Q.No.

9.

a)

i) 87 . 52 . 26 . 71

2 . 1 . 1 . 2

B . A . A . B .

ii) 77 . 12 . 133 . 86

2 . 1 . 3 . 2

B . A . C . B

iii) 193 . 56 . 77 . 22 .

4 . 2 . 2 . 1

D . B . B . A .

iv) 128 . 76 . 44 . 37

3 . 2 . 1 . 1

C . B . A . A .

10

SPPU-10/24

	Q.No.						TOTAL
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प्र. क्र /Q.No.

v) 100, 77, 44, 13.

2, 2, 1, 4.

B. B. A. A.

8.

b. Ip addressing with network masks and network addresses.

The ip addressing using the network masks and network addresses is finding the stepwise process to the network mask and network address and the Ip address. where the network mask is given and also the network address is given and the process to find the ip address.

e.g.

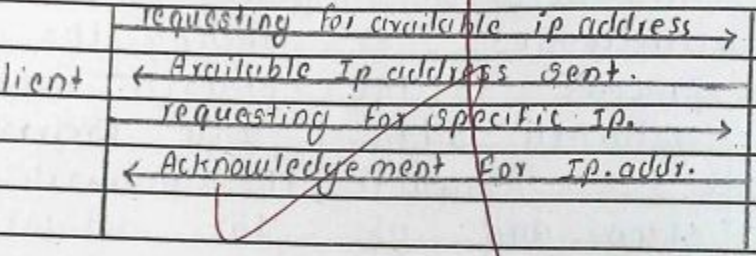
given - Network mass - 255.255.224.0
Network address - 9.1.2.1.

the we will calculate something from it and then we will step forwarding toward finding an ip address.

for ip addressing with networks mass and network address we have to provid first the network address and the network mask.

Some protocols work for this process. which gives ip addresses to the devices by getting their network address and network mask.

The DHCP protocol works for Ip addressing with network mask and network address.



- The dynamic host configuration protocol works for ip addressing the devices.
- Firstly client requests to the DHCP for all available ip addresses matching with its network mask and network address.
- DHCP server sends acknowledgement of all available Ip's for it.
- client requests for a specific Ip address for allocation to it.
- DHCP server allocate the ip address to the client and send acknowledgement of it to the client.
- After this process client get an unique ip address for his pc ~~for~~ for his network mask and Network address.

4.

a) TCP Protocol →

An Tcp protocol is used for transport the data or packets from one phase to another phase they are passes the packets from hope to hop.

Tcp/ip Protocol suite:

Application Presentation session	Application layer Transport - - - - - - - - - - -	SMTP SMNP HTTP	FTP ARP
Transport	Transport layer	TCP	UDP
Network	Internet Protocol	IP	RIP
Data link Physical	Network technol- -ogy layer.	DNS	

The Tcp protocol get a packet from the internet protocol layer and passes it to Application layer.

Tcp protocol works as-

(i) It reduces size of the file or packet.

(ii) It compress the file or packet for easy tranfer of the low weight file.

(iii) It is a bridge between two layers.

(iv) Tcp protocol works as a common bridge for application layer protocols and Internet protocols.

(v) It passes signals from application layer to ~~on~~ downward layers.

(vi) and give or transfer data from down layers to application layer.

4

b. DNS -

Domain Name Services -

Domain names are given by the domain name services for identifying the domain uniquely.

DNS resource - records →

- Dns uses some resources like IP address, Network mask, Network address for giving or assigning domain names to the devices.

- Domain name services keeps the records of each and every domain name given or assigned by it to any device because domain names are unique names assigned to devices.

6M

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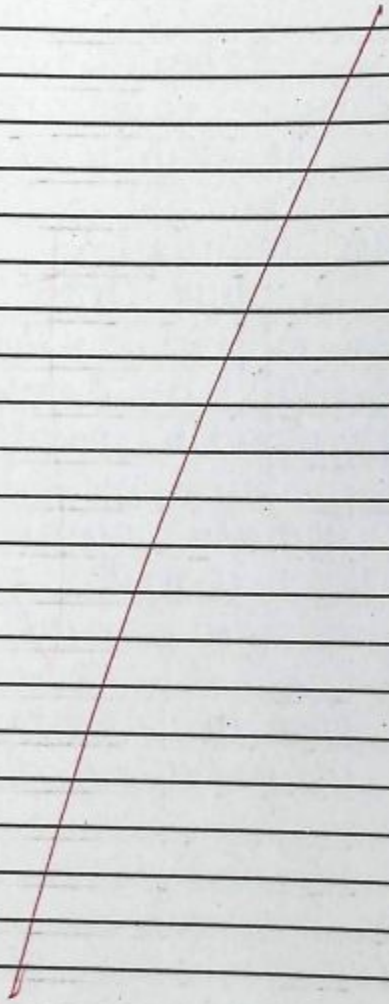
प्र. क्र /Q.No.



5.

a) OSI Model -

The OSI model is represented as follows -

NO.	layers	Protocols
(7)	Application layer	SNMP.
(6)	Presentation layer	JPEG. GPG
(5)	Session layer	OSPF
(4)	Transport layer	TCP. UDP
(3)	Network layer	IP. RIP
(2)	Data link layer	DNS, HDLC
(1)	Physical layer	"NON"

The OSI model contains mainly 7 (seven) layers which works and perform their tasks for better experiance at application performance.

If any one of them will not work the application will get damaged. and it will not work properly.

first layer is:

① Physical layer -

The layer at the bottom which is used for Physical disturbance in an model is the Physical layer. which supplies the model to the Data link layer for Its functionality.

② Data link layer -
The all necessary data will be linked at this phase It uses the HDLC protocol.

③ Network layer -
Network layer give connection to the packages. It uses IPV6 and RIP protocols.

④ Transport layer -
Transport layer transfer the package from network layer to session layer. It uses TCP, UDP protocols.

⑤ Session layer -
Session layer make a session for an package to present. it uses an OSPF protocol to make.

⑥ Presentation layer -
Presentation layer get package from session layer decrypt it and display in Jpeg format.

⑦ Application layer -
At the upper most layer the user interface is directly connected to it.

5.

b. Program for implementing the sliding window protocol of window size 5.

```
# include <stdio.h>
# include <stdlib.h>
# include < network.h>
# include < netmask.h>
# include < sliding.lib>
# include < count.lib>
    main {
void main() {
    void windowSize(0,5) {
        Slide.window() : new Slide();
        Slide(left, right);
        setVisible(true);
    }
}
return void;
}
```

SPPU-20/24

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SPPU-21/24

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0 0 0 0
0 0 0 1
0 0 1 0
0 0 1 1
0 1 0 0
0 1 0 1
0 1 1 0
0 1 1 1
1 0 0 0
1 0 0 1
1 0 1 0