B.Tech DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS & COMMUNICATIONS

Paper - I : Industrial Management

Time : 3 Hours   **Maximum Marks : 75**

Answer any FIVE questions

ALL question carry equal marks

1)   Explain the functions of management logically.

2)   What are the features of joint stock company?

3)   State the merits and demerits present worth method.

4)   Why is depreciation provided?

5)   Bring out the significance of value analysis.

6)   Give an account of different types of inspection.

7)   Describe the features of different kinds of leaders.

8)   How is supplier selected to provide materials?

9)   Enumerate the stages involved in the product life cycle.

10)   State the nature and significance of ABC analysis of inventory control.

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(DEC 412)

B.Tech DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS & COMMUNICATION ENGG.

Paper - II : Satellite Communication

Time : 3 Hours   **Maximum Marks : 75**

Answer Question No.1 compulsory   *(15)*

Answer ONE Question from each unit   *(4 × 15 = 60)*

1) a) What are the applications of satellite system?

    b) Define polar-orbiting satellite.

    c) What is FHSS?

    d) Define apogee & perigee.

    e) Write the formula for GST.

    f) What is fast frequency hopping?

    g) Write the equation of C/N ratio.

UNIT - I

2) a) Explain orbital perturbation's.

    b) Explain the determination of Look angle.

                                OR

3) a) Explain the various satellite orbits.

    b) State Kepler's first & second law.

UNIT - II

4) a) Explain TDMA, FDMA & CDMA.

    b) Explain briefly about power system used in a satellite.

<center>OR</center>

5)   a)   Write short notes on DAMA satellite system.

        b)   Explain sub satellite point.

<center>**UNIT - III**</center>

6)   a)   Write short notes on VSAT system.

        b)   Explain the EIRP & transmission losses.

<center>OR</center>

7)   a)   Explain the design of uplink & downlink models.

        b)   Draw the block diagram & explain the system noise temperature.

<center>**UNIT - IV**</center>

8)   a)   Explain DSSS with CBPSK.

        b)   Explain the types of practical jammer.

<center>OR</center>

9)   a)   Explain Acquisition & tracking.

        b)   Explain clearly about THSS.

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B.Tech DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS & COMMUNICATION Engg.

Paper - III : Microwave Engineering

Time : 3 Hours   **Maximum Marks : 75**

Answer Question No.1 compulsory   *(15)*

Answer ONE question from each unit   *(4 × 15 = 60)*

1) a) What are the precautions to be taken while set up microwave bench for measurement of various parameters.

  b) What is GUNN-EFFECT?

  c) What is meant by strapping?

  d) What is the effect of transit time?

  e) Give the applications of Magic tee.

  f) Mention the purpose of slow wave structures used in TWT-amplifier.

  g) Define waveguide.

UNIT - I

2) Discuss the limitations of "conventional tubes" at microwave frequencies

  a) Inter electrode capacitance.

  b) Lead Inductance.

  c) Transit time.

OR

3) a) What is Magnetron? How it is different in principle of operation from that of BWO.

  b) What is meant by "wheel spoke bunching". Explain indetail.

UNIT - II

4) a) Derive the scattering matrix for shunt or H-plane tee.

b) Explain the functioning of Rotary vane attenuator.

OR

5) a) Explain the construction, Operation & applications of Gyrator.

b) Give the properties of S-matrix.

UNIT - III

6) a) Discuss in detail the principle of operation of GUNN-Diode according to the two valley model theory & sketch its volt-ampere characteristics.

b) Write short notes on pin diode.

OR

7) a) Explain the physical structure & construction of IMPATT diode.

b) Write short notes on crystal detector.

UNIT - IV

8) a) Draw the microwave bench setup neatly & explain each block.

b) With the help of Reflectometer explain measurement of impedance.

OR

9) a) Describe the techniques of measuring unknown frequency of a micro wave generator.

b) How are microwave measurements different from low frequency measurements.

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B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATION ENGG.

Paper - IV : Antennas and Propagation

Time : 3 Hours   **Maximum Marks : 75**

Answer question No.1 compulsory   *(15)*

Answer ONE question from each unit   *(4 × 15 = 60)*

1)   a)   Write the basic sources of Radiation.

     b)   What is the Maxwell's importance in antennas?

     c)   Explain about radiation from quarter wave.

     d)   Write briefly Isotropic, Directional, Omini directional patterns.

     e)   Write about power loss factor and polarization.

     f)   Give short notes on parabolic reflector antennas.

     g)   What is Helical Antenna importance?

     h)   How many layers in the ionosphere and give brief on layers.

     i)   Explain Maximum usable frequency.

UNIT - I

2)   a)   Draw the Travelling wave Antennas and explain clearly each antenna.

     b)   Explain the effect of the point of feed on standing wave antennas.

OR

3)   a)   Explain about Maxwell's equations.

     b)   Derive the expression for Radiation resistance $R_{rad} = 80\pi^2 \left(\dfrac{dl}{\lambda} \right)^2$.

UNIT - II

4) a) Explain about Isotropic, Directional omini directional patterns.

   b) Write short note on radiation density and Radiation Intensity.

OR

5) a) Explain about Antenna polarisation and radiation efficiency.

   b) Write about effective aperture of antenna.

UNIT - III

6) a) When antenna arrays are used and sketch the radiation patterns of two non directional radiations.

   b) Extract the expressions for magnitude of total fields strength.

OR

7) a) Sketch and explain about multiplication of patterns.

   b) Explain about Binomial array.

UNIT - IV

8) a) Classify the all types of propagation and explain about them.

   b) Discuss about Radio Horizon and Duct propagation.

OR

9) a) Discuss about Ionosphere.

   b) Derive the expression for critical frequency.

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B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATION ENGG.

Paper - V : VLSI Design

Time : 3 Hours   **Maximum Marks : 75**

__Answer question No. 1 compulsory__   *(15)*

__Answer ONE question from each unit__   *(4 x 15 = 60)*

1) a)   What are the advantages of FPGAs?

b)   Write the program structure of VHDL.

c)   What are the advantages of BiCMOS Technology?

d)   Draw the circuit diagram of CMOS inverter.

e)   Write an ENTITY of 4X1 MUX in VHDL.

f)   Write the expression for drain current in saturation region.

g)   Define logic synthesis.

h)   What is lithography technique?

i)   Write scaling factor of Gate capacitance.

j)   Compare CPLDs and FPGAs.

Unit - I

2) a)   Short notes on advanced CMOS fabrication technologies.

b)   Write a short note on following :

i)   Figure of merit

ii)   Pass transistor

3) a) Explain various regions of CMOS inverter transfer characteristics.

b) Write short note Latch up in CMOS ciruts.

Unit – II

4) a) Draw the layout for NMOS inverter circuit.

b) Write short note wiring capacitances.

OR

5) a) Draw the stick diagram and layout of CMOS 2 input NOR gate.

b) Explain Lambda (λ) based design rules.

Unit – III

6) a) Construct an 8-bit Carry select adder Using adders and multiplexers.

b) Draw the schematic and logic diagram for a single bit adder and explain its Operation with truth table.

OR

7) a) Compare the different types of CMOS subsystem Multipliers.

b) Design logic for an ALU that can perform both logical and arithmetic operations.

Unit – IV

8) a) Implement of full adder using PLA.

b) Describe behavioral design elements with examples.

OR

9) a) Explain about anti fuses used in FPGAs.

b) Write a program in VHDL for an 2X4 Decoder in behavioral and structural style.

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(DEC 416 A)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS & COMMUNICATIONS

Paper - VI : Computer Networks

Time : 3 Hours   **Maximum Marks : 75**

Answer question No. 1 compulsory   *(15)*

Answer ONE question from each unit   *(4 x 15 = 60)*

1)   Write a short notes on :

a)   Software.

b)   Hardware.

c)   Network Hardware.

d)   World wide web.

e)   Cryptography.

UNIT - I

2)   Explain about Data Link Layer.

OR

3)   Explain about protocols involved in the Data Link Layer.

UNIT – II

4)   Explain Broad Band Wireless, in detail.

OR

5)   Explain Design issues in Network layer.

UNIT – III

6)   Explain about elements of Transport protocol.

OR

7)   What is quality of service, techniques for achieving Good Quality of Service.

UNIT – IV

8) What is WWW? Draw its architectural overview.

OR

9) a) Explain about web security?

b) Explain about secure naming?

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B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATION ENGG.

Paper – VI : Speech Processing

Time : 3 Hours   **Maximum Marks : 75**

__Answer question No. 1 compulsory__   *(15)*

__Answer ONE question from each unit__   *(4 x 15 = 60)*

1) Write short notes on :

   a)   Define Discrete time signal.

   b)   Classifications of speech sounds.

   c)   What is meant by short time energy?

   d)   Write the Expression for Autocorrelation.

   e)   What is meant by STFT?

   f)   Brief explanation on Homomorphism Systems.

   g)   What is meant by quantization.

   h)   Define filter & classify the filters.

   i)   Speech signal is a ANALOG/DIGITAL. Why?

   j)   Difference b/w Digital signal & Discrete signal.

Unit - I

2) a) Discuss about categorization of speech sounds.

   b) Explain the Discrete time model based on Tube concatenation.

                                    OR

3) a) What is average zero crossing rate. Explain it?

   b) Estimate the pitch period using auto correlation.

Unit – II

4) a) Analyse the Sinusoidal Signal from STFT?

   b) Analyse the Sinusoidal Signal Frequency domain pitch estimation.

                                    OR

5) a) Explain the operation of Delta modulation.

   b) Briefly Explain Instantaneous Quantization.

Unit – III

6) Explain Indetailed about short-time speech Analysis and Synthesis structure.

                                    OR

7) a) Draw & explain the complex spectrum of speech.

   b) Explain spectral root homomorphic filtering.

Unit – IV

8) a) Discuss speaker recognition algorithms.

   b) What is Distortion measure sub-band coding.

                                    OR

9) a) Explain the speaker Recognition Algorithms.

   b) Discuss the features for speaker Recognition.

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(DEC 421)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS & COMMUNICATION ENGG.

Paper - I : Radar and Navigational Aids

Time : 3 Hours   **Maximum Marks : 75**

Answer question No. 1 compulsory   *(15)*

Answer ONE question from each unit   *(4 x 15 = 60)*

1) Write short note on :

     a)   Doppler Effect.

     b)   Range ambiguities.

     c)   MII improvement factor.

     d)   Clutter Atenuation.

     e)   Duplexer.

     f)   Radome.

     g)   PRF (pulse repetition frequency)

     h)   Limitations of CW-Radar.

UNIT - I

2)   a)   i)   Draw and explain the block diagram of Pulse Radar.

            ii)   What are the applications and limitations of Radar.

<div align="center">OR</div>

     b)   i)   Derive the simple form of Radar equation.

            ii)   Explain RCS of simple and multiple targets.

3)   a)   Draw and explain frequency response of single delay line canceller.

      b)   Explain staggered PRF.

<div align="center">OR</div>

      c)   Explain mono pulse tracking Radar by using amplitude comparision method.

      d)   Explain sequential lobing & conical scaning.

<div align="center">**UNIT – III**</div>

4)   a)   What are the different types of duplexers.

      b)   Discuss stealth applications.

<div align="center">OR</div>

      c)   Draw and explain super heterodyne receiver.

      d)   Different types of Electronic counter measures.

<div align="center">**UNIT – IV**</div>

5)   a)   Give features of DECCA.

      b)   Explain ILS.

<div align="center">OR</div>

      c)   Explain Automatic direction finder.

      d)   Explain features of OMEGA.

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B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATION ENGG.

Paper - II : Optical Communication

Time : 3 Hours | **Maximum Marks : 75**

Answer question No. 1 compulsory *(15)*

Answer ONE question from each unit *(4 x 15 = 60)*

1)   a)   Define MFD of single mode optical fibers.

     b)   Define Skew rays of optical fibers.

     c)   Mention various losses in optical fibers.

     d)   Draw the PIN diode characteristics.

     e)   Explain link power budget.

     f)   Define OTDR, OTDM, WDM.

Unit - I

2)   a)   Explain the modes of propagation in optical fibers detail.

     b)   Explain in detail about ray theory transmission of optical fibers.

OR

3)   a)   Draw and Explain the following in detail :
         i)   Elements of optical fiber communication system.
         ii)   Graded index and step index fibers.

     b)   Calculate the numerical aperture of a step index fiber having $n_1 = 1.48$ and $n_2 = 1.46$. What is the maximum entrance angle max for this fiber of the outer medium in the

         i)   Air, with $n = 1.0$.

         ii)   Water, with $n = 1.33$.

Unit – II

4)   a)   What is Dispersion in Optical fiber? Explain about intermodel and intramodel dispersion in fibers.

       b)   Explain in detail about attenuation and scattering mechanism in optical fibers.

<div align="center">OR</div>

5)   a)   What are losses in fiber couplers, Explain in detail about Optic switches?

       b)   Explain About Splicing in detail.

Unit – III

6)   a)   Draw the schematic of edge emitting double hetro-junction LED and explain its working in detail.

       b)   Explain the following :
          i)   Laser diode Rate equation.
          ii)   Quantum efficiency.
          iii)   Resonant frequencies.

<div align="center">OR</div>

7)   a)   With neat diagram explain principle operation of PIN optical detector.

       b)   Explain the principle of operation of Avalanche photodiode with the help of a neat diagram.

Unit – IV

8)   a)   Describe a method to carryout rise time budget analysis for a fiber optic link.

       b)   Explain the following in respect of digital link :
          i)   point to point links.
          ii)   power penalties.

<div align="center">OR</div>

9)   a)   Explain in detail about optical fiber measurements?

       b)   Describe the principle and necessity of WDM technique in Optical communication systems.

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(DEC 423)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATION ENGINEERING

Paper - III : Mobile and Cellular Communication (Waves)

Time : 3 Hours   **Maximum Marks : 75**

**Answer question No. 1 compulsory**   **(15)**

**Answer ONE question from each unit**   **(4 x 15 = 60)**

1)   a)   Draw the block diagram of cellular system.

      b)   List the important cellular concepts.

      c)   What is the need for cell splitting.

      d)   What are the three basic propagation mechanism?

      e)   What is frequency diversity?

      f)   Explain Doppler shift.

      g)   List the differences between wireless and fixed telephone networks.

      h)   Classify the GSM channels.

Unit - I

2)   a)   Explain concept of frequency Reuse channels.

      b)   Explain the major elements in the Cellular Mobile Radio System Design.

OR

3)   a)   Explain basic cellular system with neat diagram.

      b)   Explain paging system with neat block diagram.

4) a) Explain different types of small scale fading.

b) Discuss time diversity reception.

OR

5) a) Explain fading effects due to multipath time delay.

b) Explain the structure of linear transversal equalizer with neat sketch.

6) a) Explain GSM architecture.

b) Discuss Base Station in GSM.

OR

7) a) Write short notes on GSM short message services.

b) Explain Architecture of IS-95 with neat sketch.

8) a) Explain WAP protocol.

b) Explain functional groups of GRPS.

OR

9) a) Explain layering structure of CDMA 2000.

b) Explain W-CDMA.

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B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATION ENGINEERING

Paper - IV : Digital Image Processing

Time : 3 Hours   **Maximum Marks : 75**

Answer question No. 1 compulsory   *(15)*

Answer ONE question from each unit   *(4 x 15 = 60)*

1)   a)   What do you mean by digital image processing?

      b)   What is meant by sampling and Quantisation?

      c)   What are the applications of Image Segmentation?

      d)   What are the basic steps for filtering in frequency domain?

      e)   What do you mean by image restoration?

      f)   Define error free compression & lossy compression.

      g)   Write two differences b/n spatial & frequency domain filtering.

Unit - I

2)   a)   Explain about components of an Image processing system.

      b)   What are the various applications of digital Image Processing?

OR

3)   a)   Explain how digital images can be represented.

      b)   Explain the following relationship between pixels.

         i)   Connectivity

         ii)   Distance measures

Unit – II

4) a) Define histogram of a digital image. Explain how histogram is useful in image enhancement.

b) Explain how derivative helps to derive tools for image sharpening.

OR

5) Explain about smoothing and sharpening methods in frequency domain.

Unit – III

6) a) Explain the concept of inverse filtering & what are the limitations of it.

b) Explain about the restoration filters used when the image degradation is due to noise only.

OR

7) a) Explain with a block diagram about each block of image compression model.

b) Explain a lossy predictive coding model of encoder & decoder.

Unit – IV

8) a) Explain different thresholding operations used in image segmentation.

b) Explain the concept of edge linking & boundary detection.

OR

9) Explain the detection of discontinuities in detail.

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B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

ELECTRONICS AND COMMUNICATIONS

Paper - IV : Microcontroller and Embedded Systems

Time : 3 Hours   **Maximum Marks : 75**

Answer Question No. 1 compulsory   *(15)*

Answer ONE question from each unit   *(4 x 15 = 60)*

1) a) What is the difference between Microprocessor and microcontroller?

b) Write the PSW in 8051.

c) Write the Interrupts in 8051.

d) Draw the internal memory organization of 8051.

e) What is an Embedded system?

f) What is Mutex?

g) What is Event Register?

Unit - I

2) a) Draw the Pin diagram of 8051.

b) List out the features of 8051.

OR

c) Explain the Memory organization of 8031.

d) With example, Explain instruction set of 8051.

Unit – II

3) a) Write advantages of Microcontrollers.

b) Discuss input and output device interface.

c)   Explain USB.

d)   Explain Parallel Communication Standards.

Unit – III

4)   a)   With help of a schematic diagram of explain the relationship between OS, computers hardware, system hardware in an Embedded system.

b)   Discuss OS Security.

OR

c)   Explain Scheduling Algorithm.

d)   Discuss Event Register and Memory Management.

Unit – IV

5)   a)   Discuss the issues involved in Designing ES.

b)   Explain a case study- Automatic Vending Machine.

OR

c)   Explain the Concept of device drives.

d)   Explain the working Smart Card.

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