Code: 1GA51

R-11/R-13

III B.Tech. I Semester Supplementary Examinations November 2016
Managerial Economics and Financial Analysis
(Common to CE, ME and ECE)

Max. Marks: 70   Time: 3 Hours

Answer *any five* questions
All Questions carry equal marks (14 Marks each)
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1. Define Managerial Economics. Explain the relationship of managerial economics with other fields of study. 14M

2. What do you understand by Demand function? Explain about the determinants of Demand. 14M

3. From the following data calculate
   a. P/V Ratio
   b. Profit when sales are Rs 5,00,000
   c. New Break-Even Point, if the selling price is reduced by 20%
   Fixed expenses Rs. 1,00,000
   Break even point Rs. 2,50,000 14M

4. How is price determined under competitive conditions? 14M

5. "Joint stock company form of organisation is better than Partnership", explain. 14M

6. Given the following information for two project proposals. Rank them by applying the criteria of
   a. Payback method
   b. ARR

Year	Proposal 1 Cash Inflows in Rupees	Proposal 2 Cash Inflows in Rupees
1	11,750	13,500
2	12,250	12,500
3	12,500	12,250
4	13,500	11,750

   14M

7. From the following transactions prepare journal entries and post them in the appropriate Ledger accounts, in the books of AVINASH&CO.
   2008, May 1 Commenced Business with Rs 1,00,000
   May 5 Purchased goods from Rahul&Co Rs10,000
   May 7 Sold goods worth Rs20,000
   May 10 Salaries paid Rs1,500
   May 11 Purchased Stationery worth Rs1,000
   May 15 Bought furniture worth Rs20,000
   May 18 Cash deposited into bank Rs9,000
   May 20 Paid wages Rs5,000
   May 24 Cash withdrawn from bank Rs3,000
   May 28 Paid rent by cheque Rs1,800 14M

8. Following is the summarised Balance sheet of Verizon Company Ltd as on 31st December 2015.

Balance sheet as on 31st December 2015

Liabilities	Rs	Assets	Rs
Equity Share Capital	2,50,000	Goodwill	20,000
6% Preference Share Capital	1,50,000	Land & Buildings	2,50,000
Reserves & Surplus	20,000	Machinery	1,75,000
5%Debentures	1,00,000	Furniture	10,000
Profit & Loss	15,000	Stock	90,000
Sundry Creditors	28,000	Debtors	21,000
Bills Payable	12,000	Cash at Bank	5,000
		Patents	4,000
	5,75,000		**5,75,000**

Additional Information: Total sales Rs4,00,000; in that 20% of which is made on credit. Gross Profit is Rs 80,000 and Net Profit is Rs20,000.

Comment on the Financial condition of the Verizon Company Ltd by calculating

a. Current Ratio   b. Quick Ratio   c. Debt-equity Ratio

d. Gross Profit Ratio   e.Net Profit Ratio   f. Stock turnover ratio   14M

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III B.Tech. I Semester Supplementary Examinations November 2016
Analog Communications
(Electronics and Communication Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any ***five*** questions
All Questions carry equal marks (14 Marks each)
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1. a) Discuss the fundamental limitations of communication system?   7M

   b) With the help of block diagram explain the elements of Communication System?   7M

2. a) Draw the circuit diagram for balanced ring modulator and explain its operation indicating all the wave forms and spectrums?   7M

   b) What is DSB-SC modulator? Explain how the ring modulator is used for generation of DSB-SC signal?   7M

3. a) What are the advantages and disadvantages of generating AM-SSB using filter method?   6M

   b) Draw the block diagram of phasing method for generating SSB signal, for an audio baseband signal. What are the frequency requirement of the Filter?   8M

4. a) What is the bandwidth requirement for FM signal, give the necessary reasons?   7M

   b) What is the need for balanced slope detector over slope detector?   7M

5. a) What are the limitations of slope detector?   7M

   b) Explain about threshold effect in F.M.?   7M

6. a) With the help of block diagram, explain the basic principle and working of phase modulated FM transmitter?   7M

   b) Explain the operation of amplitude modulated transmitter using modulation at high carrier power level?   7M

7. a) Draw the black diagram of super heterodyne receiver and explain the functionality of each block?   8M

   b) Discuss the drawbacks of tuned radio frequency receiver?   6M

8. a) What is the need for pulse modulation systems?   7M

   b) Explain with the help of block diagram, how PWM is generated?   7M

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III B.Tech. I Semester Supplementary Examinations November 2016
Linear IC Applications
(Electronics and Communication Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five* questions
All questions carry equal marks (**14 Marks** each)
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1. a) Calculate the amplification factor for AC signal input in dual input balanced output differential amplifier.   7M

   b) What is the level translator? What is the necessity of level translator stage in cascading of differential amplifiers?   7M

2. a) Explain in detail all the DC characteristics of an ideal OP-AMP with relevant expressions.   10M

   b) A differential amplifier has a common mode gain $A_C = 0.1$ and difference mode gain $A_d = 200$. Let the input signal be $V_1 = 1050$ µV and $V_2 = 950$ µV. Compute the output voltage and CMMR.   4M

3. a) Draw the basic differentiator circuit. Explain the operation along with frequency response. What is the need for practical differentiator?   7M

   b) Draw and explain the commonly used three OP-AMP instrumentation amplifier circuit .Derive the expression for its gain.   7M

4. a) Explain the operation of a monostable multivibrator using OP-AMP and calculate the duty cycle of it.   7M

   b) With the help of a neat circuit diagram explain the working of a logarithmic amplifier. Derive the expression for the output voltage.   7M

5. a) What is sallen-Key filter? Derive the expression for its transfer function.   10M

   b) Design and draw a notch filter for $f_N = 8$KHz and Q = 10.Choose C = 500pF.   4M

6. a) Derive an expression for the voltage to frequency conversion factor of 566 VCO? 7M

   b) Draw the circuit of PLL as frequency multiplier and explain its working.   7M

7. a) Give the schematic circuit diagram of a successive approximation type A/D converter and explain the operation of this system.   7M

   b) With a neat diagram explain the function of an inverted R-2R ladder type D/A converter.   7M

8. a) Draw the circuit diagram IC1496 balanced modulator circuit and explain its operation.   7M

   b) What is a sample and hold circuit? Why it is needed? With neat circuit diagram, describe the operation of an OP-AMP based sampled and hold circuit.   7M

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III B.Tech. I Semester Supplementary Examinations November 2016
Digital IC Applications
(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours
Answer *any **five*** questions
All questions carry equal marks (**14 marks** each)
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1. a) Design a CMOS 4-input AND-OR-INVERT gate. Draw the logic diagram and function table. 8M

   b) Calculate the fall time of CMOS inverter output with R_n = 100 , V_{DD} = 5V and C_L=200pF. 6M

2. a) Draw the circuit diagram of two-input 10K ECL OR gate and explain its operation. 7M

   b) What do you mean by 5v tolerant inputs? Explain the input structures of non 5v tolerant input and 5v tolerant input. 7M

3. a) Discuss the steps in VHDL design flow. 8M

   b) Write syntax for FUNCTION and PACKAGE declaration. 6M

4. a) Write syntax for CASE, WITH-SELECT and COMPONENT declaration statements. 9M

   b) Write VHDL code for half adder using structural architecture. 5M

5. a) Design 4 to 16 decoder using standard ICs. 7M

   b) Draw logic symbol and write VHDL code for 74x157 using dataflow design elements. 7M

6. a) Design and explain about dual priority encoder? 8M

   b) Write a VHDL code for dual priority encoder? 6M

7. a) Design a modulo-11 counter using 74X163 IC? 7M

   b) Design circular right shift operation using 74x194? 7M

8. a) Design 1-bit full adder using ROM. 8M

   b) Draw the basic cell structure of Dynamic RAM. What is the necessity of refresh cycle? Explain the timing requirements of refresh operation. 6M

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III B.Tech. I Semester Supplementary Examinations November 2016
Antennas and Wave propagation
(Electronics and Communication Engineering)

Max. Marks: 70

Time: 3 Hours

Answer *any five* questions
All Questions carry equal marks (**14 Marks** each)
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1. a) Define and explain the following terms of the antennas   7M

    (i) Radiation Intensity
    (ii) Directivity
    (iii) Beam Efficiency

    b) Discuss in detail about shape-impedance considerations   7M

2. a) Derive the power radiated and radiation resistance due to small electric dipole   7M

    b) Define the effective area of the antenna and show that the effective area of   7M
        short dipole is $0.119\lambda^2$

3. a) Explain the principle of pattern multiplication with the help of suitable example   7M

    b) Give the current distribution and radiation pattern of folded dipole and explain   7M
        its characteristics

4. a) Explain the constructional features of Rhombic antenna and give its design   7M
        considerations

    b) What are the different modes of operation of Helical antenna, give their   7M
        radiation patterns and explain the design consideration of monofilar helical
        antenna

5. a) What are the different types of horn antennas, give their structure and explain   7M
        about optimum horn

    b) Define and explain the following terms with respect to paraboloidal reflectors   7M

        (i) Spill over
        (ii) Back lobes
        (iii) Aperture blocking

6. a) Define wave propagation and differentiate between the different modes of   7M
        wave propagation

    b) Explain about the plane earth reflection and curved earth reflection   7M

7. a) Explain the variation of space wave filed strength with height   7M

    b) The transmitting and receiving antennas with respective heights of 49 m and   7M
        25 m are installed to establish communication at 100 MHz with a transmitted
        power of 100 watts. Determine the LOS distance and received signal strength.

8. a) Explain the propagation mechanism of Ionospheric wave propagation   7M

    b) With regard to sky wave propagation define and explain the following terms   7M

        (i) Critical frequency
        (ii) MUF
        (iii) Skip distance

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III B.Tech. I Semester Supplementary Examinations November 2016
Computer System Architecture
(Electronics and Communication Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any **five*** questions
All questions carry equal marks (14 Marks each)
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1 a) Covert the following to indicated bases
  i) $(746)_8$ to ($)_2$ 2M
  ii) $(1111.110)_2$ to ($)_{10}$ 2M
  iii) $(256)_{10}$ to ($)_8$ 2M
  iv) $(176)_{10}$ to ($)_2$ 1M
 b) Obtain 9's complement of 12349876   2M
 c) Obtain 10's complement of 123900 , 90657   4M
 d) Obtain 1's complement of 1001001   1M

2. a) Draw the 4 bit adder-subtraction and explain   7M
  b) Draw the flowchart for interrupt cycle   7M

3. a) Explain various Addressing modes with examples   9M
  b) what are the differences between RISC and CISC   5M

4. a) Define the following :
    i) micro operation
    ii) microinstruction
    iii) micro program   6M
  b) Discuss the design of micro control   8M

5. a) Explain Booth Multiplication with example   7M
  b) Draw the flow chart for add and subtract operations and explain it   7M

6. a) Write an example for Direct mapping of cache memory organization   7M
  b) Explain Hardware implementation of associative memory   7M

7. a) Explain Source initiated data transfer using Handshaking method   7M
  b) Discuss about DMA Data transfer   7M

8. a) Discuss about Four-segment instruction pipeline with example   7M
  b) Explain architecture of time-shared common BUS   7M

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