

- N.B. :** (1) Question No. 1 is **compulsory**.  
 (2) Attempt any **four** out of the remaining **six** questions.  
 (3) Answers to **all** the sub-questions should be attempted and **grouped together**.  
 (4) Numbers on **right** indicate **maximum** marks for the question.

1. a) With the help of a diagram, describe the components and process of communication. 10

b) List the major objectives of communication. Explain any one. 05

2. a) In anticipation of the Diwali season, Kamal Cloth Shop, Andheri, Mumbai 400 056, placed a large order of cloth with the manufacturer Arjun Mills, Kandivli, Mumbai 400 101 for deliveries in the month of October. The goods, however, reached the shop in November. As the proprietor of the shop, write a letter of complaint to the manufacturer seeking a 25% discount for the delay and loss occurred to you. Use **Modified Block Form**. 10

b) Define :( any one), 1. Electric bulb 2. Thermometer 05

3. a) You want to renovate your office situated at Ram Mahal, M.G. Road, Fort, Mumbai -400001. Write a letter of enquiry to Elegant Interior Decorators, Sita Kunj, Cadell Road, Mumbai seeking information about the availability of furniture, cost of renovation, work schedule, etc. Use **Full Block Form**. 10

3. b) Give one word for: 05

1. The way one sits or stands. P - - - - -.
2. Movements of the hand or head that convey meaning G - - - - -.
3. Communication by touch. H - - - - -.
4. The study of the sounds of a language. P - - - - -.
2. Communication by the use of oral or written word. V - - - - -.

4. Write short notes on (any Three): 15

1. Video conferencing.
2. The necessity and importance of feedback
3. The features of listening and hearing.
4. Grapevine Communication.
5. E- Mail Etiquette.

5a) Give instructions for: Using a Hack saw.

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b) State whether following statements are True or False.

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- 1) Acting is a form of communication
- 2) Body language is less important than verbal language.
- 3) In closed punctuation there are commas after the address.
- 4) The meaning of the message is not in the words
- 5) Extreme emotion enhances communication.

6.a) Read the following passage & answer the questions below:

After years of phenomenal growth, the computer has lost its upward trend. Profits of computer makers have been falling steadily, and sales of home computers are expected to fall further ten per cent this year. But help is on the way. On the horizon, within months or at the most a few years, are dozens of advances that will make computers super fast, super smart and super-friendly. These breakthroughs constitute a turning point – what numerous authorities call the “Next frontiers” of computer development. “We are entering a time that will be recalled as the birth of new and markedly different kinds of computers”, says Arno Penzias, Vice-president for research at Bell Laboratories. “They will make today’s best machine seem like an antique car. Consider: A typewriter without keyboard that converts speech into written text with near perfect accuracy. A car that won’t budge if the driver has been drinking. A video screen that reads your lips, eyes and gestures, anticipating what you want and then providing it. These are just some developments on the way that are likely to make the computer even more pervasive than it is today. Foremost among technological breakthroughs is a dramatic increase in the speed and capacity of electronic chips, the tiny slivers of silicon that are the nerve cells of every computer. One-megabit chips, each containing a million transistors, now allow computer designers to fabricate machines with powerful analytical skills. These semi-conductors also permit the design of ultra fast machines that will lock and unlock doors with voice commands or store TV programmes and replay them with crystal clarity. Logic chips, which compute rather than store information, are also advancing quickly. A new Intel microprocessor runs 17 times faster than that used in IBM’s first computer. The absolute limit? It’s not even in sight. James Meindi, co-director of Stanford’s Centre for Integrated Systems, insists that memory chips holding no fewer than a billion transistors will be available by the end of the century.

- 1) What kind of growth has the computer seen? .
- 2) Why is it said that the computer has lost its upward trend?
- 3) What is on the horizon?
- 4) Mention two developments that will make computers pervasive?
- 5) What is the technological breakthrough referred to?
- 6) What work do logic chips do?
- 7) Describe electronic chips?
- 8) Who is Arno Penzias? What does he say?

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6 b) Summarize the above passage

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7a) Identify the Barriers in the following situations:

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- (1) A student unable to speak in front of the class even though well prepared with a speech. (Semantic barrier, psychological barrier, physical barrier).
- (2) Inability of a rural audience in India to understand the speech of The President of America on T.V. (cross-cultural barrier, barrier of information overload, physical barrier)
- (3) A worker not understanding the manager's instructions in spite of listening. (cultural barrier, psychological barrier, status barrier)
- (4) A Russian not being able to carry on a dialogue with an Australian who is on a visit to Russia. ( physical barrier, semantic barrier, psychological barrier)
- (5) A successful businessman not accepting the ideas of a salesman who comes to him with a new product. (semantic barrier, socio-cultural barrier, psychological barrier)

7. b) Explain the process of: Making a metallic box in the workshop.

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FE SEM II  
Applied Maths - II

29/11/2010  
(Exam. Nov. 2010)

Con. 5544-10.

GT-7845

(3 Hours)

[Total Marks : 100

**N.B. i) Question 10. 1 is compulsory.**

**ii) Attempt any four out of remaining six questions.**

**iii) Figures to the right indicate full marks.**

**iv) Answers to the individual questions must be grouped and written together.**

1. (a) Prove that  $\int_0^{\infty} \frac{x^{m-1}}{(a+bx)^{m+n}} dx dy = \frac{B(m,n)}{a^n b^m}$  (5)

(b) Evaluate by changing to polar co-ordinates  $\int_0^1 \int_0^x (x+y) dx dy$  (5)

(c) Use differentiation under integral sign to prove that

$$\int_0^{\infty} \frac{\log(1+ax^2)}{x^2} dx = \pi\sqrt{a}, \quad (a>0) \quad (5)$$

(d) Solve  $\frac{dy}{dx} = \frac{y+1}{(y+2)e^{y-x}}$  (5)

2. (a) Evaluate  $\int_0^a \int_0^x \frac{e^y}{\sqrt{(a-x)(x-y)}} dx dy$  (6)

(b) Change the order of integration  $\int_0^2 \int_{\sqrt{4-x^2}}^{4-x} f(x,y) dx dy$  (7)

(c) Show that the length of an arc of that part of cardioids  $r=a(1+\cos\theta)$

which lies on the side of the line  $4r=3a\sec\theta$  remote from the pole is

equal to  $4a$ . (7)

3. (a) Solve  $(1+\sin y)\frac{dx}{dy} = [2y\cos y - x(\sec y + \tan y)]$  (6)

(b) Solve  $(2xy^4e^y + 2xy^3 + y)dx + (x^2y^4e^y - x^2y^2 - 3x)dy = 0$ . (7)

(c) Find the area common to the circles  $r=a$  and  $r=2a\cos\theta$ . (7)