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300858(76)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Electronics and Telecommunication Engg. Branch)

PROJECT PLANNING, MANAGEMENT & EVALUATION

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) is compulsory & carries 2 marks and attempt any* ***two*** *parts from (b), (c) and (d) carries 7 marks each.*

Unit-I

1. (a) What is SWOT analysis?

(b) How project ideas are generated? What aspects of business environment need to be monitored?

(c) What are the qualities and traits of a successful entrepreneur?

(d) "Socio-economic consideration in project formulation" critically analyze the statement.

Unit-II

2. (a) What is an econometric model?

(b) Explain various methods of demand forcasting.

(c) What are various uncertainties in market analysis and demand forecasting?

(d) Write your comments on technical analysis of projects.

Unit-III

3. (a) What is break even analysis?

(b) What are the components of cost of project? Discuss them in detail.

(c) What are the key points for estimation of working capital requirement and its financial planning?

(d) Discuss the major components of cost of production.

Unit-IV

4. (a) How Net Present Value (NPV) can be an important criterion for acceptance of a project?

(b) Explain rationale for the NPV rule. Evaluate NPV of a firm's project with following cash flow stream :

Year	Cash Flow (in Rs.)
0	10,00,000
1	2,00,000
2	2,00,000
3	3,00,000
4	3,00,000
5	3,50,000

Where the discount rate for the firm is 10 percent.

(c) What is IRR and the problems associated with IRR? What are redeeming qualities of IRR?

(d) Write short notes on accounting rate of return and payback period?

Unit-V

5. (a) State the rules of constructing a project network.

(b) What is the main aspect of project planning? How it is important for a successful project? Explain.

(c) Explain the CPM analysis with the help of a simple example.

(d) What are steps involved in PERT analysis?

328812 (28)

BE (8th Semester)

Examination, April - May, 2021

Branch : Et & T

VLSI DESIGN

Time Allowed : Three Hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of each unit is compulsory. Attempt any two parts from (b), (c) and (d).

UNIT - I

Q. 1. (a) What is SSI, MSI and VLSI. **2**

(b) Explain VLSI Design Flow using flow chart. **7**

(c) Explain design hierarchy concept of regularity modularity and locality. 7

(d) Write short notes on FPGA and Design $F = \bar{x}_1\bar{x}_2 + x_1x_2$ using two input LUT. 7

UNIT - II

Q. 2. (a) Draw the circuit diagram of CMOS inverter. 2

(b) Explain basic steps of fabrication process of CMOS. 7

(c) Design circuit diagram and layout of 3 Input NAND gate. 7

(d) Draw basic BiCMOS circuit of two input NAND gate. 7

UNIT - III

Q. 3. (a) What is the difference between SRAM and DRAM. **2**

(b) Draw circuit diagram of 4 × 4 MOS NOR ROM and explain storage in each location. **7**

(c) Design schematic of 4 × 1 MUX. **7**

(d) Draw schematic and layout of 6 transistor SRAM cell. **7**

UNIT - IV

Q. 4. (a) What is entity in VHDL. **2**

(b) Write short notes on process statement and write down VHDL code of 4 × 1 MUX. **7**

(c) Explain in brief structural style of modelling with one example. **7**

(d) Write VHDL code for 9 Bit Parity generator circuits. 7

UNIT - V

Q. 5. (a) What is FSM. 2

(b) What is the difference between Melay & Moore State Machine. 7

(c) Write short note on operator overloading. 7

(d) Design an FSM that has input w and an output z. The machine is a sequence detector that produces z = 1 when the previous two values of w were 00 or 11, otherwise z = 0. 7

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328831(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Electronics & Telecommunication Engg. Branch)

ADVANCED COMMUNICATION SYSTEMS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each unit is compulsory carry 2 marks. Attempt any* ***two*** *parts from (b), (c) and (d) carry 7 marks. Assume suitable data if required.*

Unit-I

1. (a) Define Satellite. 2

(b) Describe in detail the three laws of Kepler used for satellite communication. 7

(c) Explain how the satellite is placed into a Geo-stationary Orbit. 7

(d) Give the technical details of different orbital parameters for satellite communication. 7

Unit-II

2. (a) Give the full of EIRP. 2

(b) Derive the expression for SNR for FM detection for satellite communication. 7

(c) Derive general link expression. Find out the expression for C/N and G/T ratio. 7

(d) Determine the power received by a satellite located at 40000 kms from the surface of Earth. Satellite is operating a frequency of 11 GHz and EIRP of 21 dB Watts. The gain of a receiving antenna is 50·5 dB. 7

Unit-III

3. (a) Write down the full form of TDMA, FDMA, WDMA and CDMA. 2

(b) Explain about Intelsat TDMA system. 7

(c) Explain about DS-SS and FH-SS. 7

(d) Draw and explain working of CDMA system. 7

Unit-IV

4. (a) Explain TIR in case of optical communication. 2

(b) Explain the working of Step Index Fiber and Graded Index Fiber. 7

(c) Define and calculate Critical Incidence angle, critical propagation angle, acceptance angle and NA of optical fiber with $n_1 = 1{\cdot}48$ and $n_2 = 1{\cdot}46$. 7

(d) Explain Attenuation and Dispersion in case of Optical communication. 7

Unit-V

5. (a) Write the full form of LASER. 2

(b) Draw and explain the technical details SLED and ELED. 7

(c) State different photodiodes. Explain the working of any one photodiodes. 7

(d) Draw and explain the technical details SLED and ELED. 7

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328831(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Et&T Engg. Branch)

ADVANCED COMMUNICATION SYSTEMS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each unit is compulsory carry 2 marks. Attempt any* ***two*** *parts from (b), (c) and (d) carry 7 marks.*

Unit-I

1. (a) Define Synchronous Satellite. 2

   (b) Give the name and explain at least three different orbital parameters. 7

(c) What is meant by Look Angles? Derive the expression for look angles. 7

(d) Explain the eclipse affecting satellite communication system. 7

Unit-II

2. (a) What is the relation between Noise figure and Noise temperature? 2

(b) Derive general link design equation and find out system noise temperature, C/N and G/T ratio. 7

(c) Explain various interference effects on complete link design. 7

(d) How atmosphere and ionosphere effect on link design? 7

Unit-III

3. (a) What is Guard Time? 2

(b) Explain TDMA frame and burst structure. 7

(c) Give the comparision between TDMA and CDMA. 7

(d) Explain FDMA system used in Satellite Communication. 7

Unit-IV

4. (a) What is Total Internal Reflection? 2

(b) Explain difference between single and multimode fiber. 7

(c) Write a note on different types of attenuation in optical fiber communication. Draw typical attenuation vs. wavelength curve. 7

(d) Explain the difference between step index fiber and graded index fiber. 7

Unit-V

5. (a) What is basic principal of Avalanche Photodiode? 2

(b) Write notes on Population Inversion. Give difference between spontaneous and stimulated emission. 7

(c) Write down in detail the differences between LED and LASER. 7

(d) Discuss optical Network SONET in detail. 7

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328832(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Electronics & Telecommunication Engg. Branch)

CONSUMER ELECTRONICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each unit is compulsory carry 2 marks. Attempt any* ***two*** *parts from (b), (c) and (d) carry 7 marks. Assume suitable data if required.*

Unit-I

1. (a) Define Aspect Ration. 2

(b) What are the Elements of a Television System? Explain with suitable block diagram. 7

(c) What do you mean by Interlacing of Scanning Lines? Discuss with suitable scanning line fields. 7

(d) Explain Horizontal Resolution and Video Bandwidth. 7

Unit-II

2. (a) What are Primary Colours? How can you produce Secondary Colours? 2

(b) What is Phase Error in colour transmission? Explain how it is cancelled in PAL Colour System. 7

(c) Discuss about the Luminance & Chrominance Signals with suitable diagram. 7

(d) Explain the working of HDTV. 7

Unit-III

3. (a) Define Sensitivity of Microphones and its S.I. units. 2

(b) What are the characteristics of Microphones? Explain. 7

(c) With the help of suitable diagram. Explain the working of Wireless Microphones. 7

(d) What are the associated bit rates and operations during the processing of the audio signal? Explain in detail. 7

Unit-IV

4. (a) Define the ideal Loudspeaker. Why is a Loudspeaker called reverse transducer? 2

(b) Explain the working of permanent magnet loud-speaker with suitable diagram. 7

(c) How will you plan a public address system? 7

(d) What types of voice coil and voice coil suspension will you use in? 7

(i) Woofers

(ii) Tweeters

Unit-V

5. (a) What is ABS? 2

(b) Explain the working of car navigation system. Enumerate the difference between Travel Pilot & AVIC-I system. 7

(c) Explain hardware and software development of washing machine. 7

(b) Draw the block diagram of a microwave oven. Briefly explain each block. 7

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328832(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Et & T Engg. Branch)

CONSUMER ELECTRONICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each unit is compulsory carry 2 marks. Attempt any* ***two*** *parts from (b), (c) and (d) carry 7 marks. Diagram should be neat clean and properly labelled.*

Unit-I

1. (a) Define the term Kell Factor. 2

   (b) Draw the functional block diagram of monochorome television system and explain in detail. 7

(c) Define the term Aspect Ratio and also explain Persistance of Vision and Flicker. 7

(d) What do you understand by Interlacing of Scanning Lines? Explain in detail. 7

Unit-II

2. (a) Define the term Luminance Signal. 2

(b) Draw the block diagram of Color TV transmitter and Reciever and explain in detail. 7

(c) What are differences in TV generation where advancement will explain in terms of "High Definition". 7

(d) Explain Interleaving Process of signal in detail. 7

Unit-III

3. (a) Define how voice transducer perform their work. 2

(b) Draw the functional diagram of Carbon Microphone and explain in detail. 7

(c) Draw and explain functional diagram of Wireless Microphone and explain in detail. 7

(d) How Audio Signal is recorded draw and explain their working? 7

Unit-IV

4. (a) Define the term "Tweeters". 2

(b) Draw and explain final block diagram of capacitor type loud speaker and explain in detail. 7

(c) Define the term PA System explain functional diagram of PA system. 7

(d) What is the use of Woofers and also working of Horn type loudspeaker? 7

Unit-V

5. (a) Define ultrasonic car safety belt system. 2

(b) Draw the block diagram of Washing Machine and explain in detail. 7

(c) Explain block diagram of LCD in detail. 7

(b) Explain Anti Lock Braking System for car safety measures. 7

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328833(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(ET&T Engg. Branch)

POWER ELECTRONICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each question is compulsory. Attempt any* **two** *parts from (b), (c) and (d). Avoid unnecessary writing.*

Unit-I

1. (a) Define the following : 2

(i) Latching and Holding Current

(ii) Rise time & Spread time

(b) Describe different modes of operation of a Thyristor with the help of its static I-V characteristics. 7

(c) Discuss the two transistor model of Thyristor. Derive an expression for the anode current and discuss there from the turn-ON mechanism. 7

(d) Explain in short : (any **two**) 7

(i) IGBT

(ii) MCT

(iii) GTO

Unit-II

2. (a) Briefly explain Light Triggering method of Turning ON the SCR. 2

(b) Discuss with relevant waveform : 7

(i) Class B Commutation method

(ii) Class C Commutation method

(c) SCRs with a rating of 1000 V and 200 A are available to be used in a string to handle 6 kV and 1 KA. Calculate the number of series and parallel unit required in case derating factor is (a) 0·1 and (b) 0·2. 7

(d) Explain single phase half wave rectifier with RLE load. 7

Unit-III

3. (a) Write two differences between circulating and non-circulating current type dual converter. 2

(b) Explain full bridge converter with RL load with suitable waveforms. 7

(c) What is the difference between Symmetric and Asymmetric bridge single phase semi converter? Explain it with help of waveforms. 7

(d) Explain three-phase three pulse converters and draw output waveforms for $\alpha = 0°$ and $\alpha = 30°$. 7

Unit-IV

4. (a) Define Duty cycle of Chopper. 2

(b) With the help of neat circuit diagram and waveform, explain briefly the operation of three phase bridge inverter with resistive load 120° conduction mode. 7

(c) With help of neat sketch, explain the operation of Jones chopper. 7

(d) A DC chopper has resistive load of $R = 20\,\Omega$ and input voltage drop of 2 V and chopping frequency is 1 kHz. If the duty cycle is 0·6 and input voltages is 200 V determine : 7

(i) Average output voltage

(ii) RMS output voltage

(iii) Effective input resistance of chopper

(iv) Chopper efficiency

Unit-V

5. (a) What is the difference between Step up and Step down cyclo converter? 2

(b) Explain single phase to single phase step up mid-point cyclo converter. 7

(c) Explain in detail Triac based AC voltage regulator. 7

(d) State and explain Integral cycle control techniques used in AC controllers with suitable waveforms. 7

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328833(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(ET&T Engg. Branch)

POWER ELECTRONICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each question is compulsory. Attempt any* **two** *parts from (b), (c) and (d).*

Unit-I

1. (a) Define Holding and Latching current of a thyristor. 2

(b) Describe two transistor analogy of SCR. 7

(c) Describe construction and working of SCR. 7

(d) Describe IGBT & MOSFET. 7

Unit-II

2. (a) Define the term Commutation. 2

(b) Explain SCR Turn ON methods in detail. 7

(c) Describe different types of SCR Triggering circuit. 7

(d) Explain single phase full wave rectifier with RL load. 7

Unit-III

3. (a) Describe semi, full and dual converter. 2

(b) Describe non circulating current mode & circulating mode. 7

(c) Describe single phase dual converter with diagram. 7

(d) Describe three phase dual converter with diagram. 7

Unit-IV

4. (a) Define Duty cycle of Chopper. 2

(b) Describe various control strategies of Chopper. 7

(c) Explain Jones Chopper with diagram. 7

(d) Explain working of single phase full bridge inverter. 7

Unit-V

5. (a) Define the term Cycloconverter. 2

(b) Describe single phase to single phase mid point type cyclo converter. 7

(c) Describe single phase to single phase bridge type cyclo converter. 7

(d) Describe blocked mode and circulating current mode cyclo converter operation with diagram. 7

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328840(28)

B. E. (Eighth Semester) Examination,

April-May 2021

(New Scheme)

(ET & T Engg. Branch)

CRYPTOGRAPHY & SECURE COMMUNICATION

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Part (a) is compulsory. Attempt any* ***two*** *parts from (b), (c) and (d).*

Unit-I

1. (a) Explain Euclidean algorithm. 2

(b) Perform the following operation : 7

(i) Subtract 11 from 7 in Z_{13}.

(ii) Add 17 to 27 in Z_{14}.

(iii) Multiply 123 by -10 in Z_{19}.

(iv) Given $a = 161$ and $b = 28$, find gcd (a, b) and the values of s and t.

(v) Given $a = 0$ and $b = 45$, find gcd (a, b) and the values of s and t.

(c) Perform the following operation : 7

(i) Find the multiplicative inverse of 11 in Z_{26}.

(ii) Find the multiplicative inverse of 23 in Z_{100}.

(iii) Find the inverse of 12 in Z_{26}.

(d) Do the following operation : 7

(i) Is 97 a prime

(ii) What is the value of $\phi(10)$?

(iii) Find the result of $6^{10} \bmod 11$, using Fermat's little theorem.

(iv) Find the result of $6^{24} \bmod 35$, using Euler's theorem.

(v) What are the square roots of 1 mod n if n is 7 (a prime)? Using square root test.

Unit-II

2. (a) Draw block diagram of symmetric and asymmetric encryption method. 2

   (b) Explain the rules of Playfair Cipher Encryption and Decryption method. Encrypt the message "Ballon" with the keyword "Monarchy". 7

   (c) Explain the operation of DES stream cipher. 7

   (d) Explain the operation of Diffie and Hellman key exchange algorithm. 7

Unit-III

3. (a) What is the need of message Authentication? 2

   (b) Explain the working of MD-5. 7

   (c) Explain the operation of Hash based message authentication codes. (HMAC). 7

   (d) Explain the working principle of digital signature algorithm. 7

Unit-IV

4. (a) Why we need Internet Security? 2

(b) What is Virus? What is the ways of virus transmission and types of virus present in networks? 7

(c) Explain the operation of firewall with its advantages and disadvantages. 7

(d) Explain IP security architecture. How authentication helps it? 7

Unit-V

5. (a) What is Web Security? 2

(b) Explain the working of SSL architecture and SSL protocol. 7

(c) Explain the operation of dual signature and how it works. 7

(d) How Secure Electronic Transaction (SET) achieves its objective of confidentiality? 7

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328840(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(ET&T Engg. Branch)

CRYPTOGRAPHY & SECURE COMMUNICATION

(Elective)

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all the* ***five*** *questions. Part (a) of each question is compulsory. Attempt any* ***two*** *parts from parts (b), (c) and (d) of each question.*

Unit-I

1. (a) State and define Fermat's little theorem. 2

(b) Explain in detail about square and multiply method of fast exponentiation with proper example and its equations. 7

(c) Write Euclidean algorithm to obtain the greatest common divisor and extended Euclidean algorithm to obtain the multiplicative inverse with example. 7

(d) Write Euler's theorem first version and second version. Also find the result of : 7

(i) 6^{24} Mod 34

(ii) 20^{62} Mod 77

Unit-II

2. (a) Write difference between transposition technique and substitution technique. 2

(b) Explain in detail about RSA algorithm along with suitable example with its advantages and disadvantages. 7

(c) Describe the working of data encryption standard along with its block diagram in detail. 7

(d) What do you mean by diffie-hellman key exchange algorithm also write valid reason why this algorithm is insecure against a Man-in-the middle attack. 7

Unit-III

3. (a) Write / Define the term MD as wel as hash function. 2

(b) Briefly explain along with algorithm what do you understand by term digital signature? 7

(c) Explain in detail about the basic uses of message authentication code (MAC). 7

(d) Elaborate the working principle of SHA-512 algorithm. 7

Unit-IV

4. (a) Define the term IP Security. 2

(b) What do you understand by term computer virus? Name any two phases of lifetime of computer virus. Also list atleast 4 different types of virus and also mention its effect of web security. 7

(c) Mention in detail about the services provided by IP sec in detail. 7

(d) Illustrate three common firewall configurations with their block diagram. 7

Unit-V

5. (a) What is the purpose of dual signature? 2

(b) Briefly describe operations of SSL record protocol with SSL record format. 7

(c) Explain different types of threats involved in network security. 7

(d) Explain principle categories of SET participants. 7

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328844(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Et. & T Engg. Branch)

MICROELECTRONIC DEVICES & VLSI TECHNOLOGY

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Part (a) of each question is compulsory. Attempt any* ***two*** *parts from (b), (c) and (d). Assume suitable data if required.*

Unit-I

1. (a) Define Integrated Circuit. 2

(b) Write short notes on Czochralski technique of crystal growth. 7

(c) Explain the float zone process of crystal growth. Also write it's advantages. 7

(d) Explain the Bridgeman Technique. 7

Unit-II

2. (a) Define Oxidation. 2

(b) Explain Thermal Oxidation. Also explain thin and thick oxidation. 7

(c) Explain chemical vapour deposition. 7

(d) Write short notes on Polysilicon Deposition. 7

Unit-III

3. (a) Define diffusion. What are the types of dopants? 2

(b) Explain diffusion equation and diffussion mechanism. 7

(c) Write short notes on Ion Implantation System. 7

(d) Explain High energy Implantation. 7

Unit-IV

4. (a) What do you mean by Epitaxy. 2

(b) Explain vapour phase Epitaxy. 7

(c) What is Lithography? Write short notes on different type of Lithography technique. 7

(d) Explain Wet Chemical etching and properties of etching. 7

Unit-V

5. (a) What is threshold voltage in MOSFET? 2

(b) Explain the MOSFET characteristics and operation of MOSFET. 7

(c) Explain channel length modulation in MOSFET. 7

(d) Explain MOS capacitance with equivalent circuit. 7

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328844(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Et&T Engg. Branch)

MICROELECTRONIC DEVICES & VLSI TECHNOLOGY

(Elective)

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Part (a) of each question is compulsory having 2 marks each and attempt any two parts from (b), (c) and (d) from each question having 7 marks each.*

Unit-I

1. (a) Name the types of technologies used in IC. 2

(b) Explain Czochralski (CZ) technique with suitable diagram. 7

(c) Draw and explain : (any **one**) 7

(i) Bridgeman technique

(ii) Float zone process

(d) A Silicon ingot with $0{\cdot}5 \times 10^{16}$ boron atoms/cm^3 is to grown by CZ method. What should be the concentration of Boron in the melt to obtain the required doping concentration. The segregation co-efficient of boron is 0·8. 7

Unit-II

2. (a) What is the use of polysilicon deposition in MOS devices? 2

(b) Explain thermal oxidation and purpose of using it. 7

(c) Draw and explain any two types of Dielectric deposition techniques. 7

(d) Compare the oxide thickness grown for short time and long time oxidation at a temperature of 1200°C

by wet oxidation method. At 1200°C, $A = 0{\cdot}05\,\mu m$ and $B = 0{\cdot}725\,\mu m^2/h$, $\tau = 0$. 7

Unit-III

3. (a) Define Flick's diffusion law. 2

(b) Explain diffusion profile. 7

(c) Explain implantation mechanism. 7

(d) Explain high energy implantation. 7

Unit-IV

4. (a) Define Epitaxy. 2

(b) Explain Molecular Beam Epitaxy. 7

(c) Explain X-ray Lithography. 7

(d) Draw and explain physical vapour deposition. 7

Unit-V

5. (a) Name the types of MOS transistor. 2

(b) Explain threshold voltage and operation of MOSFET. 7

(c) Write down the steps of MOSFET fabrication with suitable diagram. 7

(d) Explain MOS capacitance and equivalent circuit. 7

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328845(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Electronics & Telecommunication Engg. Branch)

BIOMETRIC TECHNIQUES

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each unit is compulsory and carries 2 marks. Attempt any* ***two*** *parts from (b), (c) and (d), each carry 7 marks.*

Unit-I

1. (a) Define biometric traits or biometric modalities. 2

   (b) How Biometric Identification is different from Biometric Verification? Explain with suitable example. 7

(c) Write various applications and benefits of biometric. 7

(d) Explain the working of basic architecture of Biometric System with proper block diagram. 7

Unit-II

2. (a) What do you mean by learning or training of a neural network? 2

(b) Draw the flow diagram of Iris Recognition System and explain it. 7

(c) What are the strengths and weaknesses of facial biometrics? How do we solve the challenges in face recognition systems? 7

(d) Explain the IFS method of face recognition system. 7

Unit-III

3. (a) What do you mean by False minutiae? 2

(b) Explain the working of Finger print recognition system with proper block diagram. 7

(c) Draw and explain various stages involved in ISL recognition system. 7

(d) Discuss SIFT algorithm. Why is SIFT algorithm most widely used for feature extraction? 7

Unit-IV

4. (a) What do you mean by attack in cryptography? 2

(b) What is Soft Biometrics? How does it help in the biometrics with hard biometrics modalities? 7

(c) Compare various Biometric Techniques on basis of privacy issues associated with each one of them. 7

(d) What are the various steps involved in RSA algorithm? Explain. Also compare it with DES algorithm. 7

Unit-V

5. (a) What is Biometrics API? 2

(b) Explain DNA biometrics. Why DNA biometrics is mostly used in solving the criminal cases? 7

(c) What are the different characteristics, advantages and challenges of multimodal biometrics? 7

(d) Write short note on Biometric standards. 7

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328847(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(ET&T Branch)

ARTIFICIAL INTELLIGENCE & EXPERT SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) is compulsory from each unit and solve any* ***two*** *out of (b), (c) and (d).*

Unit-I

1. (a) What is control strategies? How it is useful in searching? 2

(b) What is state space search? Solve water-jug problem using state space search. 7

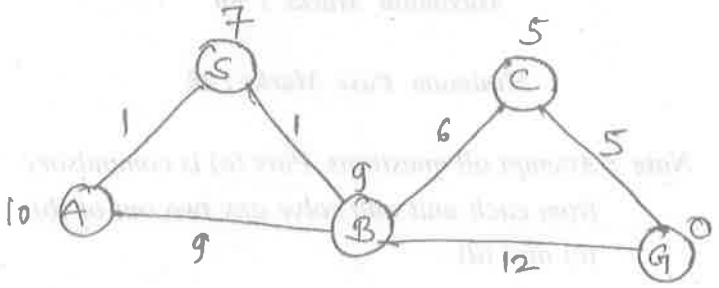
(c) What is blind search? Explain BFS and DFS with suitable algorithm and examples. 7

(d) Explain the term forward chaining and backward chaining with example. 7

Unit-II

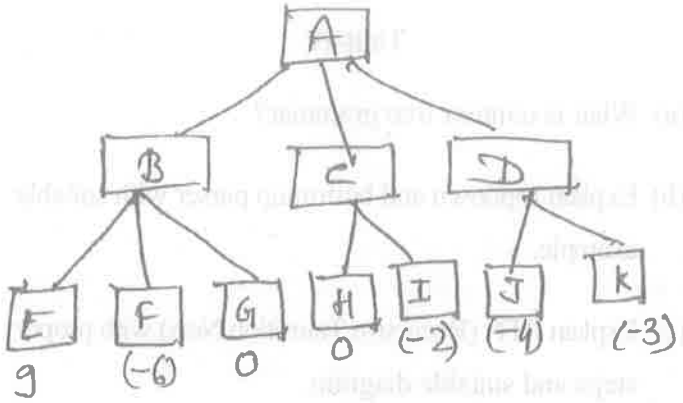
2. (a) Define the term Hemistic search. 2

(b) Perform the A* algorithm on the following figure. Explicitly write down the queue at each step. 7



(c) What is Hill climbing algorithm problem? Explain the problem/drawbacks which are associated with Hill climbing. 7

(d) Explain the Min Max search algorithm with using following diagram. 7



Unit-III

3. (a) What is well formed formula? 2

(b) Translate the following sentences into predicate logic :

(i) Every house is a physical object. 2

(ii) Some physical objects are houses. 2

(iii) Every house has an owner. 1

(iv) Everybody owns a house. 1

(v) Sue owns a house. 1

(c) Write short notes on semantic networks. 7

(d) Explain resolution principle and unification with proper examples. 7

Unit-IV

4. (a) What is context free grammar? 2

(b) Explain topdown and bottomup parser with suitable example. 7

(c) Explain RTN (Recursive Transition Nets) with proper steps and suitable diagram. 7

(d) Explain block word problem with suitable example. 7

Unit-V

5. (a) What is an Expert System? 2

(b) Explain in detail an expert system architecture. 7

(c) What is the need of MYCIN? Explain in detail. 7

(d) Explain various types of learning. 7

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328848(28)

B. E. (Eighth Semester) Examination, April-May 2021

(New Scheme)

(Electronics & Telecommunication Engg. Branch)

TELECOMMUNICATION SWITCHING CIRCUITS & NETWORKS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each unit is compulsory and carries 2 marks each. Attempt any* ***two*** *parts (b), (c) and (d) carrying 7 marks each.*

Unit-I

1. (a) Define Link and Trunk. Also give examples of link and trunk. 2

(b) Explain the principle of cross bar switching and different configurations of cross bar switching with neat and labelled diagram. 7

(c) Explain in detail the principle of operation of Electronic Space Division Switching. 7

(d) What are different kinds of stronger switching components? Explain each of them in detail. 7

Unit-II

2. (a) Define MDR and MAR. 2

(b) Explain in detail Early Electronic Switching System. 7

(c) What are the steps involved for call processing in computer controlled switching system? Also write the hardware configuration for the same. 7

(d) Explain in detail Two Dimensional Digital Switching with suitable diagram. 7

Unit-III

3. (a) Draw a typical telephone traffic pattern during a working day. 2

(b) Discuss the blocking probability and different blocking models in a telephone network. 7

(c) Explain how the telephone network is established? 7

(d) What is In-channel Signaling? Discuss it in detail. 7

Unit-IV

4. (a) Write the applications of SONET. 2

(b) Write a short note on link to link layers and end to end layers. 7

(c) Discuss the different types of switching techniques for data transmission. 7

(d) Discuss how the data is transmitted is PSTNs? 7

Unit-V

5. (a) Write the different protocol architectures of ISDN. 2

(b) Explain in detail the user-network interface in ISDN. 7

(c) Comment and discuss briefly the structures of standards for PDN and ISDN. 7

(d) Explain in detail the service characterization and different ISDN standards. 7

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333832(33)

BE (8th Semester)
Examination, April-May 2021

Mobile Computing and Application

Time Allowed : 3 hours *Maximum Marks :* 80
Minimum Pass Marks : 28

Note : (*i*) Part (*a*) of each question is compulsory. Attempt any **two** parts from (*b*), (c) and (*d*).
(*ii*) The figures in the right-hand margin indicate marks.

1. (*a*) What is frequency reuse? [2]
   (*b*) Explain basic architecture of cellular communication with their components. What are the advantages of cellular communication? [7]
   (*c*) What is interference? What are the different mechanisms used in cellular system to avoid interference? [7]
   (*d*) Explain hand-off. What are the different types of hand-off? [7]

2. (*a*) What are the different interfaces used in GSM? [2]

(*b*) Draw the architecture of GSM network and explain its working in detail. [7]

(*c*) Draw and explain personal access communication system architecture and its working. [7]

(*d*) What are the limitations of GSM networks? How DECT is better than GSM? What are the limitations of DECT? [7]

3. (*a*) What types of transmission techniques are generally used in wireless LAN? [2]

(*b*) What is HIPERIAN? Discuss the deployment scenarios for various HIPERIAN standards. [7]

(*c*) Explain the system architecture of IEEE 802.11 WLAN. What are the different MAC techniques are used in 802.11 standards? [7]

(*d*) What is WLL? Explain radio interface structure required for WLL. [7]

4. (*a*) What is the difference between care of address and co-located care of address? [2]

(*b*) Explain DHCP protocol. When is the DHCP used? How does DHCP server bind a mobile node with an IP address? [7]

(*c*) Describe the registration of a visiting mobile node on handover. How is the binding between the home agent and the foreign agent? [7]

(*d*) What is mobile TCP? What are the basic differences between I-TCP and snooping TCP? [7]

5. (*a*) What are the different technologies used in 3G wireless communication? [2]

(*b*) Why are XML-based languages used in mobile application? Give example of Synchronized ML and SMIL tags to explain the tags and attributes. [7]

(*c*) What is WAP? Discuss the principle of WAP component integration in detail. [7]

(*d*) What are the quality of services in 3G wireless systems? What are the challenges of 3G systems? What enhancements are required in 4G systems? [7]

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