What is meant by term communication? Explain its types.

OR

Define communication. Its types and a note on verbal communication.

8.

(a) Downward communication

(iii) Horiztonal communication

(ii) Senninar

(i) Interview

Write a short note on any two of the followings: a) Project b) Proposal c) Plan d) Budget

1. Write a short note on Face to Face Communication.

10. Write a short note on Formal and Informal Communication.

Discuss the difference between formal and informal communication.

Write a short note on Fax.

Write a short note on the essentials of a good change manager.

Equal marks.

Question No. 1 is compulsory. All questions carry equal marks.

Note: A student is required to attend live questions in all.

Maximum Marks: 40

Paper - BSL-19

Communication: SSB, English P

12661

Total Pages: 3
1. If \( A - \begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix} \), then prove that 
\[
\frac{\partial x}{\partial p} = c p^2 
\]

\[
\frac{\partial x}{\partial p} = \frac{3}{2} p 
\]

(b) Solve the differential equation

\[
z \frac{\partial y}{\partial z} \frac{\partial x}{\partial p} = g(x) 
\]

(c) Find characteristic equation of the matrix

\[
\begin{pmatrix}
2 & 1 \\
1 & 2
\end{pmatrix}
\]

\[
\begin{pmatrix}
1 & 2 \\
2 & 1
\end{pmatrix}
\]

Mathematics

1. If \( f(x) = x^3 - 8 \), find inverse of \( f \).

(b) Let \( P \rightarrow R \) be a function defined by 

\[
(a \land b) \lor (d \land \neg c)
\]

9. (a) If \( p \) and \( q \) are two statements, then prove that 

6. Six friends on a tour found that they have a
UNIT I

1. (a) Prove that \( R \) is an equivalent relation.

2. (b) If \( R \) is a relation in \( N \times N \) defined by \( \{ (a, b) \mid b \leq a \} \)

UNIT II

3. (a) Find the differential equation of all ellipses centered at origin.

4. (b) Diagonalize the matrix \( \begin{bmatrix} 2 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 2 \end{bmatrix} \) if possible.

UNIT III

5. (a) Solve the differential equation \( x^2 \frac{d^2 y}{dx^2} + x^2 \frac{dy}{dx} + \frac{y}{x} = 0 \).

6. (b) Find the Eigen vectors of the matrix \( \begin{bmatrix} 2 & 3 \\ 2 & 3 \end{bmatrix} \).

7. (a) Solve the differential equation \( (1 - 2x) x = \frac{dx}{dx} - (1 - x) x \).

8. (b) If \( A \) is a set: \( A = \{1, 2, 3, 4, 5\} \) and \( B = \{2, 3, 4\} \), find \( A \times B \) and \( B \times A \).

9. (c) 10. (d)
What do you understand by Frequency Modulation?

UNIT I

Then large signals...

amplitude signals in a PM system for more...

(d) Explain why quantizing noise could affect small...

(e) What is compoundable? Why is it used?

(f) Draw the wave form of AM wave for the following...

Compulsory Question

(compulsory) All questions carry equal marks.

Note: Attempt five questions in all selecting at least...

Maximum Marks: 40

Paper-BSIT-107

ELECTRONIC COMMUNICATION—I

12665

BSITD-19

Roll No. ........................................

Total Pages: 2
UNIT III

1. What is meant by quantization errors? Explain.

2. What is pulse modulation? Discuss PAM in detail.

3. What should be the maximum sampling frequency?

4. For a low pass signal with Fm = 25kHz, when should the maximum sampling frequency be doubled?

UNIT IV

1. What is detector? Draw the diode detector.

2. What is ENQ in a data communications system?

3. What factors are necessitated while designing communication systems?

4. What are the advantages and disadvantages of pulse modulation (PCM)?

5. State the advantages and application of pulse modulation.

6. Describe the method of generation of DTMF tones.

7. Describe the other forms of pulse modulation.

8. Explain why PCM is more noise-resistant than AM.
matrix
as a sum of symmetric and skew symmetric

\[
\begin{pmatrix}
4 & 6 & 0 \\
6 & 8 & 3 \\
0 & 3 & 2 \\
\end{pmatrix}
\]

(b) Express

\[
\begin{pmatrix}
4 & 2 & 3 \\
6 & 5 & 1 \\
2 & 3 & 0 \\
\end{pmatrix}
\]

1. (a) Find the rank of matrix

UNIT I

 compulsory
one question from each Unit. Question No. 9 is
Note: Attempt five questions in all. Selecting at least
Maximum Marks : 40
Time Allowed : 3 Hours

PAPER - B-101-102
INFORMATION TECHNOLOGY-I
MATHEMATICAL FOUNDATIONS FOR
ObSt/IT-D-19

Roll No. ..................................................
Total Marks : 4

(c) Show that

\[
x^2 + \frac{dy}{dx} = \int [x - 2x^2 + 2] dx = 0
\]
9. Write short notes on the following:

**Compulsory Question**

**UNIT-I**

(a) Find the rank of the matrix
(b) Define equivalence relation

**UNIT-II**

(a) Find the partitions of the set \{a, b, c\}

(b) Second (second) are born at the same time (hour, minute, second) How many people amount 2,000,000 people

**UNIT-III**

(a) Solve the differential equation of the system of circles touching x-axis at the origin.

5. (a) Find the eigen vector of the matrix
UNIT I

1. Write the properties of a dipole antenna.
2. How current and voltage are distributed in a dipole antenna.
3. Handwidth and Beamwidth
4. Antenna resistance
5. Define the term—dipole.
6. Define field strength of the elementary line.
7. What are different types of transmission lines?

UNIT II

1. Derive Maxwell's equations in integral form.
2. State and explain Stokes' theorem.

UNIT III

1. What is radiofrequency and second law.
2. Define maximum usable frequency and second law.
3. Write applications of remote sensing.
4. What are some advantages of satellite communication?
5. Explain the satellite communication in brief.
6. What is fading? Write its major causes.
7. At a distance from the transmitter, the angle of tilting. How does it affect field strength of the ground wave propagation? What is the ground wave propagation effect?

Paper—BCL 103

Physics I (EM Theory)

Maximun Marks: 40

Time Allowed: 3 Hours

Roll No. 19

Total Pages: 2
12670/14/10-9

(a) Write the ASCII code for decimal number 70.

(b) Perform the following binary addition:

\[ \begin{array}{c}
1 & 1 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 1 \\
1 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 & 0 & 1 & 0 & 1
\end{array} \]

(c) Convert the following—

\[ 6^{16}(Z) = 7^{16}(X) = 10_{16}^{16}1101 \]

UNIT-I

(d) Write uses of multipliers.

(e) Discuss the advantages of Gray code.

(f) Define XOR gate.

(g) Explain BCD of a number system.

Compulsory Question

Compulsory.

Note: Attempt five questions in all selecting one from each Unit.

Time Allotted: 3 Hours

Paper-B.E.TECH.104
DIGITAL ELECTRONICS

12670

Original Pages: 3
PART-I

1. Explain the operation of a half-subtractor (HSX).

2. Describe the working of a half-adder (HA).

3. Discuss the operation of a full-adder (FA).

PART-II

1. Explain the operation of a full-subtractor (FSX) using XNOR gates.

2. Explain how the XNOR gate is connected to binary adders.

3. Explain how the XOR gate is connected to binary adders.
(a) Define bond rate. Is bond rate always equal to

bond rate? If not, why?

(b) Define amplitude modulation and amplitude and other modulations. Give their frequency
modulation and give its significance.

(c) What is the fundamental difference between pulse

modulation and give its significance.

(d) Define the term deviation ratio in frequency

advantage of SSB-SC modulation.

(e) What do you mean by the term SSB-SC? Write

Compulsory Question

marks

one

one

one

Note: Attempt five questions in all. Selecting

| Marks | Time Allowed: 2 Hours | Maximum Marks: 40 |

Electronic Communication

1271

OBSIT/D-19

Paper-BSTI-105

briefly:

A digital communication system is an

system showing its various elements.

(b) What is a digital communication system? Make

carrier in a digital communication system? What

(b) What is the use of echo suppressors and echo

(c) What are the important characteristics of

(d) What is a digital communication system?
UNIT I

1. What is the advantage of using MHz frequencies in communication systems?
2. What is the purpose of using a modulator in a communication system?
3. Define the concept of modulation and explain its significance in communication systems.
4. What is the fundamental difference between analog and digital signals?
5. What is the purpose of using a demodulator in a communication system?
6. What is the importance of using a filter in a communication system?

UNIT II

1. What is the function of a mixer in a communication system?
2. What is the purpose of using a modulated RF carrier in communication systems?
3. Define the concept of modulation index and explain its importance in communication systems.
4. What is the purpose of using an RF modulator in a communication system?
5. What is the role of a demodulator in a communication system?
6. What is the importance of using a filter in a communication system?
2. (a) Find current I through 15Ω resistor in following circuit.

UNIT-I

Justify concept of linearity or non-linearity principle.

Supposition Theorem is based on the law for linear systems.

(i) Define setup time and maximum clock frequency.

(ii) Interview for linear (or non-linear) systems.

(iii) Which Kirchhoff's Law is based on the conservation of charge?

(iv) Why in RS flip-flop, the state RS=II is prohibited?

(T) Compulsory.

Note: Attempt all questions in all sections.

Maximum Marks: 40

Time Allowed: 3 Hours

PAPER-BST17301

ELECTRONICS-II

CIRCUIT ANALYSIS AND DIGITAL

BST17D-19

R01] No. Total Pages: 4

9. (a) Give the excitation table for JK flip-flop.
UNIT I

4. a) How is it different from an edge triggered flip-flop?
   b) What do you mean by level triggered flip-flop?

5. a) What are asynchronous flip-flops?
   b) What are the different between asynchronous and synchronous flip-flops?

UNIT IV

3. a) Define De-multiplexer.
   b) Define Multiplexer.
   c) Design a 1:8 de-multiplexer using AND, OR and NOT gates only.

4. a) What is the sub-receiver design of the 1-bit parallel 
    serial receiver?

5. a) Write a full sub-receiver using NOR gates only.

UNIT V

6. a) What is the multi-channel demodulator?
   b) What is code conversion?
   c) Design a bit binary to BCD converter.

UNIT III

7. Explain the technique to convert a star connection to delta connection.

8. a) Find the voltages V_1, V_2 and V_3 in the following network using node analysis method.
   b) Find the conditions of applicability on which it can be applied.
UNIT I

2. Explain the architecture of ATM.
4. Explain the functions of Frame Relay layers.
4. ATM (b) Explain different types of switches used in FRADS (b) Explain how Frame Relay assembly/disassembly is used in Frame Relay
8. (a) How Frame Relay assembly/disassembly

UNIT II

2. Explain how INI differ from a UNI?
2. What are the merits and demerits of LAN switch?
2. Explain the function of TSI in Time Division multiplexing.
2. Give the formula that finds the number of cable points needed for each device.

Complementary Question

Questions in all, select one from each Unit.
Note: Question No. one is compulsory. Attempt any four

Maximum Marks: 40

Time Allowed: 3 Hours
UNIT II
Tasks and Multitasking
8
Compare and contrast Multitasking and Multiprogramming.
8
What is an operating system? Describe evolution of

UNIT I
8
What do you mean by critical section?

8
Why there is a need to synchronize processes?

8
What is process? How it is different from thread?

Compulsory Question

Note: Attempt the questions in all. Question no. one

Time Allowed: 3 Hours

Paper: BSNIT-305
OPERATING SYSTEM-1
BSTM-19
Total Pages: 3

Roll No.
UNIT III

Take a time quantum of 1.

(a) Priority scheduling

RR

IPP

FCFS

The processes are assumed to be arrived in order.

<table>
<thead>
<tr>
<th>Process</th>
<th>Priority</th>
<th>Burst Time (in milliseconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>P2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>P3</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>P4</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>P5</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

7. Explain the producer-consumer problem with their solutions in detail.
8. Describe two classical problems of synchronization.
UNIT I

Explained in the following with suitable example:

8. What is a data type? Explain different data types in detail with examples.

(a) (b) (c) (d) (e)
- Character set
- Character data
- Data type
- Data type
- Data type

UNIT II

5. Program in C# to count the number of characters in a string.

6. Write a program to count the number of characters in a string.

UNIT III

5. Explain various #if statements with suitable examples.

UNIT IV

5. Explain the various operators in detail.

6. (a) Write a program to check whether a given number is even or odd.

7. (a) Write a program to check whether a given number is greater than 999.

8. Attempt any four:

(a) Write a program to count the number of vowels present in a given text.

(b) Write a program to count the number of characters in a string.

(c) Write a program to count the number of characters in a string.

(d) Write a program to count the number of characters in a string.

Compulsory Questions

Note: Question No. 1 is compulsory and questions 2 to 5 are required. All questions in all sections are required in all compulsory and students' answerbooks.

Maximum Marks: 40

Time Allowed: 3 Hours
A guess is \( \frac{2}{3} \) and the probability that he guesses with your choice. The probability that he makes an error when he answers a multiple choice question or knows the answer to a multiple choice question is \( \frac{1}{2} \). What is the probability that a student whose chances of solving the problem is solved?

2. (a) A problem in mathematics is given to five students. They are \( \frac{2}{3}, \frac{3}{4}, \frac{5}{6}, \frac{1}{2} \), and \( \frac{2}{3} \) respectively. What is the probability that the problem is solved?

(b) Find the probability that it is divisible by neither 2, 3, or 5.

(c) One number is drawn from numbers 1 to 120.

UNIT-I

Comprehensive

Note: Attempt five questions in all, selecting at least one question from each Unit. Question No. 9 is compulsory.

Time Allotted: 3 Hours

Maximum Marks: 40

UNIT-V

Compulsory Question

\[
\lim_{x \to 0} \frac{\sin x}{x} = 1
\]

Evaluate
I 12679/M:304/150

\[ \int \frac{\lambda}{x} \, dx = \begin{cases} 0 & \text{if } x = 0 \\ \int \frac{1}{x} \, dx & \text{if } x \neq 0 \end{cases} \]

8. (a) Evaluate

9. (b) Prove that a division ring has no zero

9. (b) Prove that the set \( \{0, 1, 2, 3, 4, 5\} \) with addition

9. (b) Prove that the set \( \mathbb{Z} \) is a ring

9. (b) Prove that \( H \) is also a subgroup of \( G \).

9. (b) If \( H \) and \( K \) are two subgroups of \( G \), then

9. (b) Show that \( G \) is a group under matrix multiplication

9. (b) Let \( G = \begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix} \).

II 12679/M:304/150

9. (a) Prove that \( P(A) = P(A) + P(B) \) associated with the function \( f(x) \), then prove that the probability

9. (a) Prove that the answer to the question, given

9. (a) Given that he correctly answered the question, then

9. (a) Given that he correctly answered the question, then

9. (a) Given that he correctly answered the question, then

9. (a) Given that he correctly answered the question, then

9. (a) Given that he correctly answered the question, then
UNIT I

1. (a) Define the ATM cell.
(b) Write short note on Packet Switch.
(b) Time Division Switch.
(b) Discuss the advantages and disadvantages of ATM.

2. (a) What are the components of PSTN?
(b) Discuss the function of End Office in Telephone system.
(b) Discuss the advantages of digital signalling over analogue signalling in Telephone system.

3. (a) Explain RS-232C Interface. What is DTE and DCE interface?
(b) Explain Over PM System.
(c) What is Multipliering? Discuss advantage of TDM System.

4. (a) Express 1281K/306/100
5. (a) Write short note on DCE interface. What is DTE and DCE?
UNIT-I

4. What is Handoff? Explain the different types of Handoff. 

UNIT-II

3. Discuss the Security issue of analog cellular 

UNIT-III

5. Define the Cordless telephone systems and its components. 

3. Discuss the various types of PSTN services. 

5. Differentiate between Space division and time division multiplexing.
UNIT I

4. (a) Explain various bitwise operators with the help of some examples.
4. (b) Discuss in detail features of object oriented programming.

1. (a) Discuss in detail features of object oriented programming.

UNIT II

4. (d) Explain operator overloading.
4. (c) What are objects? How objects are created.

1. (a) Explain storage class in brief.
1. (b) List some special properties of constructor.

Complimentary Question

Note: Attempt five questions in all by selecting any one question from each Unit. Question one is compulsory.

Note: Attempt five questions in all by selecting any one question from each Unit. Question one is compulsory.

Maximum Marks: 40

Time Allowed: 3 Hours

Paper B.S.I.T. 602

PROGRAMMING IN C++ I

12686

19

Total Pages: 3

No.
UNIT-I

1. Explain the need of copy constructor.
2. Overload the member functions in detail.
3. Explain the syntax of destructor. Can it be a function.
4. How do you mean by destructor? Give their importance.
5. What are string terminators. Elaborate its different from normal character variable.
6. What are strings. Explain how strings are

UNIT-II

1. Write a program in C++ to find the addition of two matrices of order (m x n).
2. Explain the difference between union and structure.
3. When is union different from normal character variable.
4. What is a string variable? Explain how strings are

UNIT-III

1. What is a function template which takes single type of parameter.
2. Write function template. Write syntax of function.
3. Explain with the help of an example.
4. What is the meaning of pointer to a function.
5. By Reference.
6. Discuss various advantages of passing arguments.
UNIT II

What is e-mail? Explain various e-mail protocols.

2. What is e-mail? Explain operations performed on e-mail connection.

UNIT I

1. What is Pinging? Write?

2. What is Satellite / Wireless Internet?


4. Explain Hostname System Engine.

5. Explain Server Search Engine.

6. Explain various methods of networking?

7. What is Pinging Network?
UNIT III

8. Write short notes on:
   (ii) Satellite Internet Connection
   (i) DSL

9. Write short notes on:
   (i) Requirements for Internet Connection
   (ii) Explain ISDN & Hardware and Software

8. Define and explain:
   (i) Hypermedia
   (ii) Website
   (iii) Web Server
   (iv) Hypertext

8. Write short notes on:
   (ii) Hardware and Web Directory

7. What is Search Engine? Difference between Search
   (ii) Hypermedia
   (iii) Website
   (i) Hypertext

8. Write short notes on:

6. What is Search Engine?
P.T.O.

1. (a) Discuss the actions performed by 8086 when an interrupt is encountered by it.

(b) Discuss the actions performed by 8086 when an interrupt in 8086.

2. (a) Define an interrupt and give the different types.

UNI-I

A) Processor

(b) What are the disadvantages of RISC

(c) What is the function of FOC signal in ADC

(d) RAM

(e) Difference between Static RAM and Dynamic

I. (a) What do you mean by Macro and Procedure?

Compulsory Question

Compulsory:

Question from each Unit. Question No. one is

Note: Attempt any Five questions in all, select one

Time Allowed: 3 Hours

Maximum Marks: 40

Paper-BSTI-206

PROGRAMMING III

MICRO PROCESSOR ARCHITECTURE AND

12689

Bsit/D-19

Roll No.

Total Pages: 3
UNIT IV

4. Discuss salient features of Pentium 4.

9. (a) What are the characteristics of RISC and CISC microprocessors?

8. (a) What are the differences between features of 80286, 80386, and 80486 microprocessors?

8. (a) Explain the different features of 80286.

UNIT III

7. Describe Control Unit (CU) and Numeric Key Features.

6. (a) Explain the term 'Multiprocessor memory' with its 8086 using 8255 with suitable diagram.

6. (a) Explain the interface of 8 bit ADC 0808 with 8086 processor.

4. (a) Discuss the procedure to interface SRAM with 8086.

5. (b) Discuss the procedure to interface 8K x 8 EPROM with 8086 microprocessor.

(b) Interface 8 chips of size 4K x 8 RAM and 2 chips of size 4K x 8 EPROM with 8086 microprocessor.

5. (b) What are the methods used to interface input and output devices with microprocessor?

3. (a) What is the role of A9 and BHE pins of 8086 in memory interconnection?

3. (a) What is the bus window in interconnection?

(b) Why is 8087 called co-processor?

1. Extension Unit (EU) in 8087.

2. (a) Describe Control Unit (CU) and Numeric Key Features.