

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-18
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC/ECT/E&C) Examination Nov/Dec 2017
Computer Communication Network
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
1. Q.1 from section A & Q.6 from section B are compulsory
 2. Solve any two from Q.2, Q.3, Q.4, Q.5 of section A & from Q.7, Q.8, Q.9, Q.10 of section B
 3. Figure to the right indicate full marks

Section A

- | | | |
|-----|---|----|
| Q.1 | a) With the help of suitable diagram explain ISO/OSI reference model | 05 |
| | b) Compare & contrast between LAN, MAN and WAN. | 05 |
| Q.2 | a) What do you mean by switching? Explain in brief packet switching | 08 |
| | b) What are different design issues of data link layer | 07 |
| Q.3 | a) What are different error detection techniques? Explain any one in detail | 08 |
| | b) What do you mean by protocol? Explain stop & wait protocol in detail. | 07 |
| Q.4 | a) Explain in brief elements of transport protocol. | 07 |
| | b) Explain procedure for creating a web page in HTML. | 08 |
| Q.5 | Write a short note on(any three) | 15 |
| | a) Sliding window protocol | |
| | b) Network topologies | |
| | c) DNS | |
| | d) Routing algorithm | |

Section B

- | | | |
|-----|---|----|
| Q.6 | a) What are the different principles of ISDN? | 05 |
| | b) Explain the transmission structure of ISDN | 05 |
| Q.7 | a) Draw the conceptual view of structure of ISDN & explain it | 08 |
| | b) Give the classification of frame relay virtual circuit | 07 |
| Q.8 | a) Explain in brief ATM protocol architecture | 08 |
| | b) Explain in brief ATM cell format | 07 |

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- Q.9 a) What do you mean by cryptography? Explain public key algorithm RSA 08
b) What is stenography? Explain how stenography is used 07

Q.10 Write a short note on (any three) 15

- a) Secrete key algorithms
- b) Different services provided by B-ISDN
- c) Stream cipher
- d) Frame relay protocol architecture.

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SUBJECT CODE NO:- E-48
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(ECT/EC/E&C) Examination Nov/Dec 2017
Optical Fiber Communication
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q.No.1 & 6 are compulsory
 - ii. Attempt any other two questions from section A and B from remaining.
 - iii. Figures to right indicate full marks.
 - iv. Assume suitable data wherever necessary

Section A

- Q.1 Explain following terms. (**any five**) 10
- a) Total Internal Reflection
 - b) Monomode fiber
 - c) Acceptance cone of fiber
 - d) Rayleigh scattering loss
 - e) Quantum efficiency of photo detector
 - f) Bandwidth- length product
 - g) Splicing
- Q.2 08
- a) Draw and explain block diagram of optical fiber communication system.
 - b) Explain the types of optical fibers, their index profile and ray path. 07
- Q.3 08
- a) A silica optical fiber with core diameter large enough to be considered by ray index of 1.50 and cladding refractive index of 1.47. 08
Determine
 - a) Critical angle at core cladding
 - b) NA
 - c) Acceptance angle in air for fiber
 - b) What are different types of loss mechanisms involved in optical fiber? Explain any one in detail. 07
- Q.4 07
- a) With the help of layered structure explain working of 'Reach through APD'. Also give its advantages and disadvantages. 07
 - b) Give the classification of photo detectors in detail. 08
- Q.5 08
- a) Explain intermodal and intramodal dispersion which occurs in optical fibers, in detail. 08
 - b) Draw and explain basic structure of opto isolator. What are advantages of optoisolation technique? 07

Section B

- Q.6 Explain following terms. (**any five**) 10
- a) Power margin
 - b) Link power budget
 - c) Photonic switching
 - d) OTDR
 - e) Eye design test
 - f) Optical performance monitoring
 - g) Optical Ethernet
- Q.7 a) Describe WDM in detail. Also state key features of WDM. 07
b) What are various standard protocols used in optical networking. Explain SDH in detail. 08
- Q.8 a) Explain passive optical network in detail. 07
b) Explain various test equipment's used for fiber testing. 08
- Q.9 a) With the help of neat block diagram explain how an OTDR can be used in fiber loss measurement. 08
b) What is optical networking? What are the components used in it? Briefly explain each of these components. 07
- Q.10 Write short note on following.
- a) Rise time budget 05
 - b) Noise penalties 05
 - c) Optical power measurement 05

Total No. of Printed Pages:2

SUBJECT CODE NO:- E_80
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(ECT/E&C) Examination Nov/Dec 2017
Consumer Electronics
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- 1) Q.No.1 and Q.No.6 are compulsory from both the section.
 - 2) Solve any two questions from Section A and Section B from Remaining.
 - 3) Figures to right indicate full marks.

Section A

- | | | |
|-----|--|----|
| Q.1 | a) Which are the features of 2G Technology? | 05 |
| | b) Enlist the specification of PA system. | 05 |
| Q.2 | a) Explain HDTV and its Applications. | 07 |
| | b) Explain LCD TV | 08 |
| Q.3 | a) Explain DTH TV | 08 |
| | b) Explain working of Fax machine. | 07 |
| Q.4 | a) Explain Dolby digital system. | 08 |
| | b) What is I-phone? Enlists the features. | 07 |
| Q.5 | a) Explain the different electronics controls used in washing machine. | 08 |
| | b) Explain Electronic weighing Balance. | 07 |

Section B

- | | | |
|-----|--|----|
| Q.6 | a) Draw Block diagram of DVD player | 05 |
| | b) Compare between LED and CFL lamps. | 05 |
| Q.7 | a) Explain working principle of Inkjet printer | 08 |
| | b) Explain the principle of photocopier | 07 |
| Q.8 | a) Which are the different types of Biometric sensors? | 07 |
| | b) What do you mean by home automation system? | 08 |

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- Q.9 a) Explain solar lamps and its advantages. 08
b) Explain the Electronics systems used in water purifier. 07
- Q.10 a) Write Notes on Electronics Calculator 07
b) Write Notes on EVM 08

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SUBJECT CODE NO:- E-131
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(E&C/EC/ECT) Examination Nov/Dec 2017
Advanced Industrial Automation - II
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
1. Q.No.1 & 6 are compulsory.
 2. Solve any two questions from remaining from each section.

Section A

- Q.1 Solve **any five** questions from following. 10
- a) Enlist basic components installed on control panel.
 - b) Draw 5/2 push button operated, spring return pneumatic valve.
 - c) Develop pneumatic control circuit for NOT logic
 - d) Enlist the SCADA protocols.
 - e) Which are the open source SCADA software's?
 - f) Enlist the different safety standards.
- Q.2 a) Describe the specialized SCADA protocols in detail. 08
b) Develop pneumatic position control circuit for $A^-B^-A^+B^+$ sequence. 07
- Q.3 a) Develop a pneumatic position control circuit for $P^-Q^+Q^-P^+$ using cascade method. 08
b) Describe SCADA system. What are the benefits of SCADA over other industrial control system? 07
- Q.4 a) Explain the pneumatic time delay valve with suitable example. 08
b) Describe the mounting & installation guideline of control panel design in detail. 07
- Q.5 a) What is P-I diagram? Explain the role of different engineers in drawing P-I diagram. 08
b) With the help of block diagram explain pneumatic system in detail. 07

Section B

- Q.6 Solve **any five** questions from following. 10
- a) Draw hydraulic check valve.
 - b) Classify the hydraulic system.
 - c) Enlist the different category of automation plants.
 - d) Give the significance of limit switch.
 - e) State Pascal law.
 - f) State objectives of automation.
 - g) What do you mean by kick-off meeting?

- Q.7 a) Describe the water treatment plant automation in detail. 07
b) Develop a dough maker with suitable operational diagram & explain in detail. 08
- Q.8 a) Find out hydrostatic pressure in bar at bottom of container filled with oil & has density of 1.5kg /dm³ & its height is 1200mm. 08
b) Explain kiln automation in detail. 07
- Q.9 a) Describe hydraulic valves with symbolic presentation. 08
b) Describe process of carton sorting with suitable working diagram. 07
- Q.10 a) With the help of operation, logic & control panel design develop yogurt mixer. 10
b) Give the difference between hydraulic & pneumatic system. 05

Total No. of Printed Pages:2

SUBJECT CODE NO:- E – 178
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(ECT/E&C/EC) Examination Nov/Dec 2017
Elective-II: Satellite Communication (EC-ECT-E&C-IE)
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q 1 & Q 6 are compulsory.
 - ii. Solve any two from question no 2, 3, 4 & 5. Solve any two questions from Q. No. 7, 8, 9 & Q 10.

Section A

- Q.1 Attempt any two from the following. 10
- a) What do you mean by pre – assigned FDMA?
 - b) What is Noise figure & Noise temperature?
 - c) Explain in detail free space loss.
- Q.2 a) Explain SPADE system in detail. 08
- b) The elliptical orbit of a satellite has its semimajor & semiminor axis as 25000km & 18330km respectively. Determine the apogee & perigee distance. 07
- Q.3 a) Explain Kepler's three laws of planetary motion. 08
- b) Explain the earth satellite geometry. 07
- Q.4 a) Explain CDMA & CDMA throughput. 08
- b) Explain downlink analysis of FDMA. 07
- Q.5 Write note on 15
- a) Link power budget.
 - b) PN system
 - c) SDMA

Section B

- Q.6 Attempt any two from the following. 10
- a) Draw the Block diagram of a satellite showing various subsystem.
 - b) Explain tracking equipment for earth stations.
 - c) What is GRAMSAT? Explain.
- Q.7 a) Explain GSM & GPS in detail 08
- b) What is transponder? Draw & explain the single conversion transponder for 6/4 GHz band. 07
- Q.8 a) What is Non geostationary orbit satellite system? Explain. 08
- b) What are the types of satellite? Explain weather forecasting satellite in detail. 07

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- Q.9 a) What is a scientific satellite? Explain
b) What is VSAT? Explain.

08
07

- Q.10 Write note on
a) Antenna subsystem
b) DTH
c) TT &C

15

Total No. of Printed Pages:02

SUBJECT CODE NO: E-201
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC/ECT/E&C) Examination Nov/Dec 2017
Digital Image Processing
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- 1) Q.1 & 6 are compulsory.
 - 2) Solve any two questions from remaining for each section.

Section A

Q.1 Answer any two:-

- | | |
|---|----|
| a) Explain simple image model in detail. | 05 |
| b) Explain properties of Fourier Transform. | 05 |
| c) Explain basic Image Enhancement methods. | 05 |
| d) Write any two distance measure formulae. | 05 |

- | | | |
|-----|---|----|
| Q.2 | a) Explain fundamental steps in DIP with block diagram in detail. | 08 |
| | b) Explain sampling and quantization in digital image. | 07 |

- | | | |
|-----|--|----|
| Q.3 | a) What are types of digitizers? Explain digital image classifications and different file formats. | 08 |
| | b) Explain basics of spatial domain filtering. | 07 |

- | | | |
|-----|---|----|
| Q.4 | a) Explain Fast Fourier Transform and its applications. | 08 |
| | b) Write a short note on Walsh and Hadamard Transform. | 07 |

- | | | |
|-----|--|----|
| Q.5 | a) Explain Histogram processing for local enhancement in detail. | 08 |
| | b) Explain smoothing filters in frequency domain in detail. | 07 |

Section B

Q.6 Answer any two:-

- | | |
|--|----|
| a) Find chain code and its normalized chain code for : 3221142001 | 05 |
| b) Give simple boundary descriptors. | 05 |
| c) Explain Huffman coding. | 05 |
| d) Explain basic operations with example for morphology i.e. erosion and dilation. | 05 |

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- Q.7 a) Explain point and line detection in segmentation process in detail. 08
 b) Explain topological descriptors in detail. 07
- Q.8 a) Explain inter pixel redundancies with example in detail. 08
 b) Explain digital image fidelity criteria in detail. 07
- Q.9 a) Explain bit plane coding in detail with example. 08
 b) Explain image compression model with block diagram in detail. 07
- Q.10 a) Explain opening and closing morphological process. With one example each. 08
 b) Explain thinning morphological process for binary image in detail. 07

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SUBJECT CODE NO: E-240
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC/ECT/E&C) Examination Nov/Dec 2017
Embedded Systems
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- i) Q.No.1 and 6 are compulsory.
- ii) Solve remaining any two questions from each section.
- iii) Assume suitable data wherever necessary.
- iv) Figures to right indicate full marks.

SECTION – A

- Q.1 Solve any two questions from following:** 10
- 1) Explain software design and hardware design testing in ES.
 - 2) Explain 3-stage pipeline structure of ARM processor.
 - 3) Explain in brief RTC module in LPC 2148.
- Q.2** 08
- a) Discuss design challenges in embedded system.
 - b) Explain with neat diagram CAN protocol. 07
- Q.3** 07
- a) Explain barrel shifter operations.
 - b) Explain core architecture of ARM7 processor in detail. 08
- Q.4** 07
- a) Describe ARM processor families.
 - b) Enlist ARM features in comparison with RISC/CISC processors. 08
- Q.5 Write short notes on (any 3)** 15
- 1) On chip ADC's in ARM7
 - 2) I2C protocol
 - 3) ARM core extensions
 - 4) PWM w.r.t LPC2148

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SECTION – B

- Q.6 Answer any two from following 10
- 1) Explain in detail features of $\mu\text{c}/\text{os-II}$.
 - 2) Explain in detail ISR mechanism.
 - 3) Discuss RTOS services in contrast with traditional OS.
- Q.7 a) Draw a neat diagram and explain interfacing of 8 LEDs (L1 to L8) and switches (S1 to S8) with ARM7 processor. Write a C based program to glow LED1 when switch S1 is pressed. 08
- b) Explain in detail interfacing of LCD with ARM7. 07
- Q.8 a) Discuss in detail task scheduler and task states w.r.t RTOS. 08
- b) Explain in detail need of interfacing and interfacing techniques. 07
- Q.9 a) Discuss design criteria and steps in ARM based digital thermometer. 08
- b) Explain porting in RTOS. 07
- Q.10 Write short notes on (any three) 15
- 1) Memory management in RTOS
 - 2) Time delay function $\mu\text{c}/\text{os-II}$
 - 3) Semaphore in RTOS
 - 4) ARM based Smart card

Total No. of Printed Pages:2

SUBJECT CODE NO: E-281
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC/ECT/E&C) Examination Nov/Dec 2017

VLSI Design
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- 1) Question No.1 & question no.6 are compulsory
- 2) Solve any two question from Q.no 2 to Q.no. 5
- 3) Solve any two question from Q.no.7 to Q. no 10
- 4) Figure to the right indicate full marks
- 5) Assume suitable data if necessary

Section A

- | | | |
|-----|--|----|
| Q.1 | Attempt any two from the following | 10 |
| | a) State and explain Moore's law | |
| | b) Compare FPGA and CPLD | |
| | c) Write syntax of case statement and explain with example | |
| | d) Define the terms controllability and observability | |
| Q.2 | a) Explain various modeling styles used in VHDL. | 07 |
| | b) Write VHDL code for BCD to 7 segment display for single digit display | 08 |
| Q.3 | a) Explain function & procedure in VHDL with example | 07 |
| | b) Design the VHDL code for 4 bit full adder using 1 bit full adder as component | 08 |
| Q.4 | a) What is state diagram? Explain finite state machine with its block diagram | 07 |
| | b) Explain the architecture of XC9500 CPLD | 08 |
| Q.5 | Write short notes on any three | 15 |
| | a) Component declaration & instantiation | |
| | b) EDA tools | |
| | c) TAP controller | |
| | d) JTAG technology | |

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Section – B

- Q.6 Attempt any two from the following 10
- a) CMOS technology Vs Bipolar technology
 - b) IV characteristic of nMOS transistor
 - c) What is body effect? How it affects on the threshold voltage
 - d) Layout design rule for CMOS technology
- Q.7 a) Explain CMOS inverter with compound gates as pull – up & pull – down network 07
- b) Explain velocity saturation & mobility degradation in brief 08
- Q.8 a) Describe skewed gates in static CMOS logic family with figure 07
- b) Design CMOS logic gate for 08
- i) $F = \overline{ABC + D}$
 - ii) $F = \overline{AB + DE + C}$
- Q.9 a) Explain why junction leakage and tunneling current is higher for nMOS than pMOS transistors 07
- b) Explain static & dynamic power dissipation in CMOS family 08
- Q.10 Write short notes on any three 15
- a) BiCMOS inverter
 - b) Stick diagram
 - c) CMOS inverter
 - d) Twin – tub process
 - e) CLM

SUBJECT CODE NO:- E-323
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(ECT/E&C) Examination Nov/Dec 2017
Microwave & Radar Engg. (ECT/E&C)
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.

- i) Q.1 and Q.6 are compulsory.
- ii) Solve any Two from Q.2 to Q.5.
- iii) Solve any Two from Q.7 to Q.10
- iv) Assume suitable data if necessary.

Section – A

- Q.1 Write a short note on any Two:** 10
- 1) Microwave Freq. band
 - 2) IMPATT Diode
 - 3) S – Matrix
 - 4) Types of microwave Tees
- Q.2**
- a) What are the features of circular wave guide? Explain difference between circular and rectangular wave guide. 07
 - b) An air filled rectangular waveguide has dimensions of 2.5cm×1cm. The Frequency is 8.6GHz. 08
Find (i) Cut-off Frequency
(ii) Guide wave length
(iii) Characteristics impedance
Assume TE₁₀ mode of operation.
- Q.3**
- a) Explain the construction and working of varactor diode with its application. 07
 - b) Compare TWT with klystron and Magnetron. 08
- Q.4**
- a) Explain briefly microwave IC Fabrication. 07
 - b) Explain planar transmission lines in detail. 08
- Q.5**
- a) Explain EMI and EMC in detail. 07
 - b) Explain MW devices with neat diagram 08
 - i) MW isolator,
 - ii) Matched Terminator

Section – B

- Q.6 Write short notes on any Two.** **10**
- i) Radar range and Range Ambiguities
 - ii) Digital MTI processing
 - iii) Types of Radar displays
 - iv) Integration of Radar displays
 - v) Integration of pulses
- Q.7**
- a) Derive the expression of Radar range equation with consider received echo power as P_{min} . **07**
 - b) Derive the expression of probability of false alarm and probability of detection in Radar receiver. **08**
- Q.8**
- a) Explain and draw the block diagram of pulse radar with its applications. **07**
 - b) What is delay line canceller? Draw and explain the block diagram of single delay line canceller. **08**
- Q.9**
- a) Explain the different types of system losses in Radar. **07**
 - b) Explain the working of conical Scan Radar with the help of diagram. **08**
- Q.10**
- a) Explain digital MTI processing and limitation of MTI Radar in detail. **07**
 - b) A radar operates at 10GHz, has peak power of 500KW. The power gain of antenna is 5000 and minimum power of receiver is 10^{-14} . Calculate max. Range of Radar if effective area of antenna is $10m^2$ & Radar cross section is $4m^2$. **08**

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-324
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC) Examination Nov/Dec 2017
Robotics (EC)
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- Assume suitable data if necessary.
 - Q.No.1 & Q.No.6 are compulsory. Then solve any two question from each sec A sec B.

Section A

- Q.1 Solve the following 10
- What is kinematics of robotic arm?
 - What are matrix operations?
 - What is dynamic constraints?
 - What are components of robotic system?
 - What are different joints?
- Q.2
- Explain the term automation & robotics. 08
 - Explain basic structure of Robotic Arm. 07
- Q.3
- What is present & future trends in robotics? 08
 - Explain Newton's & Euler's Equation. 07
- Q.4
- What is D-H matrix in detail? 08
 - Consider a vector $\vec{v} = 2i + 3j + 4k$. 07
Give its homogenous representation with $s = -10, 2, 1$ & 0 .
- Q.5
- A frame has been moved nine units along the X axis & five units along the Z axis of the ref. frame. Find the new location of the frame F: 08
- $$F = \begin{bmatrix} .527 & -.574 & .628 & 4 \\ .369 & .819 & .439 & 2 \\ -.766 & 0 & .643 & 7 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$
- If $\vec{x} = i + j + k$ & $\vec{y} = 3i + 4j + 5k$ 07
Find $\vec{x} \cdot \vec{y}$ & $\vec{x} \times \vec{y}$ in homogenous coordinate system.

Section B

- Q.6 Solve the following 10
- What are different grippers?
 - State different proximity sensors?
 - What is image processing?
 - What are different electrical actuators?
 - What is object recognition?
- Q.7 a) What are different applications of machine vision system? 08
- b) What is image description, sensing & digitization? 07
- Q.8 a) Explain obstacle avoidance system in robotics. 08
- b) Explain Jacobian in terms of D-H matrix. 07
- Q.9 a) What are different force sensor? Explain any one. 08
- b) What are different touch & slip sensors? Explain functions of touch & slip sensors? 07
- Q.10 a) Explain adhesive grippers. 08
- b) Explain magnetic end effector. 07

SUBJECT CODE NO: E-382
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(ECT/ E&C/EC) Examination Nov/Dec 2017
Elective-I: Artificial Neural Network & Fuzzy Logic
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- i. Q.1 & Q.6 are compulsory.
 - ii. Solve any two questions from Q.2, Q.3, Q.4, & Q.5 section A.
 - iii. Solve any two questions from Q.7, Q.8, Q.9, & Q.10 section B.
 - iv. Figures to the right indicate full marks.
 - v. Assume suitable data, wherever necessary and mention it clearly.

SECTION A

- | | | |
|-----|---|----------|
| Q.1 | Solve any 2
a) Define Euclidean distance.
b) What is a recurrent neural network?
c) Define over fitting or over training. | 10 |
| Q.2 | a) Draw and explain the architectural graph of a Hopfield network consisting of N=4 neurons.
b) Differentiate between supervised and unsupervised learning. | 08
07 |
| Q.3 | a) Explain in detail supervised learning. How it is different from unsupervised learning?
b) What is meant by epoch in training process? | 07
08 |
| Q.4 | a) Why is gradient descent method adopted to minimize error?
b) Give suggestions to improve and modify back propagation network. | 07
08 |
| Q.5 | Generalize the XOR problem to a parity problem for N (>2) variables by considering a network for the two variables first and then extending the network considering the output of the first network as one variable and the third variable as another. Repeat this for n=4 and design a network for solving the parity problem for 4 variables. | 15 |

SECTION B

- | | | |
|-----|---|----|
| Q.6 | Solve any 2
a) State operations and properties of fuzzy sets.
b) State operations on crisp sets.
c) What is meant by crossover point in fuzzy set? | 10 |
| Q.7 | State and prove perceptron convergence theorem | 15 |

OR

Explain briefly fuzzy Bayesian decision method

- Q.8 Using your own intuition and your own definitions of the universe of discourse, plot fuzzy membership functions for the following variables: 15
Weight of people
a) Very light
b) Light
c) Average
d) Heavy
e) Very heavy
- Q.9 a) Explain multi attribute decision making in detail. 07
b) What are the steps involved in decision making Process. 08
- Q.10 Design and develop a pressure process control by Fuzzy Logic Control model. 15
Formulate necessary membership functions and required fuzzy rules for the application.

Total No. of Printed Pages:02

SUBJECT CODE NO: E-383
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(ECT/ E&C) Examination Nov/Dec 2017
Elective-I: Wireless Mobile Communication
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- 1) Q. No. 1 and Q. No. 6 are compulsory.
 - 2) Attempt any two questions from remaining questions of each section.
 - 3) Assume suitable data wherever necessary.

Section A

- | | | |
|-----|---|----|
| Q.1 | a) Explain adjacent channel interference. | 05 |
| | b) Explain the process of trunking. | 05 |
| Q.2 | a) Explain multiple access scheme for wireless communication. | 08 |
| | b) Explain process steps in roaming. | 07 |
| Q.3 | a) Explain IMT – 2000 in detail. | 08 |
| | b) Explain traffic routing in wireless network. | 07 |
| Q.4 | a) Explain ISDN services. | 07 |
| | b) Explain UMTS in detail. | 08 |
| Q.5 | Write short note (any three) | 15 |
| | a) Bluetooth | |
| | b) SS-7 | |
| | c) SDMA | |
| | d) DTH | |

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Section B

- Q.6 a) Explain GSM architecture. 05
b) Explain IEEE 802.11 b standard. 05
- Q.7 a) Explain Zigbee in detail. 07
b) Explain various mobile operating systems. 08
- Q.8 a) Differentiate between GSM and CDMA. 07
b) Explain PRMA in detail. 08
- Q.9 a) Explain IEEE 802.15.4 in detail. 08
b) What is role of portal? Give the architecture showing DSS, BSS. 07
- Q.10 Write short note: (any three) 15
a) WAP
b) Types of hand over in GSM
c) Mobile IP
d) Features of CDMA

SUBJECT CODE NO: E-384
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC/ECT/ E&C) Examination Nov/Dec 2017
Elective-I: Biomedical Electronics
(ECT-E&C-EC)
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
1. Question 1 and 6 are compulsory.
 2. Solve any two questions from each section.

SECTION A

- Q.1 Attempt any two
- a) Explain the factors that influence the design and application of a medical instrument. 05
 - b) What are biopotential electrodes? Distinguish between metallic microelectrode and nonmetallic microelectrode. 05
 - c) Describe the recording setup used in EMG. 05
- Q.2
- a) Explain a bridge voltage amplifier and explain. 08
 - b) Explain buffer amplifier and explain. 07
- Q.3
- a) Explain the origin of different heart sounds. 08
 - b) Explain with diagram the salient features of Phonocardiography (PCG) 07
- Q.4
- a) What is electromagnetic blood flow meter & define the principle base on it? 08
 - b) State plethysmography. 07
- Q.5 Write short notes on. 15
- a) Leakage current
 - b) Electrical safety
 - c) Computerized critical care unit

SECTION B

- Q.6 Attempt any two
- a) Explain polarization, depolarization. 05
 - b) Draw the circuit diagram of an ECG isolation amplifier and explain its action. 05
 - c) Explain hemodialysis principle. 05
- Q.7
- a) What is magnetic blood flow meter & define the principle based on it? 08
 - b) State and explain plethysmography principle. 07

- Q.8 a) Discuss in detail the radiation therapy techniques. 08
b) Explain with suitable diagram the diagnostic X-Ray machine. What are the applications of X-Ray examination? 07
- Q.9 a) Calculate the cardiac output for a patient with a heart rate of 72 beats/minute and stroke volume of 75 ml/beat. Explain its significance. 08
b) Name any four physical principles based on which blood flow meters are constructed. 07
- Q.10 Write short notes
a) Biopotential electrode 05
b) LVDT 05
c) Spirometry 05

Total No. of Printed Pages:02

SUBJECT CODE NO: E-385
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC) Examination Nov/Dec 2017
Elective-I
Advanced Power Electronics (EC)
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B Please check whether you have got the right question paper.
- 1) Q.1 & Q.6 are compulsory.
 - 2) Attempt any two questions from Q.2,3,4,5 & two questions from Q.7,8,9,10 section A & B.
 - 3) Assume suitable data, if required.

Section-“A”

- | | | |
|-----|---|----|
| Q.1 | Solve any two. | 10 |
| | a) What are the requirements of ideal switching devices? | |
| | b) Write performance parameters of converters & Inverters. | |
| | c) What is the need of resonant converters? | |
| | d) Explain type ‘A’ (1 quadrant) step down choppers. | |
| Q.2 | a) Draw & explain 120° mode of operation for balanced ‘R’ load. | 07 |
| | b) Derive an expression for current ripple in the o/p of chopper. | 08 |
| Q.3 | a) Draw & explain three phase converter with their operation in detail. | 07 |
| | b) Write advantages & drawback of resonant converters in detail. | 08 |
| Q.4 | a) Draw & explain chopper drive for separately excited DC motors. | 07 |
| | b) Draw & explain ZCS converters with its w/f. | 08 |
| Q.5 | a) Why voltage control is essential in Inverters? | 07 |
| | b) Distinguish between series & parallel resonant converters. | 08 |

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Section-“B”

- Q.6 Solve any two. 10
- a) Various parameters of UPS/SMPS
 - b) PLC's
 - c) VSI
 - d) Sensorless control
- Q.7 a) Explain what are the speed control methods in power semiconductor controlled Induction Motor drives. 07
- b) What are the reasons Induction Motor is used for variable speed drives. Also mention its drawback. 08
- Q.8 a) Write the benefits of '3' phase drives over a single phase drives in detail. 07
- b) Draw & explain Torque-Slip (speed) characteristics of Induction Motor. 08
- Q.9 a) The speed of 100KW, 1000rpm, separately excited D.C. motor is controlled by 3 ϕ full converter. Specifications are 460V, 300A. The i/p to converter is 3 ϕ , 415V, 50Hz A.C. supply. Determine : 07
- i) Firing angle of the converter & power factor at rated speed.
 - ii) Firing angle and power factor at 10% rated speed.
 - iii) Active and reactive power drawn from system at rated speed.
 - iv) Active and reactive power drawn from system at 10% & rated speed.
 - v) Ratio of reactive power drawn at 10% & rated speed. Neglect system losses & effect of commutation angle.
- b) Explain power factor correctors in detail. 08
- Q.10 Write short note on: 07
- a) Industrial Automation. 07
 - b) An 80KW, 440V, 800 rpm D.C. motor is operating at 600 rpm & developing 75% rated torque is controlled by 3 ϕ , six-phase thyristor converter. If the back emf at rated speed is 410V. Determine the triggering angle of the converter. The i/p to the converter is 3 ϕ , 415V, 50Hz A.C. supply. 08

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FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC) Examination Nov/Dec 2017
Elective-I
Consumer Electronics (EC)
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q.No.1 and Q.No.6 are compulsory.
 - ii. Solve any two questions from section A & section B from remaining.

Section 'A'

- | | | |
|-----|---|----|
| Q.1 | a) Enlist features of 2G technology. | 05 |
| | b) Enlist the specifications of Android phone. | 05 |
| Q.2 | a) Which are the different applications of PA system? | 07 |
| | b) Explain load cell & its use in Electronics weighing balance. | 08 |
| Q.3 | a) Explain working of Fax machine. | 07 |
| | b) Explain the working of DTH TV. | 08 |
| Q.4 | a) Explain Block diagram of colour TV. | 07 |
| | b) What is use of mixer in Colour TV? | 08 |
| Q.5 | a) Explain the different sensors used in Air conditioner. | 08 |
| | b) Give comparison of different printers. | 07 |

Section 'B'

- | | | |
|------|--|----|
| Q.6 | a) Explain working principle of Biometric sensor. | 05 |
| | b) Which are the limitations of inkjet printer? Enlist its applications. | 05 |
| Q.7 | a) Explain electronics calculator & the functions performed. | 07 |
| | b) Why Home Automation is required? | 08 |
| Q.8 | a) Explain working principle of photocopier. | 07 |
| | b) Compare between LED and LCD lamps. | 08 |
| Q.9 | a) Write short note on ESD. | 07 |
| | b) Explain line current. How? | 08 |
| Q.10 | a) Write notes on UL. | 07 |
| | b) What do you mean by EMI/EMC requirement for safety? | 08 |

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FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EC/ECT/ E&C) Examination Nov/Dec 2017
Elective-I
Android Technology (ECT-E&C-EC)
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- i. Question No.1 and 6 are compulsory.
 - ii. Attempt any two questions from Q.No.2 to 5 and Q.No.7 to 10.
 - iii. Assume suitable data if required.

SECTION A

- Q.1 Solve any two from the following. 10
- a) Short note on: Java Virtual Machine (JVM).
 - b) What is constructors? Explain in detail.
 - c) Define Abstract class? Explain.
 - d) What are the components of Exception Handling?
- Q.2 07
- a) Write a program in Java to sort a set of names stored in an array in alphabetical order.
 - b) When do we need multiple catch blocks for a single try block? Explain with an example. 08
- Q.3 07
- a) Explain the term- packages in Java. List out the advantages of using packages in Java.
 - b) What is Throwing on exception and catching an exception? Explain with an example. 08
- Q.4 07
- a) Define Identifier. What are the rules to be followed for identifier?
 - b) What is operator in Java? Explain various operators in object oriented programming. 08
- Q.5 07
- a) Explain how to create, save and retrieve shared preferences in android application.
 - b) Write short note on- Hello World App. 08

SECTION B

- Q.6 Solve any two from the following. 10
- a) What is manifest? Write application of manifest.
 - b) List the limitation while designing a widget.
 - c) Explain how to initialize audio content for playback.
 - d) Enlist the methods used in controlling audio and video.
- Q.7 07
- a) What are the changes monitored in phone status using telephony? Explain in detail.
 - b) How to create menus in android? Explain with example. 08

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- Q.8 a) What is SQLite database? How to provide database connection using SQLite database? 07
b) What is Layout? List out different layout supported by android system. Explain Linear layout 08
with its attributes.
- Q.9 a) Write short note on- use of location based services in Android application. 07
b) Explain how to manage the accessing of phone and network properties and status. 08
- Q.10 a) Write short note on-use of networking as accessing Android Hardware. 07
b) Explain following camera parameters. 08
i) Scenemode
ii) Flashmode
iii) Colour effect
iv) White balance [Get/set].