(3 Hours) [Total Marks : 80

N.B. : (1) There are **eight** questions in this paper.

(2) **All** questions carry **equal** marks.

(3) **Figures** to the **right** indicate **full** marks.

1. (a) Write short notes on any **one** of the following :— 5
   (i) Clarity in Effective Communication
   (ii) Courtesy in Effective Communication
   (b) Distinguish between oral and written communication. 5
   OR
   What are effective strategies of effective communication ?

2. Attempt any **one** of the following :— 10
   (a) Discuss the various barriers in way of effective listening.
   (b) Write a brief note on body language as a method of communication.
   (c) Discuss the various criteria to be adopted to choose the methods of communication.

3. (a) Wanted an assistant manager for a Hinjewadi, Pune based Software Company. 10
   Candidate must be good at computer skills and must possess management skills too. Preference will be given to candidates with a fluent command over English, Marathi and Hindi and relevant work experience. Write along with bio-data to Box. No.3245. The Times of India, Pune-4120 023.
   OR
   (b) What are the features of effective memorandums? Explain it with reference 10
   to the essential components of it.

4. (a) Imagine that you are a Manager of ABA PATIL PVT. LTD., Sangli. You are 10
   required to draft a notice along with agenda tor Annual General Body Meeting.
   OR
   (b) Draft an attractive brochure to sale a new android operating system based 10
   mobile handset.

5. (a) You have been appointed as Chairman to the committee appointed to investigate 10
   in to the possibilities of setting up of computer manufacturing unit at Pune region in Maharashtra. Draft a detailed investigative report on behalf of the committee.
   OR
   (b) What do you understand by user instruction manual ? Explain the elements 10
   of formal instructions.

[**TURN OVER**

6. (a) What do you understand by email? You wish to celebrate your birthday by giving party to your friends and colleagues. Draft an email inviting them to join with your birthday bash.   10

OR

(b) Read the following **paragraph** and **summarise** it using the main points and relevant details: 10

We live in an age of great hurry and great speed. Men have lost their inward resources. They merely reflect. Like a set of mirrors, opinions which they get a little leisure, they turn to material diversions from outside rather than to inward resources. This internal vacuum is responsible for mental and nervous troubles. The cure for this is not so much treatment by medicine and surgery but a recovery of faith in the ultimate goodness, truth and the decency of things. If we are able to recover that faith, if we are able to live in this world with our consciousness centered in the intimacy of the spirit, many of the problems to which we are subject today may be overcome. Our people were regarded as aspiring after metaphysical insight, but we seem to forget that it never occurred to them to equate eternal life with either the surrender of the mind or the sacrifice of the body. When an Upanishad writer was asked to define what is meant by spiritual life. He gave the answer that it consists of the satisfaction of the mind, the abundance of tranquility of the spirit. Body, mind and spirit must be integrated and they must lead to a harmonious developed life. If we get that, we have life eternal.

7. (a) What are the effective ways to make notes and take notes? Explain each one in brief.   10

OR

(b) Read the following paragraph carefully and make a draft of the précis using only relevant details: 10

Men and women are of equal rank but they are not identical. They are be peerless pair being supplementary to one another, each helps the other so that without one the existence of the other cannot be conceived and, therefore it follows as a necessary corollary from these facts that anything that will impair the status of either of them will involve the equal ruin of them both. In framing any scheme of women's education this cardinal truth must be constantly kept in mind. Man is supreme in the outward activities of a married air and therefore it is in the fitness of things that he should have a greater knowledge thereof. On the other hand, noise life is entirely the sphere of woman and, therefore in domestic affairs, in the upbringing and education of children, woman ought to have more knowledge Not that knowledge should be divided

into water tight compartment's or that so that some branches of knowledge should be closed to anyone, but unless. courses of instruction are based on discriminating appreciation of these basic principles, the fullest life of man and woman cannot be developed. Among the manifold misfortunes that may befall humanity, the loss of health is one of the severest. All the joys which life can give cannot outweigh the sufferings of the sick. Among the manifold misfortunes that may befall humanity, the loss of health is one of the severest. All the joys which life can give cannot outweigh the sufferings of the sick.

8. (a) Discuss the strategies of effective reading in detail.   10
       OR
   (b) Read the following **paragraph** and **edit** it to make it meaningful: 10

   The holiday of halloween is a fun time for people of all ages.It is a time for children to use their imaginationAll childrenhave to use their imaginations to come up with creativecostumes. The good costumes always win prizes.Kidsdont want bad costumes. There are many other thingsthat make Halloween a special time of the year for kids.They can get candy from their neighbors. They like stayingout late at night. On the other hand, teenagers tend to usehalloween as a time to cause trouble and play tricks onothers in their neighborhood. They can get in trouble fordoing many things. Even adults have parties on Halloween to celebrate with their friends. It is a holiday that easily lendsitself to fun gatherings with friends no matter how old youare. halloween is a good holiday because of the manydifferent things you can do to have fun.

[TURN OVER

(3 Hours)   [Total Marks : 100

N.B. : (1) Attempt **all** the questions.

(2) **Figures** to the **right** indicate **full** marks.

1. (a) State whether the following statements are **true** or **false** :   5
   (i)   The person who initiates the communication process is normally referred to as the receiver.
   (ii) Nonverbal communication is learned and practiced often on an unconscious level.
   (iii) The semantic barriers are obstruction caused in the process of understanding a message during the process of encoding or decoding it into words and ideas.
   (iv) "We are pleased when we receive such suggestions from our customers." This quoted sentence is an example of 'You-approach' in letter writing.
   (v)   The application letter which also known as cover letter exhibits a formal request for the employment.

   (b) Fill in the blanks with appropriate words or phrases in the following   5
   sentences :—
   (i)   A job application letter written when a job is not advertised and the applicant is writing to explore possible openings is known as _____.
   (ii) E-mail is part of the standard _____ set of protocols.
   (iii) A _____ is a document or other communication that helps the memory by recording events or observations on a topic.
   (iv) _____ notes include key words, headings and subheadings.
   (v)   Formal or informal deliberative assembly of individuals called to debate certain issues and problems, and to take decisions is known as_____.

2. (a) What do you understand by Non- verbal communication? Discuss its advantages   15
   and disadvantages ?
                    OR
   (b) Write short notes on any **three** of the following :—   15
   (i)   Radio as a Mode of Communication.
   (ii) Maps and Charts as a Medium of Non Verbal Communication.
   (iii) The Features of Effective Communication
   (iv) Significance of Communication in an Organisation
   (v)   Criteria in choosing the Methods of Communication.

3. (a) What do you understand by Communication Barriers? Discuss the Status and   15
        Language or Semantic Barriers to Communication in detail.
                    OR
   (b) Write short notes on any **three** of the following :—   15
        (i)   Ego as a Barrier.
        (ii) The Ways to Overcome the Mechanical Barriers
        (iii) Cross-Cultural Barriers
        (iv) Gender Barriers
        (v)   The Strategies to Overcome Listening Barriers.

4. (a) Wanted a Software Programmer for a reputed Software Company. Candidate   15
        must be good at programming skills and must possess skills to handle the
        clients independently. Preference will be given to candidates with a fluent
        command over English and some relevant work experience. Write an application
        along with a bio-data to The Personal Manager, Accenture Infotech, Godrej
        Campus, Vikhroli, Mumbai.
                    OR
   (b) Discuss the features of the Memorandum and imagine that you are working   15
        in a reputed company and you notice that one of your subordinates is repeatedly
        reporting the duties beyond 30 minutes of his reporting time. Draft a memo
        warning him the consequences he/she may have to face if he fails to adhere
        the discipline.

5. (a) Imagine that you are a part of committee of experts who have been appointed 15
        by your company to explore the possibilities of expanding their banking
        business in Navi Mumbai. Draft a report on behalf of the committee.
                    OR
   (b) Imagine that you are working as Students Representative with College Students' 15
        Welfare Committee and you have been entrusted with a job to investigate the
        reasons for dropping in students' classroom attendance. Draft a report with
        the help of these points with suitable recommendations.

6. (a) Draft a sample Brochure to sale a new Laptop configured with the latest   15
        hardware and the software.
                    OR
   (b) What are the strategies of précis writing? Discuss them in brief. And, read   15
        the following passage thoroughly and make a draft of the précis, using only
        the relevant details:
        "Many membrane peptides and proteins exhibit potent antimicrobialand
        antibacterial activities. They achieve this function by rupturing thecell membranes
        of the target organism. Antimicrobial peptides areproduced by many animals,

                                                              [TURN OVER

including humans, as an innate immuneresponse against bacteria, fungi, and virus. The membranebound structure of the peptides gives insights into how they destroy themembrane. For example, a peptide bound to the surface of the lipidbilayer most likely destroys the membrane by micellization, while apeptide inserted into the bilayer probably kills the cell by formingpores." (Hong 2006, 1)

7. (a) Write a summary of the following paragraph and give it a suitable titile :-   7

Tissue consists of millions of cells that are grouped together to perform aspecific function in the body. Muscle tissue, for example, is one particular typeof tissue. It consists of millions of threadlike muscle cells. In addition to muscle tissue, there are three other basic types of tissue: nerve, epidermal (skin), andconnective tissue.

Organs are composed of different types of tissues that work together tocarry out a specific body function. For instance, the heart is an organ thatconsists of muscle tissue, connective tissue, and nerve tissue. Because thesetissues work together, the organ of the heart is able to pump and circulate bloodthroughout the body. Other examples of organs are the eyes, liver, and kidneys. The skin is the largest organ of the body. Systems consist of organs that work together. The systems of the bodyinclude the digestive system, nervous system, skeletal system (bones),muscular system, respiratory system (breathing), endocrine system (glands),excretory system (waste removal), reproductive system, and circulatory system.The organs that work together as the digestive system are the mouth, gullet,stomach, and intestines. Together the brain, spinal cord, and nerves throughoutthe body function as the nervous system.

OR

(b) Edit the following paragraph to make it readable:-   8

This summer, I will went on a cross-country driving trip with my mom, grandma,and little sister. It will be fun because each of us will have different responsibilities. Mymom will drive and decide where we will spend each night. My grandma will boughtus lunch and read from the guidebook about different historical sites my sister and I will pay for breakfast and check the maps to make sure we weregoing in the right direction. We will start out in bangalore and drive west We aregoing to stop in states like Karnataka, South Kerala, and tamilnadu. Each time we stop, weis going to learn about the state and maybe do some hiking. Our final destination will be Calicut. My dad will meet us in Los Angeles. I is looking forward to the trip.

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⑥

Con. 305-18.   Fundamental of Digital Computing WF-6491

(3 Hours)   [Total Marks : 80]

N.B. : All questions are compulsory.

1. Attempt any **two** :—
   (a) Convert decimal number $(73 .25)_{10}$ into binary and octal number.   5
   (b) Write a short note on error detecting and correcting code.   5
   (c) Explain the concept of subtraction using one's complement with an example   5

2. Attempt any **two** :—
   (a) Write a short on three basic logic gates.   5
   (b) Write a short note on universal gates.   5
   (c) Write a short note on XOR gate.   5

3. Attempt any **two** :—
   (a) Write and prove De Morgan's Law for Boolean operations.   5
   (b) Multiply $(1100)_2$ and $(110)_2$.   5
   (c) Write a short note on Excess-3 code   5

4. Attempt any **two** :—
   (a) Explain the procedure for representing the Floating point numbers.   5
   (b) Design the logic circuit for binary to gray code converter.   5
   (c) Define Half adder. Draw the logic circuit diagram of Half-adder circuit   5

5. Attempt any **two** :—
   (a) What is encoder? Explain the concept of encoder with a logic circuit diagram.   5
   (b) Write a short note on shift register.   5
   (c) Write a short note on JK Flip Flop.   5

6. Attempt any **two** :—
   (a) Write a short note on RS Flip Flop.   5
   (b) Explain the working mechanism. of the Hard Disk.   5
   (c) Explain the concept of synchronous counter with an example circuit diagram.   5

7. Attempt any **two** :—
   (a) Explain the different components of a digital computer.   5
   (b) Explain the working Method of CRT display.   5
   (c) Write a short note on cache memory.   5

8. Attempt any **two** :—
   (a) Write a short note on Windows operating system.   5
   (b) List down the various features of a real time operating system.   5
   (c) Differentiate between Multi-user and Single-user operating system.   5

[TURN OVER

(3 Hours)   [Total Marks : 100

N.B. : All questions are **compulsory**.

1. (a) Write a short note on three basic logic gates.   5
    (b) Convert $(74.53)_8$ into its equivalent binary, and hexadecimal format   5

2. Attempt any **three** :—
    (a) Subtract the binary number 001001 from the binary number 010000.   5
    (b) Explain the procedure for representing the Floating point numbers.   5
    (c) Write a short note on Excess-3 code.   5
    (d) Multiply $(11100)_2$ and $(110)_2$.   5

3. Attempt any **three** :—
    (a) Simply the following function $F(a,b,c,d) = \pi$ (1, 3, 9, 10, 11, 12, 13) and   5
         draw the logic circuit diagram using basic logic gates
    (b) What is the De Morgan's Law for Boolean operations? Prove the same.   5
    (c) Why NAND gate is known as universal gate ?   5
    (d) Write a short note on XOR and XNOR gate.   5

4. Attempt any **three** :—
    (a) Define Full adder. Draw any two logic circuit diagram of Full-adder circuit.   5
    (b) Describe the concept of demultiplexer with an example.   5
    (c) Design the logic circuit for binary to gray code converter.   5
    (d) What is encoder? Explain the concept of encoder with a logic circuit diagram   5

5. Attempt any **three** :—
    (a) List and explain different types of registers.   5
    (b) Define Flip Flop. Write a short note on JK Flip Flop.   5
    (c) Design the logic circuit of RS Flip-Flop.   5
    (d) Explain the concept of synchronous counter with an example circuit diagram.   5

6. Attempt any **three** :—
    (a) Write a short note on cache memory.   5
    (b) Explain the working method of Keyboard as an input device.   5
    (c) List and explain different components of a digital computer.   5
    (d) Explain the working mechanism of the Hard Disk.   5

7. Attempt any **three** :—
    (a) Differentiate between Multi-user and Single-user operating system.   5
    (b) List down the various features of a real time operating system.   5
    (c) Describe the history of Linux operating system.   5
    (d) Write a short note on Windows operating system.   5

Electronic and Communication Technology

Con. 306–18. WF–6625

(3 Hours) [Total Marks : 80

Q.1   Attempt any two.   [10M]
- (a) Draw neat labeled circuit diagram and explain working of full wave rectifier.
- (b) Differentiate between forward bias and reverse bias of a diode.
- (c) Draw input characteristics of a transistor connected in CE configuration and explain various regions of operation.

Q.2   Attempt any two.   [10M]
- (a) Draw and explain working of RC coupled amplifier, discuss its frequency response curve.
- (b) Explain the working of single stage CE amplifier. Draw its frequency response curve.
- (c) Explain following terms.
  Voltage gain, current gain and current amplification factor.

Q.3   Attempt any two.   [10M]
- (a) With the help of circuit diagram explain monostable multivibrator using 555 timer.
- (b) With the help of circuit diagram explain RC phase shift oscillator.
- (c) A colpit's oscillator uses following components in its tuned
  $C_1 = 1500pF$ $C_2 = 800pF$ $L = 200 \mu H$
  Calculate the frequency of the oscillator.

Q.4   Attempt any two.   [10M]
- (a) Explain how transistors can be used as a switch?
- (b) With the help of neat circuit diagram explain the working of multistage amplifier.
- (c) Explain in detail barkhausen's criteria for oscillation.

Q.5   Attempt any two.   [10M]
- (a) Explain the generation of SSB using filter method.
- (b) Explain the need of modulation in communication system.
- (c) Explain vestigial sideband transmission system.

Q.6   Attempt any two.   [10M]
- (a) Write a note on FDM.
- (b) State sampling theorem. Explain PAM.
- (c) Explain pre-emphasis and de-emphasis in detail.

Q.7   Attempt any two.   [10M]
- (a) What is digital communication? Explain FSK.
- (b) Write a short note on lasers.
- (c) Explain types of optical fibers

Q.8   Attempt any two.   [10M]
- (a) Write a short note on PCM.
- (b) Explain optical links and LED.
- (c) Differentiate between AM and FM system.

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[TURN OVER

(3 Hours)   [Total Marks : 100

Q.1   Answer the following.   [10M]
     (a)   Derive the equation for total power used in transmitting amplitude
             modulated wave
     (b)   Explain the formation of p-type and n-type semiconductor diode with
             diagram.

Q.2   Attempt any three.   [15M]
     (a)   Draw neat labeled circuit diagram and explain working of half wave
             rectifier.
     (b)   Differentiate between forward bias and reverse bias of a diode.
     (c)   Draw input characteristics of a transistor connected in CE configuration
             and explain various regions of operation.
     (d)   Explain how transistor can be used as a switch?

Q.3   Attempt any three.   [15M]
     (a)   Draw and explain working of RC coupled amplifier, discuss its frequency
             response curve.
     (b)   Explain the working of single stage CE amplifier. Draw its frequency
             response curve.
     (c)   Explain following terms.
             Voltage gain, current gain   and current amplification factor.
     (d)   Explain what do you mean by Darlington pair?

Q.4   Attempt any three.   [15M]
     (a)   With the help of circuit diagram explain monostable multivibrator using
             555 timer.
     (b)   With the help of circuit diagram explain RC phase shift oscillator.
     (c)   Calculate the time period of astable multivibrator,if
             RA=33K   RB=4.7 K   and C= 0.22 μF
     (d)   Explain LC oscillator. Define barkahusen's criteria for oscillation.

Q.5   Attempt any three.   [15M]
     (a)   Explain concept of balanced modulator.
     (b)   Explain the need of modulation in communication system.
     (c)   Explain typical radio transmitter system.
     (d)   Explain the generation of SSB using filter method

Q.6   Attempt any three.   [15M]
     (a)   Differentiate between AM and FM
     (b)   State sampling theorem. Explain PPM generator with waveforms.
     (c)   Explain pre-emphasis and de-emphasis in detail.
     (d)   Write a note on FDM.

Q.7   Attempt any three.   [15M]
     (a)   What is digital communication? Explain ASK.
     (b)   Write a short note on lasers.
     (c)   Explain types of optical fibers
     (d)   Explain propagation of light in optical fibres

Time: 3 hours Marks: 80

N.B. : 1. All questions are compulsory (Q1-Q8)
   2. Each question carries 10 marks.
   3. Draw neat and labelled diagram wherever necessary.

Q1 **Attempt any two .**
 a) Write an algorithm for finding N factorial and draw the corresponding flowchart. [Where N! = 1*2*3*.........*(N-1)*N] 5m
 b) Explain O-notation with an example? 5m
 c) What is a flowchart? Explain with suitable examples. 5m

Q2 **Attempt any two.**
 a) Define Identifier. State the rules for valid identifiers. 5m
 b) What is an operator? Explain arithmetic and relational operators with example. 5m
 c) What data types would you use to represent the following items? 5m
   i. the number of in a employees in the department .
   ii. the target sale by a salesman. iii. name of the employee
   iv. the population of a city v. the height of the employee.

Q3 **Attempt any two.**
 a) Explain the difference between for and do-while loop with example. 5m
 b) Write a short note on nested if-else statements in C++ program. 5m
 c) What is Type cast? Explain Type cast operator with example. 10m

Q4 **Attempt any two.**
 a) What are the steps involved in Object-Oriented Design? 5m
 b) Which of the following represent valid identifiers?
   i. identifier ii. seven_11 iii. _unique_ iv. gross-income v. gross$income
 c) Explain the use of break and continue with examples 5m

Q5 **Attempt any two.**
 a) What is function? Explain built in function with example. 5m
 b) Write short note on inline function and recursion function. 5m
 c) Explain Call by reference function with example. 5m

Q6 **Attempt any two.**
 a) What is array? Write a C++ program fornaddition of two 2X2 matrices. 5m
 b) Write short note on sizeof() operator in array. 5m
 c) How to use pointer in C++? Explain pointer with syntax and example. 5m

Q7 **Attempt the following.** 5m
 a) Write a C++ program to accept name and address and phone numbers of employee using structure and print the same. 5m
 b) Give the syntax of structure and explain nested structure. 5m
 c) What is string? Explain accessing string with example. 5m

Q8 **Attempt any two.**
 a) Explain user defined function with example. 5m
 b) Explain multidimensional array with example. 5m
 c) Explain i) strcmp, ii) strcat, iii) strlen with example 5m

[TURN OVER

Con. 307–18.   **WF–6884**

Time: 3 hours   Marks:100

N.B. : 1. All questions are compulsory (Q1-Q7)
      2. Attempt any 3 sub questions out of 4 from Q2 to Q7
      3. Draw neat and labelled diagram wherever necessary.

Q1   Attempt the following questions.
  a) Write an algorithm for finding N factorial and draw the corresponding   5m
     flowchart. [Where N! = 1*2*3*.........*(N-1)*N]
  b) Explain O-notation with an example?   5m

Q2   **Attempt any three.**   5m
  a) What is a flowchart? Explain with suitable examples.
  b) What is program design? Explain the steps involved in program design.   5m
  c) Draw a flowchart to find the sum of first 10 natural numbers.   5m
  d) What is C++? Explain the structure of C++ program.   5m

Q3   **Attempt any three.**
  a) Define Identifier. State the rules for valid identifiers.   5m
  b) What is an operator? Explain any two types of operators with example.   5m
  c) What data types would you use to represent the following items?   5m
    i. the number of students in a class
    ii. the grade (a letter) attained by a student in the class
    iii. the average mark in a class
    iv. the population of a city v. the distance between two points
  d) Which of the following represent valid variable definitions? i. int n = -100;   5m
    ii. unsigned int i = -100; iii. signed int = 2.9; iv. long m = 2, p = 4; v. double x = 2 * m;

Q4   **Attempt any three.**
  a) Explain the difference between while and do-while loop with example.   5m
  b) Write a short note on switch, break and continue statements in C++ program.   5m
  c) Write a C++ program to check whether given number is even or odd.   5m
  d) What is Type cast? Explain Type cast operator with example.   5m

Q5   **Attempt any three.**
  a) Distinguish between Call by value and Call by reference function.   5m
  b) What is recursive function? Explain with example.   5m
  c) State and explain any two built in function.   5m
  d) What is user defined function? Explain with example.   5m

Q6   **Attempt any three.**
  a) Write a C++ program that transposes matrix. Program stores given matrix   5m
    dimensions and every single matrix element must be given. Transposed matrix
    is the one with rows and columns switched.
  b) Write short note on pointers in function.   5m
  c) How to use pointer in C++? Explain pointer with syntax and example.   5m
  d) What is array? Explain multidimensional array with example.   5m

Q7   **Attempt any three.**
  a) What is structure? Explain the syntax of structure with example.   5m
  b) Write a C++ program to accept name and address and phone numbers of   5m
    student using structure and print the same.
  c) Explain i) strcmp, ii) strcopy, iii) strlen with example   5m
  d) Write short note on resizing vector.   5m

F.Y.BSC (I.T.)
(sem - I)

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