Total No. of Printed Pages:2

SUBJECT CODE NO:- H-654
FACULTY OF SCIENCE AND TECHNOLOGY
B.E.(ECT/EC/E&C) (Sem-I)
Elective-I Industry 4.0
(CGPA)

[Time: Three Hours] **[Max. Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Q.No.1 from section A and Q.No.6 from section B are compulsory.
2) Attempt any two questions from Q.2 to Q.5 from section A, and Q.7 to Q.10 from Section B.
3) Assume suitable data wherever necessary.

Section A

Q.1 Explain the following (any five) 10
1. Challenges for Industry 4.0
2. Industry 4.0 developments in USA
3. Industrial Internet of Things (IIOT)
4. Smart devices
5. Cyber-Physical Systems (CPS)
6. Artificial Intelligence

Q.2 a) Explain the concept of 'Smart Factory'. 07
b) Enlist and explain the examples of Industry 4.0 in use today. 08

Q.3 a) Write a note on 'Predictive Analytics for Smart Business Transformation'. 06
b) Comment on the support system for Industry 4.0. 09

Q.4 a) Draw and explain the block diagrammatic representation of a typical IOT system. 08
b) Briefly explain the benefits of IOT. 07

Q.5 a) What are the challenges before IOT? Explain. 08
b) What is 'Internet of Services (IOS)'? Explain in brief. 07

Section B

Q.6 Explain the following (any five) 10
1. Resource-based view of a firm
2. Data Analytics
3. Changes for SMEs w.r.t Industry 4.0
4. Industry 4.0 education in developing countries
5. Impact of industry 4.0 in Health care sector.
6. Effect of industry 4.0 on Retail & consumer goods.

Q.7	a)	Comment on Big Data as a new resource for organizations implementing industry 4.0	07
	b)	How virtualization, decentralization and landscape w.r.t industry 4.0 perspective?	08
Q.8	a)	How to impact the future engineers' skills in the industry 4.0 framework.	08
	b)	Does industry 4.0 help in a business? How? Explain in detail.	07
Q.9	a)	How to promote the use of competence snippets through mobile learning applications in industry 4.0 laboratories? Explain.	07
	b)	How can industry 4.0 help a company to achieve value innovation? Explain in brief.	08

Q.10 Write short notes on the following: 15

1. Impact of industry 4.0 on Automotive industry
2. Social innovation policy for industry 4.0
3. Strategies for competing in an industry 4.0 world

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-1188
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Advanced Embedded System Design
[Old]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B (i) Question No. 5 and 10 is compulsory.
(ii) Attempt any two others questions from the remaining in each section.
(iii) Figures to the right indicate full marks.
(iv) Assume suitable data if necessary.

SECTION A

Q.1	a)	Define embedded system? List its types and explain any one in detail.	07
	b)	Explain different interrupt of ARM7TDMI with its modes.	08
Q.2	a)	With neat interfacing diagram write a program to interface relay with ARM7TDMI	08
	b)	What is memory management unit? Explain the role of memory management unit in detail.	07
Q.3	a)	Write a program in embedded C to perform decimal addition of two 8 bit numbers.	07
	b)	Explain Pipelining stage of ARM7TDMI	08
Q.4	a)	Write a program to convert i/p Voltage signal on AD0.1 into digital signal and display it.	08
	b)	List features of ARM7TDMI and Explain its architecture in detail.	07
Q.5	a)	What is Bus. Explain AHB bus in detail.	05
	b)	Write a program to interface steeper motor with ARM7TDMI	05

SECTION B

Q.6	a)	What is WSN? Explain its types in detail.	08
	b)	What is Scheduling? Discuss real time scheduling in detail.	07
Q.7	a)	Explain MAC Protocol with its application.	07
	b)	Compare ARM9 and ARM11.	08
Q.8	a)	List types of ADC. Explain high speed ADC in detail with interfacing?	07
	b)	What is RTOS? Explain task and task scheduling in detail.	08
Q.9	a)	Design a temperature measurement system using ARM7TDMI with its program and interfacing diagram.	15

Q.10 Write short note on the following (any two) 10

a) Robust routing
b) Network topology
c) Mail Box

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-1221
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Microwave & Optical Communication
Old

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Answering of question number one and six are compulsory.
2) Solve any two questions from question number 2, 3, 4 and 5 from section A & two question from question number 7, 8, 9 and 10 from section B.
3) Assume suitable data if necessary.

Section A

Q.1 Answer any five from the following. 10
a) Mention function of attenuator and isolator
b) Draw diagram of microwave filter.
c) Define bunching process.
d) Write specifications of TWT.
e) With the help of diagram give tunneling effect.
f) Draw symbol of PIN, varactor and tunnel diode

Q.2
a) Determine the cut off wavelength for the dominant mode in a rectangular wavelength of breadth 10 cms. For a 2.5 GHz signal propagated in this waveguide in the dominant mode. Calculate the guide wavelength, the group velocity & phase velocity. 08
b) Describe excitation of modes in waveguide 07

Q.3
a) Draw and explain modes of Gunn diode. 07
b) With the help of VI characteristics explain IMPATT diode. 08

Q.4
a) How two cavity klystron works as a amplifier explain in detail. 07
b) A helical TWT has diameter 2mm with 50 turns per centimeter. Calculate the axial phase velocity and anode voltage at which the TWT can be operated. 08

Q.5 Write short notes on 15
a) Microwave transistors
b) Magnetron
c) E plane tee

Section B

Q.6 Answer any five from the following. 10
a) List various advantages of fiber
b) Define numerical aperture, acceptance angle, critical angle. Skew rays.
c) Draw neat labeled diagram of analog link.
d) Where WDM is used in optical communication.

e) Write about in trinsic absorption.
f) What do mean by attenuation? How it is measured.

Q.7 a) Differentiate between a surface emitter LED and an edge emitter LED. 08
b) With constructional diagram explain avalanche photodiode. 07

Q.8 a) Differentiate between Intermodal & intramodal dispersion. 06
b) A multimode graded index fiber exhibits total pulse broadening of $0.1\mu s$ over a distance of 15km. find 1) maximum possible bandwidth on the link. 2) The pulse dispersion per unit length. 3) The bandwidth length product for the fiber. 06
c) Define splicing. 03

Q.9 a) Elaborate how to calculate power budget for a given optical link with example. 08
b) Describe optical network SONET/SDH. 07

Q.10 Write short note on 15
a) Ray theory
b) Coupling losses
c) OTDR trace

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-1256
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Computer Network & Security
[Old]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B 1) Question no.1 and Q.6 are compulsory.
2) Attempt any two questions from rest of each section.

SECTION – A

Q.1 Attempt any two from the following:- 10
a) Which are the different components of communication network?
b) Which are the functions of physical and data link layers of ISO-OSI model?
c) What is video on demand?

Q.2 a) Describe Mesh topology and star topology. 08
b) With the help of appropriate diagram describe TCP/ IP reference model. 07

Q.3 a) Which are types of routing algorithms? Explain any one routing algorithm in detail. 08
b) What is DNS? How it works? 07

Q.4 a) On which parameter QOS is dependent? 08
b) Describe Go – back – N ARQ Protocol. 07

Q.5 a) Describe Packet switching technique in detail. 08
b) Write a note on Congestion control. 07

SECTION – B

Q.6 Attempt any two from the following:- 10
a) What is ARP?
b) How substitution cipher and transposition ciphers works?
c) Write a note on VPN.

Q.7 a) Which are different security attacks on network? 08
b) Describe Public key signature. 07

Q.8 a) Explain SHA algorithm. 08
b) What is SNMP? What is role of SNMP in network? 07

Q.9 a) Explain authentication based on KDC. 08
b) Write a note on IP addressing classes. 07

Q.10	a)	Describe IP sec Protocol.	08
	b)	Describe Diffie Hellman key exchange.	07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-1291
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Wireless & Mobile Communication
[Old]

[Time: Three Hours] **[Max. Marks: 80]**

Please check whether you have got the right question paper.

N.B
1. Question no. 1 & 6 are compulsory.
2. Solve any two from remaining questions in each section.
3. Assume suitable data wherever necessary.

Section A

Q.1 Attempt any five 10
a) What are the fundamental limitations of conventional mobile telephone system?
b) What is personal area network?
c) Define Brewster angle.
d) Why hexagonal cells are used in cellular system?
e) What is scattering? What is the role of Refractive Index in radio propagation?
f) State different indoor & outdoor model of mobile radio propagation.

Q.2
a) Differentiate between 1G, 2G & 3G cellular communication network. 08
b) What are the advantages of wireless communication? 03
c) Consider a cellular system with four cell reuse pattern & BW allocated is 60 MHz to a FDD using two 30 KHz simplex channels for providing full duplex control of one channel. Calculate the total no. of channels available in one cell. 04

Q.3
a) What is frequency reuse? Explain channel assignment strategies in detail. 07
b) What is hand off? Explain various types of hand off techniques. 08

Q.4
a) Explain three basic radio propagation mechanisms in detail. 08
b) What is fading? What are the types of small scale fading? Explain in detail. 07

Q.5 Write short notes on (Any three) 15
a) Advantages & Disadvantages of Okumura Model
b) WLAN
c) Bluetooth
d) Cell splitting

Section B

Q.6 Attempt any five. 10
a) What is an equalizer?
b) State different channel coding techniques.
c) State the advantages of wireless n/w.
d) Define Interleaving.
e) What do you mean by packet switching?
f) What is GPRS?

Q.7	a)	What is Diversity? Explain Diversity techniques in detail.	08
	b)	Explain Adaptive equalizer in detail.	07
Q.8	a)	Differentiate between fixed and wireless telephone n/w.	07
	b)	Explain in detail about wireless services and its types.	08
Q.9	a)	Draw the architecture of GSM and explain.	08
	b)	Explain reverse CDMA channel with B.D.	07
Q.10	Write short notes on (Any three)		15
	a)	RAKE Receiver	
	b)	Circuit Switching	
	c)	APMS	
	d)	UMTS	

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-1328
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Ele-II- Analogue 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 and 6 are compulsory.
2. Attempt any two questions from rest of each section.

Section A

Q.1	i)	State the limitations of single stage amplifier	10
	ii)	Define slew rate.	
	iii)	What is effect of loading	
	iv)	What is the need of trail current source?	
	v)	What is bipolar version of current mirror?	
	vi)	How cascading improves performance of an amplifier.	
Q.2	a)	Draw circuit of CMOS current mirror and explain its working.	08
	b)	Write a note on Miller effect.	07
Q.3	a)	Draw circuit diagram of a Gilbert cell and explain its working.	08
	b)	Describe concept of two stage op-amp compare performance of various op-amp topologies.	07
Q.4	a)	For an op-amp define: - 1) CMRR ii) Input offset voltage iii) Bias current iv) output offset voltage.	08
	b)	Compare cascade current mirror and Wilson current mirror.	07
Q.5	a)	Write a note on design aspect of op-amp.	08
	b)	Write a note on compensation of op-amp.	07

Section – B

Q.6	i)	What is effect of feedback on noise?	10
	ii)	What is flicker noise?	
	iii)	Give applications of PLL.	
	iv)	Which are different types of sampling switches?	
	v)	Give ADC specification.	
	vi)	Find resolution of a DAC if output voltage is desired to change in 1 mv increments with V_{ref}= 5V	

Q.7	a)	Explain characteristics and typical errors associated with sample and hold circuit	08
	b)	What is effect of feedback circuits?	07
Q.8	a)	With neat diagram explain basic PLL.	08
	b)	Explain charge pump PLL regarding i) Basic charge –pump PLL ii) Problem of lock acquisition	07
Q.9	a)	Explain with a neat block diagram dual slope integrated ADC.	08
	b)	Explain concept of analog multiplier explain multiplier using squaring circuit	07
Q.10	a)	Explain pipeline DAC with an example.	08
	b)	Determine the effective number of bits for an ADC with $V_{ref(+)}$= 1.5 V, $V_{ref(-)}$ =0 and a measured V_{Qe}RMS of 2 mv.	07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-1330
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Ele-II- Electronics Product Design
[OLD]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
1. Q.no.1 and Q.no.6 are compulsory.
2. Solve any two questions from remaining from each section.

Section - A

Q.1 Attempt any five 10
a) Enlist the different noises in electronic products.
b) Draw i) DIP ii) GFP package
c) Draw bath tub curve.
d) What are parasiticelements?
e) Mention different soldering techniques
f) Write the stages in product design

Q.2 a) Explain product design stages. 08

b) Describe data acquisition system. 07

Q.3 a) Give the classification of redundancy. Explain any one redundancy. 08

b) Explain mounting of components with diagram. 07

Q.4 a) Give the classification of switching regulator. Explain Boost (step up) regulator. 08

b) Explain ergonomics by giving proper example. 07

Q.5 a) Give the application and advantages of mante- Carlo analysis. 08

b) What are different noises present in the circuit explain shot noise and thermal noise. 07

Section – B

Q.6 Attempt any five 10

a) What is finite state machines?
b) What is radiated emission test?
c) Define shielding
d) Mention phases of software design.
e) Mention EMC regulations.
f) Give the functions of shielding

Q.7 a) Describe in detail phases of software design. 08

b) Explain conducted emission test with neat diagram. 07

Q.8 a) Explain Finite state machine with proper example. 08

b) Describe noise coupling methods. 07

Q.9 a) Explain software structure design with example. 08

b) Describe radiated emission test with neat diagram. 07

Q.10 Write short notes on (any three) 15

a) Shielding and grounding
b) Protection against electrostatic discharge
c) Materials used for electronic system
d) Heat sinkselection

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-4003
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Advanced Embedded System Design
[Revised]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B 1) Q.1 and Q.6 are compulsory.
2) Attempt any two questions from Section A& B (excluding Q.1 & Q.6)

Section A

Q.1 Attempt any five: 10
1) Give the classification of embedded system.
2) Draw embedded system life cycle diagram.
3) Enlist branch instructions of ARM7.
4) Write features of ARM 11 (any four)
5) Enlist core categories of embedded system.
6) Define embedded system.
7) Draw the diagram of RFID system.

Q.2 a) Describe operating modes of ARM 7. 08
b) Explain three stage pipeline with neat diagram. 07

Q.3 a) Explain following instructions of ARM 7. 08
i) MOV r7, r5 LSL # 2 (Assume r7 =0X00000008
r5 =0X00000008)
ii) ADD r0 , r1 , r2 (Assumer r0=0X00000007
r1 =0X00000005
r2 =0X0000000B)
iii) ORR r0,r1, r2 (Assume r0 = 0X00000009
r1 = 0X0000000A
r2 = 0X00000001)
iv) AND r0,r1,r2 (Assume r0 = 0X0000000F
r1 = 0X0000000E
r2 = 0X00000002)
b) Describe programmers model of ARM 7. 07

Q.4 a) Describe construction, initialization sequence and internal block diagram of GLCD. 08
b) What is ultrasonic sensor? Describe working and interfacing of ultrasonic sensor with LPC2148. 07

Q.5 Write short notes on (any three) 15
a) UART
b) Big and little endian concept

c) Interfacing of SD card with LPC2148
d) Digital thermometer
e) Watch dog Timer

Section B

Q.6 Attempt any five 10

a) Enlist processor core registers.
b) Mention features of Vxworks (any four)
c) Draw GPIO bit configuration table.
d) Draw BSRR register and mention the functions of bits.
e) Sketch the diagram for interfacing of temp. sensor with STM32
f) What is LIFS scheduling?
g) What are signals? Mention any two.

Q.7 a) Describe construction and working of stepper motor. Write embedded C program to rotate stepper motor clockwise. Draw interfacing diagram with JTM32. 08

b) Describe bit banding concept with neat diagram. 07

Q.8 a) Explain part structure of ARM cortex with input and output configuration. Draw neat diagram for the same. 08

b) Describe interfacing of pressure sensor with ARM-Cortex (STM32). Write a program to display pressure. 07

Q.9 a) Describe task scheduling with neat diagram. 08

b) Describe features of Vxworks. 07

Q.10 Write short notes on (any three) 15

a) Message queue
b) Pipes
c) Preemptive scheduling
d) Interfacing of stepper motor with ARM-cortex (STM 32)
e) Interfacing of temperature sensor with ARM-cortex. (STM 32)

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-4010
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC.) (Sem-VII)
Antennas and Radiating System
Revised

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Answering of question number 1 and 6 are compulsory.
2) Answer any two questions from question no 2,3,4& 5 from Section A and answer any two questions from question no. 7,8,9 & 10 from Section B.
3) Assume suitable data if necessary.

Section A

Q.1 Answer any five from the following: 10
a) Define directivity. Directivity of half wave dipole antenna is ----------.
b) Find radiation resistance of an antenna which is drawing 20A current and radiating 10KW.
c) Write types of polarization with its diagram.
d) List types of horn antenna.
e) Draw different shapes of patch antenna.
f) Gain of isotropic a radiator is ----------.

Q.2 a) Describe radiation mechanism. 06
b) Find the basic transmission loss between a ground-based antenna and airborne antenna when the distance between the antennas are 1.6, 16, 160 and 320 km at frequency equal to 09
i) f=0.3 GHz ii) f=3 GHz

Q.3 a) An N-turn circular loop antenna has a diameter of 2 cm and the wire diameter is 1 mm. It is wound on the ferrite core whose effective permeability is 10. The no. of turns required to obtain input resistance 50Ω at a frequency of 10 MHz are – 06
b) Write all design equations along with steps for Log Periodic antenna. 09

Q.4 a) Describe reflector antenna with its type advantages and disadvantages. 07
b) Give significance of PIFA antenna with its construction, application, working advantages & disadvantages. 08

Q.5 Write short notes on: 15
a) Types of ground plane.
b) Types of tower.
c) Smart antenna.

Section B

Q.6 Answer any five from the following: 10
a) Write application of horn antenna.
b) Give two differences between indoor and outdoor range.
c) For end fire array, the excitation phase should be----------.

d) The side lobe level of a binomial array is ----------.
e) What is SAR?
f) List types of antenna cables.

Q.7 a) Describe in detail set up for impedance measurement. 08
b) How radiation resistance of an antenna is measured? Explain in detail. 07

Q.8 a) Obtain the resultant pattern of an array of two short vertical dipoles. 08
b) An array contains 100 isotropic radiators with an inter element spacing of 0.5λ. It is required to produce broadside and end fire beams. Find Null-to-Null beam width and half power beam width in degrees. Also find the directivity of both forms of arrays. 07

Q.9 a) Explain fabrication process of patch antenna. 07
b) Design a circular patch antenna using dielectric substrate of 4.3 and n=1.6mm with resonant frequency of 10 GHz. 08

Q.10 Write short note on: 15
a) Anechoic chamber.
b) End fire array.
c) Antenna connectors.

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-4017
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC.) (Sem-VII)
Computer Networks and Security
(Revised)

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Q.No.1 and Q.6 are compulsory.
2) Attempt any two questions from each section.

Section A

Q.1	Attempt any two from the following a) Describe circuit switching b) What is CRC? c) What is QoS? On which parameters it is dependent.	10
Q.2	a) Describe leaky bucket algorithm. b) Explain selective repeat protocol.	08 07
Q.3	a) What is a routing algorithm? Describe distance vector routing algorithm. b) How to avoid congestion in network.	08 07
Q.4	a) Draw & explain ISO-OSI model. b) Classify communication Medias and explain any two in detail.	08 07
Q.5	a) Describe TCP/IP reference model. b) What is a topology? Explain star and mesh topologies	08 07

Section B

Q.6	Attempt any two from the following a) Compare IPV_4 with IPV_6 b) Write a note on symmetric key signature c) What is VPN?	10
Q.7	a) Describe MD5 algorithm. b) What is substitution & transposition ciphers?	08 07
Q.8	a) Explain authentication based on shared secret key. b) What is cryptography?	08 07
Q.9	a) How Diffiee Hellman key exchange protocol works? b) Write a note on ARP and RARP.	08 07

Q.10	a)	How IPsec protocol works?	08
	b)	Describe public key signature in detail.	07

Total No. of Printed Pages: 02

SUBJECT CODE NO:- H-4024
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC) (Sem-VII)
Open Elective-II
Data Science
[Revised]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Question No. 1 and 6 is compulsory.
2. Attempt any **two** others questions from the remaining in each section.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.

Section A

Q.1 Solve any Five 10
- a) Enlist types of data
- b) Define big data
- c) List types of sampling
- d) Define population
- e) What is datafication
- f) What is statistical modeling
- g) What is SPAM

Q.2
- a) List EDA tools and explain the data sciences process? 08
- b) To draw the histogram and boxplot graph. 07
  (4, 8, 12, 18, 24, 30, 36, 42, 56, 50, 44, 38, 32, 28, 24, 20, 16, 14, 8, 4)

Q.3
- a) What is API? Explain its type in detail. 07
- b) Explain current landscape perspective of data sciences. 08

Q.4
- a) Define statistics? Explain probability distribution in detail. 07
- b) In Moses lake 7.9% of workers carpool to work. Conduct a sample of 41 workers and find. 08
  - a) Distribution $X \approx B$
  - b) How many would you expect to carpool to work?
  - c) What is standard deviation
  - d) What is the probability for 3 of 41 carpool to work.

Q.5
- a) Explain KNN in detail? 08
- b) What is regression analysis? Write its applications? Define logistic regression? 07

Section B

Q.6 Solve any FIVE 10

a) What is graph?
b) What is decision tree?
c) What is cluster analysis?
d) What is a wrapper?
e) What is dimensionality reeducation?
f) List neighborhood properties of graphs?
g) Define random forest

Q.7 a) Explain the steps for K-Means and Apply K-means clustering for given data set 08

Customer	Age	Income	Number of credit card
Suresh	35	35K	3
Ramesh	22	50K	2
Ram	63	200K	1
Sham	59	170K	1
Anand	25	40K	4
John	37	50K	2

b) Explain in brief feature generation algorithm. 07

Q.8 a) What is PCA? Apply PCA to following data set and find the value of Eigen vectors. 15

X	Y
2.5	2.4
0.5	0.7
2.2	2.9
1.9	2.2
3.1	3.0
2.3	2.7
2	1.6
1	1.1
1.5	1.6
1.1	0.9

Q.9 a) Describe different ethical issues of data sciences 07
b) List supervised learning algorithm and explain any one in detail. 08

Q.10 a) Explain the varieties of social networks 07
b) What is spam? Explain different type of Spam. 08

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-4035
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC.) (Sem-VII)
Elective –III Python Programming
[Revised]

[Time: Three Hours] **[Max. Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Question no. 1 from Section A & Question No. 6 from Section B are compulsory.
2) Attempt any two questions from each Section.
3) Assume suitable data if necessary.

Section A

Q.1 Attempt any five: 10
a) List any four features of Python.
b) How is Python an interpreted language?
c) What is purpose of pass in python?
d) How are return and exit different?
e) What is recursion? Explain with example.
f) Write program to find factorial of a number.

Q.2
a) What are primitive and non primitive data types available in python, write in brief about each. 07
b) Write program for menu-driven calculator 08

Q.3
a) Compare Python with Java? C Programming language. 07
b) Write program to find if entered number is a perfect square (eg. 4,9,16 are perfect squares but 24,8,15 are not) 08

Q.4
a) What are modules in python? Write advantages of using modules. 07
b) Write program to enter month and day & display if they represent valid date. 08

Q.5
a) How are for and while loops different? Explain with example. 07
b) Program to input a number and display if it is divisible only by 3 or only 5 or both 3 & 5 or none. 08

Section B

Q.6 Attempt any five: 10
a) Give 2 ways of adding a new element in a list.
b) If list is l=[9,8,7,1,2,3] what with l[2:5] print.
c) Define dictionary with example.
d) What is the purpose of Tuples?
e) Define class with example.
f) What is method overloading?

Q.7	a)	Compare object-oriented and procedure – oriented programming.	07
	b)	Write a program to find maximum marks in a dictionary of Roll No : marks.	08
Q.8	a)	Explain methods of dictionary in detail.	07
	b)	Write program to input a list and find no. of times an element entered by user occurs in the list.	08
Q.9	a)	Explain methods of set in detail.	07
	b)	Write program to demonstrate method overriding in python.	08
Q.10	a)	What are various types of inheritance in python? Explain then with a diagram.	07
	b)	Write program to input a list and print if it is increasing or decreasing or random.	08

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-4036
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC.) (Sem-VII)
Elective –III Artificial Intelligence and Machine Learning
[Revised]

[Time: Three Hours] **[Max.Marks:80]**

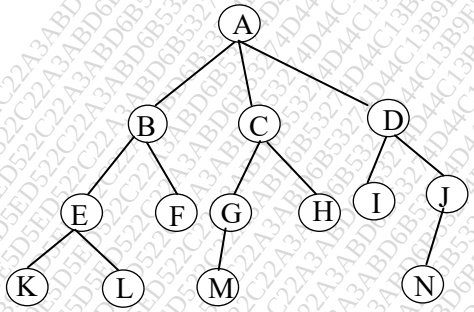
Please check whether you have got the right question paper.

N.B
- Q.1 & Q.6 are compulsory.
- Attempt any two questions from the remaining section A & B respectively.
- Assume data if necessary.

SECTION –A

Q.1
a) Write down the types of Problem formulation. 10
b) Define Back-tracking algorithm.
c) Enlist applications of AI.
d) Define Agent.
e) What is Heursticsearch.

Q.2
a) Differentiate DFS with BFS search methods. 05
b) Apply Breadth first search (BFS) & find out output? 10



Q.3
a) Describe Hill-climbing algorithm? Write limitations of it? 08
b) Explain min-max algorithm for game playing in detail? 07

Q.4
a) Explain with suitable example "A*" Algorithm? 08
b) What are informed and un-informed search method? Differentiate it? 07

Q.5
a) Explain problem solving method using 8-puzzle problem? 08
b) What is cross-validation techniques. Explain any one type of it? 07

SECTION B

Q.6
a. Define Neurons 10
b. What is supervised learning.
c. Write types of clustering.

d. What is activation function?

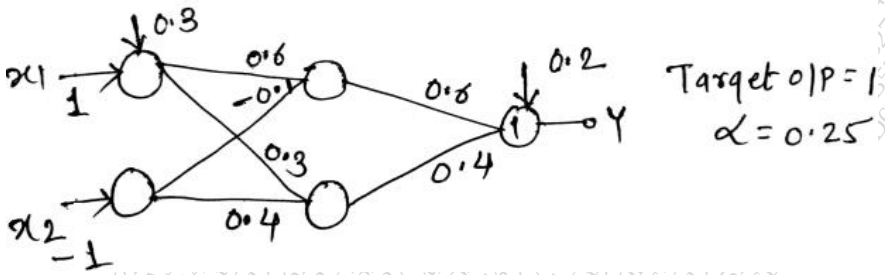
e. Write down applications of Machine learning.

Q.7 a) Divide the sample data into 2 cluster using Euclidean distance formula. 10

Voltage	Current
10	5
20	7
30	12
40	15
50	19
60	28
70	39

b) What is machine learning? Write types and applications of it. 05

Q.8 a) Apply Back propagation algorithm & solve, 12



b) Define overfitting in regression? Draw suitable diagram of overfitting? 03

Q.9 a) Write Back propagation algorithm in detail? 08

b) Implement perceptron rule for following, 07

$W^1 = \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}, x_1 = [1\ 2\ 2], x_2 = [0\ -1\ -1]$

$d_1 = -\perp\ d_2 = \perp$

Q.10 a) Use K-mean clustering, Make 2 cluster from given dataset? 08

$K = \{1,2,3,4,10,11,14,16,20,22,25,30\}$

b) Write Perceptron Algorithm in detail? 07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-4037
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (ETC.) (Sem-VII)
Elective –III Wireless and Mobile Communication
[Revised]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Question No. 1 & 6 are compulsory.
ii) Solve any two from remaining questions in each section.
iii) Assume suitable data wherever necessary.

SECTION –"A"

Q.1 Answer any five of the following: 10
(a) State Frequency Reuse concept
(b) Define Handoff.
(c) Explain the principal of cognitive Radio.
(d) Define Bluetooth and what is its range.
(e) Find the value of K for i=1, j=4.
(f) What is scattering?

Q.2 (a) What are the different types of wireless communication techniques? Explain any two in detail. 08
(b) Compare wireless & wired communication. 07

Q.3 (a) What are the different methods of increasing the spectrum efficiency? Explain any one in detail. 08
(b) What is the need of Handoff? What are its different types? Explain two level Handoff in detail. 07

Q.4 (a) Discuss three basic propagation models in detail. 08
(b) Explain small scale and large scale fading in detail. 07

Q.5 Write short notes on: (Any Three) 15
(a) Lifi
(b) GSM Frame Structure
(c) Indoor Models
(d) Sectorization.

SECTION B

Q.6 Answer any five of the following: 10

(a) Explain diversity in relation to wireless communication.
(b) Enlist different types of fading & define fading.
(c) What is the need of Equalizer?

(d) What is Spatial Multiplexing?
(e) Give any four applications of Wireless Sensor Network.
(f) Different channels used in GSM.

Q.7 a) Explain in detail different methods of increasing voice quality and performance of wireless link. 08
b) Explain with the help of a Diagram working of RAKE Receiver. 07

Q.8 a) With the help of neat diagram explain the architecture of GPRS in detail. 08
b) Explain in detail different Wireless Sensor Network Topologies. 07

Q.9 a) How precoding& Beam forming is done in MIMO systems. 08
b) What are the different types of MIMO systems? 07

Q.10 Write short notes on: (Any three) 15

(a) CDMA
(b) G.S.M. Frame Format
(c) W.S.N. Topologies
(d) Channel State Information.

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-4056
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (E.T.C.) (Sem-VII)
Elective -IV
Electronic Product Design
[Revised]

[Time: Two Hours] **[Max.Marks:40]**

Please check whether you have got the right question paper.

N.B i) Q.1 & Q.5 are compulsory.
ii) Attempt any two questions from section A & B (excluding Q.1 & Q.5)

SECTION A

Q.1 Attempt any three (two marks each) 06
a) Define ergonomics
b) Enlist PCB design elements
c) What is white box & grey box test
d) Draw development states of product design.
e) What is functional design.

Q.2 a) Explain module debug and test 04
b) Describe architectural design. 03

Q.3 a) Explain design process. 04
b) Explain PCB design rules for analog circuits. 03

Q.4 a) For Class A amplifier having peak base current 8mA calculate 04
i) Ica ii) VCEa iii) PDC iv) Pac

b) Explain the terms 03
i) Silk screen ii) Pad iii) Solder mask

SECTION B

Q.5 Attempt any three (Two marks each) 06
a) Draw phases of software design.
b) Enlist goals of software design.
c) Draw Waterfall model of software development.
d) What is Testing and debugging of program?
e) What is EMI and EMC related testing?

Q.6 a) Explain waterfall model of software development with neat diagram. 04
b) Describe methods of program flow representation. 03

Q.7	a)	Explain temperature testing.	04
	b)	Enlist types of documentations.	03
Q.8	a)	Explain Bill of material by giving suitable examples.	04
	b)	Give classification of standards explain industry standard	03

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-4057
FACULTY OF SCIENCE AND TECHNOLOGY
Final B.Tech. (E.T.C.) (Sem-VII)
Elective –IV Biomedical Electronics
[Revised]

[Time: Two Hours] **[Max.Marks:40]**

Please check whether you have got the right question paper.

N.B (i) Q. No.1 and 5 are Compulsory.
(ii) Solve any two from remaining from each Section A and B.

SECTION A

Q.1 Solve any three 06

a) Enlist the transducers used for displacement.
b) Define physiological Sensor.
c) Define Half Cell potential
d) Enlist the function of Gel used for ECG.

Q.2 Define Micro electrode and Explain its applications. 07

Q.3 Explain Dye dilution measurement Technique. 07

Q.4 Explain working of ultrasound Blood flow meter. 07

SECTION B

Q.5 Solve any three 06

a) Draw diagram of Hearing System in human being.
b) Explain Difference between soft and Hard X-ray.
c) Explain Basic principle of computed Tomography.
d) Explain important features of ICU.

Q.6 Explain patient Monitoring system and its features. 07

Q.7 Compare between Radiographic and fluoroscopic images. 07

Q.8 Explain Block diagram of X-ray Machine. 07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-408
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/E&C) (Sem-I)
Microwave & Radar Engineering
[OLD]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: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 short note on any two. 10
a) Varactor Diode
b) S parameters.
c) IMPATT diode.
d) Parametric amplifier.

Q.2 a) Explain the propagation of TE mode in rectangular waveguide. Also derive the expression of cutoff frequency of rectangular waveguide. 08
b) What do you mean by isolator? Explain the principle of operation of isolator. 07

Q.3 a) An air filled rectangular waveguide has dimensions of a=12cm and b=8cm. The signal frequency is 2.4 Ghz, Calculate, 08
a) Cutoff frequency c) Wave impedance
b) Wavelength in waveguide d) Propagation
e) constant.

b) Discuss high frequency limitations on conventional vacuum tube. 07

Q.4 a) Explain briefly microwave IC fabrication. 08
b) Explain working of magic tee with its scattering Matrix. 07

Q.5 a) Explain MW device with neat diagram. 08
i. MW isolator
ii. Matched Terminator
b) Draw the schematic of TWT amplifier and describe the principle of operation. 07

SECTION – B

Q.6 Write short note on any two. 10
a) Radar frequencies
b) Digital MTI processing
c) Non-coherent MTI radar
d) Sequential lobbing

Q.7	a)	Draw and explain the basic block diagram of radar system with its application.	07
	b)	Derive expression for radar range equation. Considering minimum received echo power.	08
Q.8	a)	Explain phase array and planner array in the tracking system.	07
	b)	Explain different types of system losses in radar and radar display.	08
Q.9	a)	Explain the working of conical scan radar with the help of block diagram.	07
	b)	Explain the deflection of signal in noise for radar. Also explain the concept of false alarm and miss change in radar.	08
Q.10	a)	Explain the working of monopulse tracking radar.	07
	b)	Explain different antenna parameters in radar.	08

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-409
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC) (Sem-I)
Robotics
[OLD]

[Time: Three Hours] **[Max. Marks: 80]**

Please check whether you have got the right question paper.

N.B
i. Q.No.1 from section A and Q.No.6 from section B are compulsory.
ii. Solve any two question from Q.No.2,3,4,5 and solve any two questions from Q.No.7,8,9,10.

Section A

Q.1 Write a short notes (Solve any Two) 10
A) Euler Equations
B) Overview of robot sub system
C) Translation and rotation matrix

Q.2 A) Explain present and future trends in robotics 07
B) Classify robots on the basis of co-ordinate system 08

Q.3 A) If $x = i + 2j + 3k$ & $y = 4i + 5j + 6k$. Find $x.y$ & $x \times y$ in homogeneous coordinate system 07 08
B) For the following frame, find the values of the missing elements and complete the matrix representation of the frame:

$$F = \begin{bmatrix} ? & 0 & ? & 5 \\ 0.707 & ? & ? & 3 \\ ? & ? & 0 & 2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Q.4 A) Explain D-H matrix. 07
B) If $x = i + 2j + 3k$ & $y = 4i + 5j + 6k$. Find $x.y$ & $x \times y$ in homogeneous coordinate system 08

Q.5 A) Explain dynamic modeling of robotic manipulator. 07
B) Explain basic structure of robots. 08

Section B

Q.6 Write a short notes (Solve any Two) 10
A) Object recognition
B) Digitization
C) Fuzzy Controller

Q.7	A) Explain use of control system in robotics.	08
	B) Explain Jacobean in terms of D-H matrix.	07
Q.8	A) Explain external and internal types of sensors	08
	B) Explain different types of actuators.	07
Q.9	A) What is the use of image processing in robotics? Explain with suitable example.	08
	B) Explain concept of description and sensing in robotics.	07
Q.10	A) Explain machine vision system.	08
	B) Explain relocking acceleration profile.	07

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-458
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/E&C) (Sem-I)
Elective-I: Artificial Neural Network & Fuzzy Logic
[OLD]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: i) Q.1 and Q.6 are compulsory.
ii) Solve any two questions from remaining in each section.
iii) Assume suitable data if required.

Section– A

Q.1 Write short note on (any two)
(a) Artificial Neuron model 05
(b) Perceptron 05
(c) Benefits of neural network 05

Q.2 a) Explain linear separability for pattern classification. 08
b) Explain McCulloch-Pitts neuron model. 07

Q.3 a) Explain supervised and unsupervised learning. 07
b) Explain bidirectional associative memory. 08

Q.4 a) Explain counter propagation network. 07
b) Explain adaptive resonance theory network. 08

Q.5 a) Explain recurrent associative memory. 07
b) Draw and explain architecture of back propagation neural network. 08

Section – B

Q.6 Write short note on (any two)
(a) Classical set and it's properties. 05
(b) Fuzzy set and Fuzzy set operations. 05
(c) Features of membership Function. 05

Q.7 a) Explain in detail properties of fuzzy sets 08
b) Explain inference for membership value assignment. 07

Q.8 a) Explain fuzzification and defuzzification. 08
b) Explain fuzziness measures. 07

Q.9 a) Explain individual decision making fuzzy logic control system. 08
b) Explain multiperson decision making fuzzy logic control system. 07

Q.10 a) Explain lamda cuts for fuzzy sets. 07
b) Explain fuzzy Inference system. 08

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-459
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/E&C) (Sem-I)
Elective-I: Wireless Mobile Communication
[OLD]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

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

Section– A

Q.1 Write a short note on (Any two) 10
a) Evaluation of mobile radio communication.
b) Roaming
c) Frequency reuse
d) GPRS

Q.2 a) Draw and explain the architecture of cellular system. 08
b) What is multiple access? Explain SDMA in detail. 07

Q.3 a) Compare TDMA, FDMA and CDMA. 08
b) What is hand-off in mobile communication? Explain it's necessity and advantages. 07

Q.4 a) Discuss interference, trunking and Grade of service. 07
b) Explain the overview of 3G and 4G wireless networks. 08

Q.5 a) What is Bluetooth standard? Draw it's architecture and explain in detail. 07
b) Write a short note on DECT & UMTS. 08

Section – B

Q.6 Attempt any two:- 10

(a) CDMA & GSM Comparison
(b) Mobile IP
(c) Short note – WAP

Q.7 a) Explain GSM architecture in detail? 07
b) Explain Channels TCH & CCH? 08

Q.8 a) Explain protocols for network access PRMA? in detail 08
b) Explain IEEE 802.11a, 802.11b standards? 07

Q.9 a) Explain IP & PRMA in detail? 07
b) Explain architecture of DTH Services? 08

Q.10 a) Explain zigbee protocol in detail? 07
b) Explain MTC & MOC with help of block diagram? 08

H-460

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-460
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-I)
Elective-I: Biomedical Electronics
[OLD]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1) Solve any two question No.1 and Q.No.6 which are compulsory from each section
2) Solve any two questions from section A and section B each from remaining questions.
3) Assume suitable data if required.

Section 'A'

Q.1 Solve any two out of five 10
a) What ST segment in ECG.
b) Explain working principle of MRI
c) Explain the signals used for ultrasound imaging technique
d) Enlist x-ray applications
e) Explain disadvantages of x-rays

Q.2 a) Explain working principle of pulse transducer. 07
b) Explain Inductive transducer and its application 08

Q.3 a) Explain EEG and it's characteristics 07
b) Explain the effect of High coufact impedance 08

Q.4 a) Explain X-Ray computed Tomography. (CT) 07
b) Explain Basic principle of X-Ray. 08

Q.5 a) Explain capacitive transducer used in Biomedical 08
b) Explain the muscle force & stress measurement techniques. 07

Section 'B'

Q.6 Solve any two out of five 10
a) Define Arrhythmia
b) Enlist the types of Heart diseases
c) Explain working principle of physiotherapy
d) Enlist safety precautions required against the X-Ray hazards
e) Enlist the objectives of use of pacemaker

Q.7 a) Explain Bead side patient monitoring system. 07
b) Explain "PQRST" wave 08

Q.8	a)	Explain Ultrasound therapy	07
	b)	Enlist electrotherapy Equipment's	08
Q.9	a)	Explain Microwave diathermy	07
	b)	Explain the importance of ventillators	08
Q.10	a)	What do you mean by therapeutic equipment and its advantages	07
	b)	Explain Cardiac fibrillation and defibrillators	08

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-461
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC) (Sem-I)
Elective-I: Advanced Power Electronics
[OLD]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: 1) Q.No.1 & Q.No.6 are compulsory from both the section.
2) Solve any two questions from Section A & Section B from remaining.
3) Figures to right indicate full marks.

Section– A

Q.1	Write a short note on (Any two)		10
	a)	Heat Sink Design	
	b)	SMPS	
	c)	Snuber Circuit.	
Q.2	a)	Draw & Explain design considerations for IGBT derive circuit.	08
	b)	Explain the classification of DC-DC converter with fig. & waveform.	07
Q.3	a)	Draw & Explain switching mode regulator of DC-DC converter of any one type with its circuit diagram & waveform.	08
	b)	Explain isolation & Design criteria for SMPS.	07
Q.4	a)	Explain MCT & Draw equivalent & cross-sectional view of its. Also write its features.	08
	b)	Explain Flyback converter with diagram.	07
Q.5	a)	Draw & Explain GTO & its silent features.	07
	b)	Draw & Explain full bridge rectifier with its w/f.	08

Section – B

Q.6	Write a short note (Any two)		
	a)	Resonant Converter	05
	b)	TSC	05
	c)	Use of simulation tools for design & Analysis.	05
Q.7	a)	Draw & Explain DC-AC Converter with its waveform.	07
	b)	Explain parameters of design & modeling of DC – AC converter.	08
Q.8	a)	Explain power Electronics for Renewable Energy sources.	07
	b)	Explain Thyristor controlled reactor (TCR).	08
Q.9	a)	Explain PWM techniques in DC-AC converters.	08
	b)	Explain power conditioners and their Applications.	07
Q.10	a)	Explain performance parameter of DC-AC converters.	08
	b)	What are the standards of IEEE Power Quality?	07

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-462
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC) (Sem-I)
Elective-I: Consumer Electronics
[Old]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: 1) Q.No.5 & Q.No.10 are compulsory for both the section.
2) Solve any two questions from Section 'A' & Section 'B' from remaining.
3) Figures to right indicate full marks.

Section – A

Q.1	a)	Draw & Explain i-phone with its specifications.	08
	b)	Explain DTH in detail with its specification & diagram.	07
Q.2	a)	State working principle of colour TV with block diagram.	07
	b)	Draw & Explain all types of Antenna.	08
Q.3	a)	Which are the selection criteria used for Air conditioner with its all type.	07
	b)	Draw & Explain each block of water purifier.	08
Q.4	a)	Explain microwave oven with its specification & application.	07
	b)	Compare HDTV with normal TV with its advantages.	08
Q.5	Write a short note on any two.		
	a)	Weighing machine	05
	b)	PA System	05
	c)	Mobile Handsets.	05

Section – B

Q.6	a)	Explain home automation system with block diagram.	08
	b)	Explain Solar lamp with its diagram & advantages.	07
Q.7	a)	Explain Inkjet Printer with its specification & application.	08
	b)	Compare LED & CFL Lamp.	07
Q.8	a)	Draw & Explain Biometric sensor with its types.	07
	b)	Explain Electronic calculator.	08
Q.9	a)	Explain standards related to fire hazards.	07
	b)	Compare Blue ray DVD & CD.	08
Q.10	Write Short note any two		
	a)	EMI / EMC	05
	b)	Home Automation system.	05
	c)	Product Safety design	05

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-463
FACULTY OF SCINECE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-I)
Elective-I: Android Technology
[OLD]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Q. 1 & Q. 6 are compulsory.
2. Solve any two from Q.2 to Q.5
3. Solve any two from Q.7 to Q.10
4. Assume suitable data of necessary

Section – A

Q.1 Attempt any two 10
a) Explain operators in Java
b) Define type casting with necessary example
c) Explain Array

Q.2 a) Write a java program to create a Class student contains sid, sname, branch, constructor to initialize the members, method to receive input and display output. 07
b) Explain the steps to create the Android application with Project Directory structure. 08

Q.3 a) Write a java program to create user defined exception 07
b) Explain Multiple inheritance with necessary example. 08

Q.4 a) Explain Android Architecture with stack 07
b) Define inheritance? Explain the types of inheritance 08

Q.5 a) When to use final, finally, finalize. 07
b) Write a java program to utilize looping statements using while, do while , for 08

Section – B

Q.6 Attempt any two 10
a) Define Activity , layout
b) What is the use of intents
c) What is the need of manifest file

Q.7 a) Write the programs to create android application to access the geo location 07
b) Write the programs to create android application to demonstrate different types of layouts in android. 08

Q.8 a) Write the programs to create android application to demonstrate Google map. 07
b) Write the programs to create android application to demonstrate to control Bluetooth 08

Q.9	a)	Write the programs to create android application to demonstrate recording audiofile	07
	b)	Write the programs to create android application to demonstrate send SMS/MMS	08
Q.10		Create android application to inset and retrieve/show data from sqlite database like Employee contains eid, ename , eadd as well as to send the data to the web server to using HTTP web services	15

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-470
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/CSE/IT/EE) (Sem-I)
Elective-I: Inter Connection Networks
[OLD]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B Attempt any two questions from each section.

Section A

Q.1 A) Explain The AT&T colour Code for Straight cable & Cross Cable. & When we use Straight Cable & Cross Cable? 10

B) What is Routing? What are different types of Routing? 10

Q.2 A) Write sub network No. Valid host & Broadcast address for following (any 2) 10

- 192.168.1.0 / 27
- 172.16.0.0 / 24
- 171.16.0.0. / 19

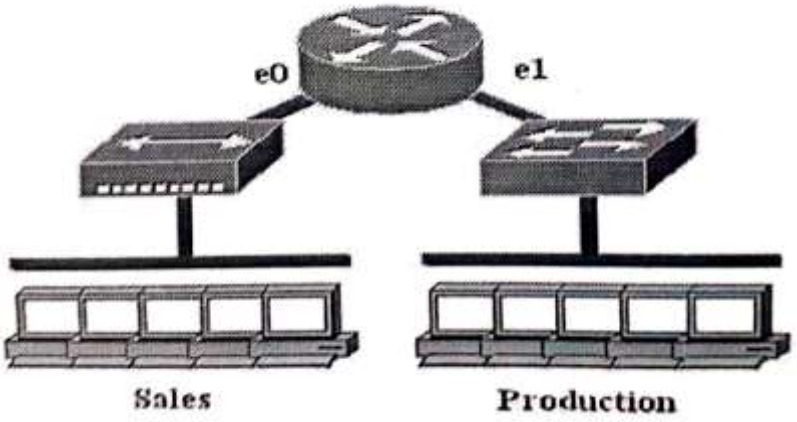
B) Write short note on following. 10

I. PING
II. What is Function of Router?

Q.3 A) Explain About the following. 10

i. Console Port
ii. Serial Port
iii. Auxiliary Port

B) How Many Collision Domain & Broadcast Domain In Diagram. 10



5 ports 5 ports

Section B

Q.4	A) What is WAN encapsulation protocol? Explain PPP and HDLC protocol.	10
	B) Write the features of switch. Differentiate Hub and Switch.	10
Q.5	A) What is trucking in switches? Explain its types	10
	B) What is VLSM? Give difference in between VLSM and FLSM.	10
Q.6	A) Write note on clock rate.	10
	B) What is difference in between OSPF and EIGRP.	10

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-472
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/CSE/IT/EE) (Sem-I)
Elective-I: Learning Management System
[OLD]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B
I Q.No.5 and Q. No. 10 are compulsory.
II Attempt any two questions from the remaining questions for each section.
III Assume suitable data if necessary.

Section A

Q.1	a)	Explain in details Learning Management System Features.	08
	b)	Explain Course Management System (CMS)? Benefits of A CMS	07
Q.2	a)	How to calculate the Return on LMS Investment of Learning Management System.	08
	b)	What are the types of standard support Explain Shareable Content Object Reference Model (SCORM)	07
Q.3	a)	Explain How eLearning is effective in industries and education.	08
	b)	Explain in Detail Mobile learning management system.	07
Q.4	a)	Explain importance of eLearning in corporate and education.	08
	b)	Explain various components of Learning Management System.	07
Q.5	Write Short Notes on any two A) Principles of Instructional Design B) Section 508 C) Virtual learning environments (VLE) D) Data migration in LMS		10

Section B

Q.6	a)	Describe in detail User Roles in LMS	08
	b)	Explain Resource management requirements in LMS	07
Q.7	a)	What is MOOC? Explain different types of MOOC.	08
	b)	Explain Flipped Classroom as Emerging trends in LMS.	07
Q.8	a)	Explain in Details- 1) Gamification of learning 2) Extended enterprise learning	08
	b)	Briefly describe an one case study of moodle.	07

Q.9 a) Write the process for choosing an LMS 08
b) Explain Applications of LMS 07

Q.10 Write Short Note on any two 10
A) Workflow of a Learning Management System (LMS)
B) Case Study on SABA LMS
C) Content delivery network (CDN)
D) Characteristics of a Learning Management System

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-493
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-I)
Elective-I: Advanced Industrial Automation
(OLD)

[Time:Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Q.No.1 from section A&Q.No.6 from section B are compulsory.
2. Solve any two questions from Q.2, Q.3, Q.4& Q.5.
3. Solve any two questions from Q.7, Q.8, Q.9& Q.10.
4. Assume suitable data wherevernecessary.

Section A

Q.1	a)	Explain Process Variables, Set points and Controlled Variables.	05
	b)	Explain Temperature control process in detail.	05
Q.2	a)	Explain standard symbols used in control process loop.	08
	b)	Explain about manipulated variable and Load variable.	07
Q.3	a)	Explain the method for span and zero adjustment.	08
	b)	Explain the process of volume and pressure booster.	07
Q.4	a)	Explain different type of proximity sensors in detail.	08
	b)	Explain Reed type switches in detail.	07
Q.5	a)	Explain the difference between AC drives and DC drives with suitable example.	08
	b)	Explain the working of linear motion control valve.	07

Section B

Q.6	a)	Draw and explain standard symbols set used in Ladder diagram.	05
	b)	State advantages of DCS.	05
Q.7	a)	Draw and explain architecture of PLC.	08
	b)	Describe a supervisory control system in detail.	07
Q.8	a)	Draw ladder logic for following When the switch is turned on I) Bulb turns on immediately II) Fan turns on after 10 sec. When the switch is turned off I) Both Bulb and Fan turns off immediately	08
	b)	Draw Ladder logic for simple level control system.	07

Q.9	a)	Enlist and explain the common practice HART commands.	08
	b)	Explain Foundation Fieldbus in detail.	07
Q.10	a)	Draw and explain DCS architecture.	08
	b)	Explain latest trends and developments in DCS.	07

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-496
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/E&C) (Sem-I)
Antenna Theory & Wave Propagation [Elective-II]
[OLD]

[Time:Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Q.No.1 &Q.No.5 are compulsory.
2. Solve any two questions from remaining questionsineach section.
3. Assume suitable data wherevernecessary.
4. Figures to the right indicate full marks.

Section A

Q.1	A) State and explain the Polarization, directivity and gain of antenna.	10
Q.2	A) Describe small circular loop and radiation pattern of small circular loop.	08
	B) Write short note on FRIIS transmission equations.	07
Q.3	A) State and Explain Infinitesimal dipole and Finite length dipole.	08
	B) Explain the radiation from sectoral and pyramidal horns.	07
Q.4	A) State and explain Hugens principle in details.	08
	B) Explain effective aperture, input impendence and polarization.	07

Section B

Q.5	A) Explain Frequency independent antenna and YAGIAntenna in details.	10
Q.6	A) What are the advantages and limitation of patch antenna and describe its radiation mechanism.	08
	B) What are the important parameter of rectangular and circular patch antenna	07
Q.7	A) Explain basic characteristics of Micro strip antenna.	08
	B) State and explain space wave propagation.	07
Q.8	A) What are Reflection character tics of earth in space wave propagation	08
	B) Describe sky waves and ground wave propagation.	07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-506
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT) (Sem-I)
Elective-I: Internet of Things Embedded System
[OLD]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Q. No. 1 from section A and Q. No.6 from section B are compulsory.
2. Solve any two questions from Q. No. 2,3,4,5 and solve any two questions from Q. no. 7,8,9,10.

Section -A

Q.1 Write short note on (any two): 10
- A) Raspberry Pi 3
- B) Features of Arduino and Node MCu.
- C) Arduino Ethernet shield.

Q.2
- A) What is loop? Elaborate different types of loops in C with syntax. 07
- B) Explain how to read and write files inside python using syntax. 08

Q.3
- A) Explain Arduino UNO pin configuration in detail. 07
- B) Write a program to interface digital sensor to Arduino Node MCU. 08

Q.4
- A) Write steps to install operating system on Raspberry Pi and configure it for newly install operating system. 07
- B) Write a program to interface servo motor to raspberry Pi3. 08

Q.5
- A) Draw interfacing diagram and write program to automatic street light control using LDR and Arduino UNO. 07
- B) Write steps to configure Ethernet and Wi – Fi to Raspberry Pi3 using command prompt. 08

Section – B

Q.6 Write short note on (any two) 10
- A) Raspberry Pi 3 interfacing to Whatsapp
- B) Data Distribution Services.
- C) Bluetooth Low Energy

Q.7
- A) Explain MQTT protocol message format. 08
- B) Explain element and architecture of AMQP. 07

Q.8
- A) Write a program to interface NodeMCU to web services. 08
- B) Write steps to interface Raspberry Pi to tweeter. 07

Q.9	a) Explain concept of Home Automation using loT.	08
	b) Explain waste management system using loT.	07
Q.10	A) Explain concept of Internet Connected smart water system.	08
	B) Explain UART for raspberry Pi3.	07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-507
FACULTY OF SCINECE AND TECHNOLOGY
B.E. (ECT) (Sem-II)
Elective-II: Internet of Things Embedded System-II
[Revised]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Questions No.1 from section A and Questions No.6 from section B are compulsory.
2. Solve ant two questions from remaining each section
3. Assume suitable data wherever necessary.
4. Figures to right indicate full marks.

Section – A

Q.1 Solve any 2 questions from following: 10
a) Micropython REPL prompt.
b) Compiler Vs Interpreter.
c) Socket Module.

Q.2
a) Explain in detail Flash/ upload Micropython firmware to board. 07
b) What is class? State the syntax to define a class with example. 08

Q.3
a) Explain ADC and PWM with Micropython. 07
b) What is Node- Red? Explain how to create a simple flow using injecting message and debug flow. 08

Q.4
a) Explain power control, Real time clock and deep sleep mode for NodeMcu with Micropython. 07
b) Explain IFTT in detail. 08

Q.5 Write short notes on (any three): 15
a) TCP and UDP.
b) Features and limitations of Micropython.
c) Data structures for Micropython.
d) Python vs Micropython.

Section – B

Q.6 Solve any 2 questions from following 10

a) Characteristics of Industry 4.0.
b) Plotting sensor data using Matplotlib.
c) Explain in short SQLite.

Q.7 a) Explain in detail how to create a table using SQLite with example. 07

b) Explain design principle of Industry 4.0. 08

Q.8 a) Discuss the steps involved in creating a database using SQLite. 07

b) Explain plotting of points and bar chart using matplotlib. 08

Q.9 a) Explain Building block of Industry 4.0. 07

b) Write a program to plot a curve from file data using matplotlib and show output diagram. 08

Q.10 Write short notes on (Any three): 15

a) Industrial Io T-layers.
b) Plotting histograms using matpotlib.
c) Getting real time data from sensor to database using SQLite.
d) IIoT case study – Healthcare.

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-617
FACULTY OF SCINECE AND TECHNOLOGY
B.E.(ECT/EC/E&C) (CGPA) (Sem-I)
Digital Image Processing

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Question no. 1 & 6 are compulsory.
2. From remaining questions solve any two questions from each section A and B.

Section – A

Q.1 Answer **any five** from the following 10
a) What is digital image? Explain.
b) What is image sampling? Explain.
c) Explain any two DFT properties.
d) What is histogram? Explain.
e) Give Sobel and Prewitt masks for edge detection.
f) What are types of redundancies?
g) Give any two formulae in fidelity criteria.
h) Write equation of dilation and erosion morphology operation.

Q.2 a) Explain block diagram of fundamental steps in DIP. 08
b) What are image transform? Explain any one in detail. 07

Q.3 a) Explain spatial domain filtering basics for image enhancement. 08
b) Explain topological descriptors in detail. 07

Q.4 a) Explain variable length coding with one example. 08
b) Explain fidelity criteria in relation with digital image. 07

Q.5 a) Explain morphological opening and closing basic processes. 08
b) Explain morphological algorithm on thinning process. 07

Section – B

Q.6 Write short notes on **(any five)** 10
a) Explain digital image representation.
b) List different digital image file formats.
c) Write 2D DFT pair equations.
d) Give difference in image enhancement and restoration.
e) Find the chain code given '30301123' first difference.
f) Draw block diagram of compression model.
g) Explain compression standard JPEG.
h) Explain medical image MRI and CAT.

Q.7	a)	Explain image sampling and quantization in detail.	08
	b)	Explain brightness adaptation and discrimination in detail.	07
Q.8	a)	Explain basic gray level transformation in enhancement.	08
	b)	Explain region based segmentation algorithm.	07
Q.9	a)	Explain boundary descriptors in detail.	08
	b)	Explain error free compression image model.	07
Q.10	a)	Explain morphological algorithm on Pruning Process.	08
	b)	Explain any one DIP application in detail.	07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-624
FACULTY OF SCIENCE AND TECHNOLOGY
B.E.(ECT/EC/E&C) (Sem-I)
Microwave and Radar Engineering
[CGPA]

[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 Q.2 to Q.5 from section A
3) Solve any two questions from Q.7 to Q.10 from section B
4) Assume suitable data wherever necessary.

Section-A

Q.1 Write short note on any two 10
a) Effect of microwave on human body
b) EMI & EMC
c) RFMEMS for microwave component

Q.2 a) Explain Input output port relationship in Magic (Hybrid) Tree? Explain scattering matrix of E-plain Tee. 08
b) What do you mean by waveguide? Explain which is the dominant mode as propagation in rectangular waveguide and why? 07

Q.3 a) Draw and explain reflex klystron along with Applegate Diagram 08
b) Explain the working of multihole directional coupler if the power is incident at i/p port. 07

Q.4 a) Explain Construction, Working and Characteristic of tunnel diode. 08
b) State the application of microwave in civil and medical field in detail. 07

Q.5 a) Explain RFMEMS for microwave components. 08
b) Enlist application of microwave in civil and medical field. Also explain one application of each n brief in detail. 07

Section -B

Q.6 Write short note on any two 10
a) A scope and PPI display
b) Mono pulse tracking and its limitation
c) Antenna parameters

Q.7 a) Derive free space radar equation. Explain different factor limitation the range of radar. 08
b) Radar operates at 10 GHz, has peak power of 500KW. The power gain of antenna is 5000 & min. Power of receiver 10-14. Calculate max. Range of radar if effective area of antenna is 10 m2 and radar cross-section is 4 m2. 07

Q.8	a)	What is the delay line canceller? Draw & explain the block diagram of double delay line canceller.	08
	b)	Explain the detection of signal in noise for radar. Also explain the concept of false alarm and miss change in radar	07
Q.9	a)	Draw & explain Non coherent MTI Radar System.	08
	b)	Explain Digital MTI Radar. Also explain limitation of MTI performance	07
Q.10	a)	Explain phase array and planner array with respect to antenna scanning and tracking.	08
	b)	Explain conical scanning method of tracking. How this is an improvement over lobe switching?	07

Total No. of Printed Pages: 02

SUBJECT CODE NO:- H-632
FACULTY OF SCIENCE AND TECHNOLOGY
B.E.(ECT/EC/E&C) (Sem-I)
Advanced Embedded System Design
[CGPA]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Question 1 & 6 compulsory.
2. Attempt any two question remaining question each section.

Section A

Q.1 Solve any two questions from following. 10
a) Draw and explain example of digital thermometer.
b) Write a interfacing program of stepper motor using LPC2148 ARM controller.
c) Draw and explain ARM7 controller.

Q.2
a) Draw and explain 3 stage pipeline in ARM organization. 08
b) Explain LOAD- STORE instruction. 07

Q.3
a) Explain features of ARM9 and ARM11. 08
b) Explain THUMB instruction in ARM7 with example. 07

Q.4
a) Write interfacing program of ultrasonic sensor. 07
b) Explain with neat diagram SPI protocol. 08

Q.5 Solve any three questions from following. 15
a) Draw and explain barrel shifter of ARM7.
b) Draw and explain example of embedded system is navigation system.
c) Explain Timer of ARM7.
d) Explain different operating mode.

Section B

Q.6 Solve any two questions from following 10
a) Explain processor core registers in cortex.
b) Draw the block diagram of Cortex-M3
c) Write and explain functions of RTOS.

Q.7
a) Write a C program for LED blinking from right to left in PORT 0 with a msec delay. 08
b) Explain in detail GPIO configuration in Cortex-M3 microcontroller. 07

Q.8
a) Explain preemptive scheduling in RTOS. 08
b) Write C program for interfacing DC motor in clockwise direction. 07

Q.9 Write interfacing C program of servo motor using pulse width is 1000us to 2000us form back to forth in step suing Timer1. 15

Q. 10 Solve any three questions from following 15

a) Draw and explain architecture of RTOS.
b) Explain round robin scheduling
c) Explain port bit set/reset register in Cortex- M3
d) Explain the concept of shared memory in RTOS.

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Total No. of Printed Pages:02

SUBJECT CODE NO:- H-639
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/EC/E&C) (Sem-I)
VLSI Design
[CGPA]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B. 1) Q.no.1 from section A and Q.no.6 from section B are compulsory.
2) From remaining questions solve any two in each section.

Section A

Q.1 Solve any five: 10
1) Write a behavioral desciption of EX-OR gate
2) What is predictability ?
3) Draw the I-V characteristics of P-MOS trasistor technology.
4) Define Nosie Margin.
5) Write any two advantages of boundary scan
6) What is Back End design?
7) What is Moore's Law ?

Q.2 a) What is difference between VHDL & Verilog & enlist types of HDL languages. 08
b) Write VHDL code for 2 to 4 decodes in behavioral model. 07

Q.3 a) What is BIST? Explain in detail. 08
b) Explain stuck at fault in detail. 07

Q.4 a) Explain static & Dynamic power dissipation in CMOS. 08
b) Explain IV characteristics of CMOS in detail. 07

Q.5 a) Draw & explain Architecture of XC4000 FPGA family 08
b) Explain package declaration & package body 07

Section – B

Q.6 Solve any five: 10
a) What is pass transistor logic?
b) Give the equation of power delay product.
c) What is body effect?
d) What is channel length modulation ?
e) Give any four parameter which effect threshold voltage.
f) What is transmission gate?
g) What are the different modes of operation of MOSFET based on voltage terminals ?

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Q.7	a)	Explain pass transistor with examples in detail.	07
	b)	Design following CMOS logic for function i) $y = \overline{AB} + \bar{A}B$ ii) $y = ABC + A\bar{B}C$	08
Q.8	a)	Explain D- Latch using transmission gate.	08
	b)	What is propagation delay time & draw the non- inverting gate & explain propagation delay for the same.	07
Q.9	a)	Explain CMOS N- well process.	08
	b)	What is layout & Draw the CMOS inverter layout.	07
Q.10	a)	Explain Twin tub process.	08
	b)	what is interconnects & How it plays a major role in the performance of the system	07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-652
FACULTY OF SCIENCE AND TECHNOLOGY
B.E.(ECT/EC/E&C) (Sem-I)
Elective-I Internet of Things
[CGPA]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Question. No.1 and question.no. 6 are compulsory.
2) Solve remaining two questions from each Section.
3) Assume suitable data, wherever necessary.
4) Figures to the right indicates full marks.

Section A

Q.1 Solve any two questions from following:- 10
1) Draw and explain ESP8266 with neat pin diagram.
2) Explain following linux commands
i) IS ii) Chmod iii) cd iv) rm v) CP
3) Explain publish subscriber communication model.

Q.2
a) Discuss basic building blocks of IOT system. 07
b) Explain REST communication API with neat diagram. 08

Q.3
a) Write different types of loops in C programming and explain one of them example. 07
b) Explain interfacing ultrasonic sensor with NodeMCU and write program to read distance on serial monitor. 08

Q.4
a) Write a python program to write into a file and read from a file. 07
b) Write a program to interface LED's with Raspberry pi with neat diagram. 08

Q.5 Write short notes on (any three) 15
1) Big Data Analytics
2) Features of Raspberry pi model
3) Cloud computing
4) Debugging and optimization of C programs.

Section B

Q.6 Answer any two from following 10
1) Describe BLE protocol.
2) How to interface twitter to Raspberry pi?
3) Discuss smart grid system w.r.t. IOT.

Q.7
a) Describe interfacing of Node MCU with webserver. 07
b) Discuss configuration of Ethernet and WiFi on Raspberry pi 3Bt model. 08

Q.8	a)	Enlist the components of MQTT. Explain the architecture of it.	07
	b)	Describe UART communication protocol.	08
Q.9	a)	Explain Smart Inventory Management System with an example.	07
	b)	Discuss Smart Irrigation System using IoT.	08
Q.10	Write Short Notes on (Any Three)		15

1) Smart Wearables
2) Industrial Internet of Things
3) Different Operating modes of NodeMCU
4) DDS Protocol

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-653
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/EC/E&C) (Sem-I)
Elective-I Artificial Intelligence and Machine Learning
[CGPA]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1) Q.1 and Q.6 are compulsory.
2) Solve any two questions from Q.2, Q.3, Q.4 and Q.5 in section A
3) Solve any two questions from Q.7, Q.8, Q.9 and Q.10 in section B
4) Figures to the right indicate full marks

SECTION A

Q.1 Answer the following in brief (Any five) 10
a) What is artificial intelligence
b) Describe criteria of success
c) What are intelligence agents
d) Explain symbolic reasoning
e) What is Wumpus world
f) What is stochastic games
g) What is hill climbing

Q.2 a) Discuss Logical agents 07
b) Discuss problem reduction 08

Q.3 a) Explain computable functions 07
b) Discuss representation and mappings 08

Q.4 a) Discuss constraint satisfaction 07
b) Discuss augmenting a problem solver 08

Q.5 Write short note on 15
a) Problem spaces
b) Breadth first search.

SECTION B

Q.6 Answer the following in brief (Any Five) 10
a) What are challenge of machine learning
b) What are goals of machine learning
c) What is rote learning
d) What is Bayesian learning
e) What is SVM
f) What is active learning
g) Explain EM algorithm

Q.7	a) Discuss Conceptual dependency	07
	b) Discuss CYC	08
Q.8	a) Discuss partially observable games	07
	b) Discuss Discovery based learning	08
Q.9	a) Discuss Generative modelling approach	07
	b) Discuss Reinforcement learning	08
Q.10	Write short note on	15
	a) Noise and performance evaluation	
	b) Prior knowledge and bias	

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-115
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-II)
Computer Communication Network
[REV]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1) Q.5 & Q.10 are compulsory.
2) Solve any two from Q.1, Q.2, Q.3 and Q.4.
3) Solve any two from Q.6, Q.7, Q.8 and Q.9.

Section A

Q.1	a)	What are the basic switching methods? Discuss in brief packet switching.	08
	b)	Explain different computer network with suitable diagram.	07
Q.2	a)	Explain TCP/IP Network model in detail.	07
	b)	List the methods used for carrying out framing and explain in brief.	08
Q.3	a)	Explain in brief shortest path routing algorithm.	07
	b)	What are the different design issues of network layer?	08
Q.4	a)	Explain in brief elements of transport protocol.	08
	b)	Explain HTTP and WWW in detail.	07
Q.5	Write a short note on (any two)		10
	a)	Network topologies	
	b)	Stop and wait protocol.	
	c)	DNS	
	d)	Token bucket algorithm	

Section B

Q.6	a)	Explain in detail user network interface configuration.	08
	b)	What are the different services provided by B – ISDN?	07
Q.7	a)	Explain in brief the transmission structure of ISDN.	08
	b)	Explain in brief ATM cell format.	07
Q.8	a)	Discuss on frame relay LMI frame format.	08
	b)	Explain ATM virtual path & virtual channel.	07
Q.9	a)	Briefly explain Deffie Hellman key exchange with an example.	08
	b)	Define cryptography and give the different transposition techniques.	07

Q.10 Write a short note on (any two) 10

a) Network layer of ISDN
b) DLCI
c) RSA algorithm
d) Symmetric key operation.

H-148

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-148
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-II)
Optical Fiber Communication
[Revised]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
i. Question No. 1 & 6 are compulsory.
ii. Attempt any two question from section A & B from remaining.
iii. Fig. to the right indicates full marks.
iv. Assume suitable data wherever necessary.

Section A

Q.1 Explain the following (Attempt any five) 10
a) Single mode fiber
b) Numerical aperture
c) Cladding refractive index
d) Step index fiber
e) Manmade fiber
f) Acceptance angle
g) Total internal reflection

Q.2
a) Explain the advantages of optical fiber over coaxial and copper wire. 08
b) Draw and explain the types of optical fiber with their index profile. 07

Q.3
a) Enlist the various losses taking place in optical fiber. Explain rayleigh scattering loss in detail. 08
b) Explain various characteristics of phototransistor. 07

Q.4
a) Discuss the pulse broadening in graded index wave guide and also draw a neat figure. 08
b) A glass fiber is operating at a wavelength of 1.5 cm and its material dispersion parameter is 20 ps/nm.km. Determine the pulse broading due to material dispersion on within the fiber, when light is launched from an injection laser source with a peak wavelength of 1.5cm and an u.m.s. spectral width of 2nm into a 30km length of the fiber. 07

Q.5 Write short notes on the following.
a) Reach through APD 05
b) Classification of photoelectrons 05
c) Optoisolators 05

Section B

Q.6	a)	Explain WDM network in detail?	05
	b)	Explain photomic switching and sensor application any one in detail?	05
Q.7	a)	Explain attenuation measurement of fiber?	07
	b)	Explain BER measurement in detail?	08
Q.8	a)	Explain passive optical network in detail?	07
	b)	Explain optical Ethernet in detail?	08
Q.9	a)	Explain various losses measurement in optical fiber?	07
	b)	Explain OTDR measurement in detail?	08
Q.10	Write short note on		15
	a)	SONET	
	b)	Eye design measurement	
	c)	Network topologies	

H-183

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-183
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/E&C) (Sem-II)
Consumer Electronics
[Revised]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Q. No.1 & Q. No.6 are compulsory from both the section.
2) Solve any two questions from section 'A' & section 'B' from remaining.
3) Figures to right indicate full marks.

SECTION – A

Q.1	a)	What are the features of 3G Technology?	05
	b)	Enlist the specification of microwave oven.	05
Q.2	a)	Explain plasma TV & its Application.	07
	b)	Explain Dolby Digital systems.	08
Q.3	a)	Explain colour Television Transmitter.	08
	b)	Explain Gesture Technology in TV.	07
Q.4	a)	Explain EPABX system.	08
	b)	Draw & explain Weighing balance with its types & application.	07
Q.5	a)	Draw & explain working of Air Conditioner with its type.	08
	b)	Explain washing machine with its type & application.	07

SECTION – B

Q.6	a)	Draw aBlock diagram CD Player.	05
	b)	Comparison between LED and CFL Lamps.	05
Q.7	a)	Explain working principle of LASER printer.	08
	b)	Explain working principle of blue ray disk.	07
Q.8	a)	Explain EMI/ EMC requirements & design techniques for compliance.	08
	b)	Draw & explain home Automation system?	07
Q.9	a)	Draw & explain Biometric Attendance monitoring system.	07
	b)	Explain standards related to electrical safety and size hazards.	08
Q.10	a)	Draw block diagram & Explain water purifier system.	08
	b)	Draw block diagram of electronic voting machine & explain in brief.	07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-184
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC) (Sem-II)
Applied Digital Signal Processing
[Revised]

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
i. Q. No 5 & Q. No. 10 are compulsory.
ii. Attempt any two other questions from the remaining question of each section.

Section A

Q.1	a) Explain the concept of sampling rate increase & sampling rate deduction.	08
	b) Explain polyphase filter structures.	07
Q.2	a) Draw & explain the poly phase structure of decimeter.	07
	b) Explain main components of adaptive filter.	08
Q.3	a) Explain in detail adaptive equalization.	07
	b) Explain sampling rate conversion by non-integer factor.	08
Q.4	a) What is adaptive filtering? How it is used for noise cancellation.	07
	b) Explain in detail the RLS algorithm.	08
Q.5	Write short notes on (ANY TWO)	10
	a) QMF Bank	
	b) LMS algorithm	
	c) DT random signal	
	d) Application of DSP in communication	

Section B

Q.6	a) Explain estimation of autocorrelation & power spectrum of random signal.	08
	b) Explain Architecture of DSPs in detail.	07
Q.7	a) Explain the welch method of power spectrum estimation.	08
	b) Explain Harvard Architecture & pipelining concept of DSP processor.	07
Q.8	a) Draw the simplified architecture of TMS 320CS4×× processor & explain.	08
	b) Explain MAC unit Barrel shifter in detail.	07
Q.9	a) Explain fixed & floating point representation in DSP Architecture.	08
	b) Explain application of speech & telephone in detail.	07

Q.10 Write short notes on (ANY TWO) 10

a) Application of DSP in Audio system
b) Fixed point & floating point representation
c) Bartlett window
d) Selection criteria of DSP processor

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-229
FACULTY OF SCIENCE & TECHNOLOGY
B.E. (ECT/CSE/IT/EE) (Sem-II)
Elective-II
Advanced Business Application Programming - II
[Revised]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B 1) Q.No.1 and Q.No.6 are compulsory.
2) Attempt any two questions from the remaining questions of each sections.
3) Assume suitable data wherever necessary.

Section A

Q.1 Solve **any five** from following 10

a) What is Class Constructor.
b) Explain the term Object-Oriented Programming.
c) State use of Checkbox.
d) Define Interface
e) What is Local classes.
f) Explain use of inheritance.
g) What is ALV?
h) What is Event.

Q.2 a) Explain Screen Error Handling. 08
b) Explain Creating & Working with Objects. 07

Q.3 a) Explain implementing Polymorphism using inheritance. 08
b) Explain implementation Polymorphism using Interface. 07

Q.4 a) Explain implementing constructor in Local Classes. 08
b) Write note on Defining and implementing Local interface. 07

Q.5 Solve **any three** short notes 15

a) Singleton Pattern
b) ABAP List Viewer (ALV)
c) Global Classes
d) Classes Using Friendship
e) Object-Oriented Events

Section B

Q.6 Solve **any Five** from following 10

1) Global Exception Classes
2) Menu Exists
3) Program Exists
4) Context Binding in Web Dynpro
5) Component Controller Methods
6) General ABAP Data Types-Internal Tables.
7) ABAP Object Interface

Q.7 a) What do you mean by class-based exception handling? Write a program to implement it. 08

b) Define Global exception Classes and also explain raise exception statement. 07

Q.8 a) Explain following 08

1) Shared Objects
2) Areas and Area Instances
3) Area Classes and Area Handles
4) Shared Memory area

b) Explain SAP Application Enhancement 07

Q.9 a) What do you mean by enhancement project and also explain its types. 08

b) Explain BADI in detail with its component. 07

Q.10 a) Explain Web Dynpro Component Architecture in detail and also enlist Benefits of Web Dynpro. 08

b) Compare Metal Model Declarations vs Custom Coding. 07

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-230
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/E&C) (Sem-II)
Elective-II:
Applied Digital Signal Processing
[Revised]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: i) Q.No.5 & Q.No.10 is compulsory.
ii) Solve any two questions from remaining question of Section A and Section B.
iii) Assume suitable data wherever necessary.

Section – A

Q.1 a) Describe the process of multistage interpolation and multistage decimation 08
b) Explain with an example adaptive filter as noise cancellation 07

Q.2 a) Explain in detail recursive least square (RLS) algorithm 08
b) Discuss the two channel quadrature mirror filter bank 07

Q.3 a) Explain interpolation by factor *I* and its effect on signal 08
b) Explain in detail adaptive equalization. 07

Q.4 a) Explain ARMA lattice structure with suitable diagram 08
b) Explain significance of forward linear prediction. 07

Q.5 Write short note on (any two) 10
i) LMS adaptive algorithm
ii) Polyphase filter structure
iii) Covarience method for LPC

Section – B

Q.6 a) Discuss the estimation of autocorrelation power spectrum of random signals. 08
b) Explain Bartlett method for power spectrum estimation. 07

Q.7 a) Discuss in detail parametric methods for power spectrum 08
b) Give the applications of adaptive filters in biomedical. 07

Q.8 a) Explain in detail on chip peripherals of TMS320c54XX processor 08
b) Write an algorithm for implementing FIR filter on DSP processor 07

Q.9 a) Give the VLSI architecture of DSP algorithms 08
b) Give the characteristics of SHARC Processor 07

Q.10 Write short note on (any two) 10
i) Welch method
ii) Image processing and communication
iii) Selection criterion for DSP processor

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Total No. of Printed Pages:2

SUBJECT CODE NO:- H-231
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/E&C) (Sem-II)
Elective-II: Robotics
[Revised]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: i) Q. No.1 & Q.No.6 are compulsory.
ii) Solve any two questions from the remaining questions in both sections.

Section A

Q.1 Solve the following 10
a) State classification of robot arm.
b) Define hard & soft automation.
c) What do you understand by homogenous coordinate.
d) What is dynamic constraints.
e) What are different joints.

Q.2 a) Discuss in detail the architecture of robot system. 07
b) Explain the implementation of DH motation for a links coordinate system and joint parameters. 08

Q.3 a) What is homogenous transformation matrix? Explain four sub matrices. 08
b) Explain Newtons&Eulers equation. 07

Q.4 a) What do you understand by present & future trends in robotics. 08
b) What are vector operations & matrix operations. 07

Q.5 a) Determine the tool configuration vector of a SCARA robot. When the vector of joint variable is given by 08

$$q = \left\{0,0,100,\frac{\pi}{2}\right\}^T$$

b) Write the inverse Kinematic algorithm for the five axis spherical co-ordinate robot. 07

Section B

Q.6 Solve the following 10
a) What are different grippers.
b) State different proximity sensors.
c) What is image processing.
d) What are different electrical actuators.

e) What is object recognition.

Q.7	a)	What are different applications of machine vision system.	07
	b)	What image description, Sensing &digitization.	08
Q.8	a)	Explain obstacle avoidance system in robotics.	07
	b)	Explain Jacobian in terms D.H matrix.	08
Q.9	a)	What are different force sensors. Explain any one.	07
	b)	What are different touch & slip sensors. Explain functions of touch& slip sensors.	08
Q.10	a)	Explain adhesive grippers.	07
	b)	Explain magnetic end effectors.	08

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-232
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC) (Sem-II)
Elective-II: Microwave and Radar Engineering
[Revised]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B i) Question No. 1 from section A and Question. No 6 from section B are compulsory.
ii) Solve any two questions from Q.2, Q.3, Q.4& Q.5.
iii) Solve any two questions from Q.7, Q.8, Q.9& Q.10.
iv) Assume suitable data wherever necessary.

Section A

Q.1 Write short notes on any two 10
a) Attenuator
b) Microwave imaging
c) Magnetron oscillator
d) Microwave filters

Q.2 a) Explain the propagation of TM mode in rectangular wave guide. Also drive the expression of cutoff frequency. 07
b) An air filled rectangular waveguide has dimension of a=6cm & b=4cm the signal frequency is 3 GHz. 08
Compute the following for TE_{10} mode-
i) Cutoff frequency
ii) Wave length in waveguide
iii) Wave impedance
iv) Propagation constant

Q.3 a) Give construction and working of varactor diode. Also explain its anyone application. 07
b) Explain the working of E-plane Tec along with its scattering matrix. 08

Q.4 a) What are the features of circular waveguide? Also explain the difference between rectangular and circular waveguide. 07
b) Explain the working of directional coupler along with its scattering matrix. Also defind directivity and coupling factor. 08

Q.5 a) Describe the fabrication procedure for microwave IC fabrication. 07
b) Explain EMI and EMC in detail. 08

Section B

Q.6 Write short notes on any two 10
a) Pulse repetition frequency.
b) Non coherent MTI radar.
c) Radar frequencies.
d) Low angle tracking

Q.7	a)	Derive free space radar range equation, also derive for R max and give its significance.	07
	b)	Explain briefly system losses in radar communication.	08
Q.8	a)	What do you mean by integration of pulses in radar? Also explain coherent and non-coherent integration along with integration efficiency.	07
	b)	What do you mean by radar cross section of target? Explain different types of radar target.	08
Q.9	a)	What is Doppler Effect? Derive expression for Doppler frequency shift.	07
	b)	What is noise figure? Find out expression for noise temperature.	08
Q.10	a)	Draw the block diagram of MTI radar and explain it. Why DLC are used in such radar?	07
	b)	Explain the working of conical scan radar with the help of block diagram.	08

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-233
FACULTY OF SCEINCE AND TECHNOLOGY
B.E. (EC) (Sem-II)
Elective-II: Wireless & Mobile Communication
[Revised]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B i) Q.1 & Q.6 compulsory.
ii) Attempt two questions from Q.2, Q.3, Q.4, Q.5 &Q.7, Q.8, Q.9, Q.10

Section A

Q.1 Attempt any Two:- 10
a) Define multiplexing? Compare TDMA, FDMA & CDMA?
b) Write short note on Wireless Data Services?
c) Comment on evaluation of mobile radio communication?
d) Explain traffic routing concept in wireless network? Explain mobile IP & PRMA in detail?

Q.2 (a) Explain cellular system architecture & its operation? 07
(b) Draw the radio frequency spectrum. How spectrum allocation is controlled in India & by whom? 08

Q.3 (a) What are the ways for improving coverage and capacity in cellular systems? Compare them. 07
(b) Comment on the interference & system capacity. Compare the types of interferences in cellular system? 08

Q.4 (a) Explain CDPD network architecture in detail? 07
(b) List features of SS#7. Explain its architecture. 08

Q.5 (a) Compare 1G, 2G, 3G & 4G wireless network with reference to duration, features & examples. 07
(b) What is GPRS? List out the features and explain its working. 08

Section B

Q.6 Attempt any two 10
(a) Explain WAP in detail.
(b) Define protocol & explain wireless LAN
(c) Draw the mobile OS general architecture & explain in short
(d) Define protocol & explain mobile IP.

Q.7 (a) Draw the GSM architecture and explain it? 07
(b) Explain CDMA architecture in detail. 08

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Q.8	(a) Explain Zigbee protocol in detail?	08
	(b) Explain Android operating system with different versions in detail?	07
Q.9	(a) Explain the types of handover in GSM?	07
	(b) What are the channels in GSM? Explain any one.	08
Q.10	(a) Explain MTC and MOC with help of block diagram in detail?	08
	(b) Explain mobile IP& PRMA in detail?	07

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-234
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC) (Sem-II)
Elective-II: Industrial Drives & Control
[Revised]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B i) Q.1 and Q.5 are compulsory.
ii) Attempt any two questions from Q.2 to Q.4 and Q.6 to Q.8.

Section – A

Q.1	a)	Explain classification and requirements of Electric Drives.	05
	b)	With circuit diagram, explain Phase controlled converters.	05
Q.2	a)	Explain Four quadrant operation in converters.	08
	b)	Explain Speed-torque characteristics DC shunt.	07
Q.3	a)	Differentiate PMDC and series motors.	08
	b)	Explain position control methods.	07
Q.4	a)	What is converter? Explain AC to DC converters.	08
	b)	Explain Criteria for selecting drive components.	07

Section – B

Q.5	a)	Explain Voltage Source Inverters.	05
	b)	Describe PWM techniques in inverter.	05
Q.6	a)	Explain harmonic elimination.	08
	b)	Explain in brief space vector PWM.	07
Q.7	a)	What does mean by constant flux speed control structure, explain.	08
	b)	Explain d-q model of induction motor.	07
Q.8	a)	Explain vector control structure.	08
	b)	Write note on Improved single phase utility Interface.	07

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Total No. of Printed Pages:2

SUBJECT CODE NO:- H-235
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-II)
Elective-II: 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 and 6 are compulsory.
2) Solve any two questions from Section 'A' and solve any two from section 'B' from remaining.

Section A

Q.1 Solve any Five 10
a) Classify control panels
b) What do you mean by PI diagram?
c) Enlist different function of SCADA.
d) Give the significance of Non-Return Valve.
e) Develop and function using pneumatic valves.
f) Enlist different PLC's available in market.
g) Give significance of meter in-meter out in pneumatics.

Q.2 a) Explain any typical PI diagram with instrument symbol. 07
b) Develop $A^+B^-C^+C^-B^+A^-$ pneumatic control circuit using cascade method. 08

Q.3 a) Explain SCADA system configuration with neat diagram. 08
b) Explain pneumatic Time Delay valve with suitable example. 07

Q.4 a) Explain mounting & installation guideline of control panel design. 08
b) What are different SCADA protocols? Explain in detail. 07

Q.5 a) Draw & explain Electro-pneumatic system in detail. 08
b) Give the difference between SCADA & PLC for any 7 points. 07

Section B

Q.6 Solve any five 10
a) Define kick-off meeting.
b) State objectives of automation system.
c) State Pascal law.
d) Give significance of PRV in hydraulics.
e) Enlist different Actuators in hydraulics.
f) Develop OR function using hydraulic valves
g) What do you mean by B.O.M?

Q.7	a)	Explain hydraulic system with its Block Schematic.	07
	b)	Explain Irrigation canal Automation strategy with its block schematic.	08
Q.8	a)	Develop Hydraulic control circuit for clamp & drill operation with the help of PRV.	08
	b)	Design carton sorting machine with the help of operational & logic diagram.	07
Q.9	a)	Find out the hydrostatic pressure in Bar at bottom of container.	08
	b)	Draw & Explain Automation control strategy of water treatment plant.	07
Q.10	a)	Design Dough maker with operation diagram logic diagram & control panel design diagram.	10
	b)	Describe Kiln Automation in detail.	05

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-236
FACULTY OF SCEINCE AND TECHNOLOGY
B.E. (ECT) (Sem-II)
Elective-II: Solar Photo Voltaics Design
[Revised]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: i) Q.No.5 & Q.10 are compulsory.
ii) Answer any two questions from remaining questions from each section.
iii) Assume suitable data if necessary.

Section A

Q.1	a)	Explain carrier generation in solar cell?	08
	b)	Explain Electric Field and energy band bending in detail?	07
Q.2	a)	Draw and explain solar cell characteristics?	08
	b)	Explain process of MG Si and also explain different ways to reduce impurities content?	07
Q.3	a)	What is IQE analysis explain?	07
	b)	Explain saw damage removal & surface texturing?	08
Q.4	a)	What are carrier generation? Explain PH junction diode equilibrium & Non equilibrium conduction?	08
	b)	How are direction in crystal lattice specified what difference between plane that is represented by (100) & {100}?	07
Q.5	Write Short Note's on any two		
	a)	Routs of purification & usage of Si	05
	b)	Cell parameters	05
	c)	Sun tracking & estimation of solar radiation.	05

Section B

Q.6	a)	What is Amorphous PV technology? Write advantages of thin film PV technology?	08
	b)	Explain Light concentration & opportunities and challenges for PV concentrator?	07
Q.7	a)	Explain Electrochemical cell in brief.	08
	b)	Design PV system for specified daily water requirement.	07

Q.8	a)	Explain in detail Lifecycle costing.	08
	b)	Explain Hot spots concept in detail.	07
Q.9	a)	Explain Design Methodology for PV system design.	08
	b)	Explain series and parallel connections in PV modules.	07
Q.10		Write Short Notes on any two	
	a)	Thin film polycrystalline	05
	b)	Factors affecting battery performance.	05
	c)	Deposition techniques in thin film PV	05

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Total No. of Printed Pages:2

SUBJECT CODE NO:- H-237
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-II)
Analog Integrated Circuit Design
[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 Q.No.2 to 5.
iii) Solve any two questions from Q.No.7 to 10.
iv) Assume suitable data if necessary & state it clearly.
v) Figures to the right indicate full marks.

Section A

Q.1 Write short notes (any two) 10
a) Electromagnetic simulation.
b) AC Simulation
c) Transient simulation

Q.2 a) On the basis of energy band diagram, explain the different between conductor, Insulator & semiconductor. 08
b) Draw a differential amplifier & derive its voltage gain. 07

Q.3 a) Derive & explain drain current equation. 08
b) Explain Harmonic balance in detail. 07

Q.4 a) Draw High Frequency Small Signal Model of a MOSFET. Explain briefly each parasitic. 08
b) How can you increase the electron current and reduce the hole current in a pn-junction diode? 07

Q.5 a) What is simplified gain of common gate amplifier? Draw circuit diagram of common gate amplifier? 08
b) What characteristics of a Power Amplifier specify its linearity? 07

Section B

Q.6 Write short notes (any two) 10
a) Return Loss of a power Amplifier.
b) Efficiency of a power amplifier.
c) Gain of a power amplifier.

Q.7 a) Draw circuit diagram of an Op-Amp with lead compensation. 08
b) Draw the characteristics of a trans linear cell. 07

Q.8	a)	List the characteristics of classical two stageOpAmp.	08
	b)	Draw Brokaw cell and explain the working of its part PTAT, CTAT, Beta Helper and Startup Circuit.	07
Q.9	a)	Draw the circuit diagram of a brokaw cell. Point out which transistor form PTAT and CTAT circuits.	08
	b)	Draw the circuit diagram of a Gillert Cell Mixer and write an expression for its output voltage.	07
Q.10	a)	Explain design of classical op-amp.	08
	b)	Differentiate single & balanced diode mixers.	07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-242
FACULTY OF SCINECE AND TECHNOLOGY
B.E. (ECT/CSE/IT/EE) (Sem-II)
Elective-II: Managing Advance Server
[Revised]

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1) Q.1 & Q.6 are compulsory.
2) Assume suitable data, if necessary.
3) Neat diagrams must be drawn wherever necessary.

Section -A

Q.1 Attempt ANY TWO 10
a) Explain server images.
b) How the active directory restore process is performed.
c) Explain the terms: - CNAME, MX RECORDS, AAAA.

Q.2 a) Give stepwise installation and configuration process of windows server update services role. 07
b) What is WDS? Explain the configuration process of WDS. 08

Q.3 a) Explain DNS Zones. Configure Primary, Secondary and Stub zones. 07
b) What is DNS? Explain DNS Resource Records. 08

Q.4 a) What is server authentication? How the authentication service is configured? 07
b) How to restore objects by using Active Directory Recycle Bin? 08

Q.5 Solve ANY THREE 15
a) Group Policy
b) TTL
c) RODC
d) Active Directory Backup
e) Round Robin

Section B

Q.6 Attempt ANY TWO 10
a) What is Network Policy Server/ configure NPS template.
b) What is cluster networking and How to restore Single Mode Cluster?
c) How to perform Bare Metal Restore?

Q.7 a) What is RADIUS server? Configure it including RADIUS PROXY. 07
b) How to configure Network Policies for VPN Clients. 08

Q.8	a)	What is NLB? Explain the installation procedure for NLB.	08
	b)	How to configure failover clustering and QUORUM?	07
Q.9	a)	Configure HYPER- V Replica extended replication.	07
	b)	How to recover servers using Windows Recovery Environment and Safe Mode.	08
Q.10	Write Short notes on (any three)		15
	a)	RADIUS PROXY	
	b)	Boot configuration Data	
	c)	NPS	
	d)	QUORUM	
	e)	BMR	

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-243
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (ECT/CSE/IT) (Sem-II)
Elective-II: Cross- Platform Application Development
[Revised]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.:i) Question no. 1 and 6 are compulsory.
ii) Attempt any two from the remaining in each section.

Section A

Q.1	Write Short Notes on (ANY TWO)		10
	a)	Listview for string binding	
	b)	Data Adapter.	
	c)	Different Pages used in Xamarin.form	
Q.2	a)	Create and Explain Navigation Drawer Using MasterDetailPage.	08
	b)	Create and Explain Tabs Using Tabbed Page.	07
Q.3	a)	What are the different approaches for xamarin UI development	08
	b)	Explain different tools available for cross-platform mobile development.	07
Q.4	a)	Write application for Stack Layout with label.	08
	b)	Explain in brief Xamarin. From solution architecture.	07
Q.5	a)	Create Application to show use of Nested Layouts, apply horizontal orientation to one of them.	08
	b)	What are the controls available in xamarin? Explain any two	07

Section B

Q.6	Write Short Notes on (ANY TWO)		10
	a)	MVVM	
	b)	Microsoft Azure	
	c)	Modes of Data Binding	
Q.7	a)	What are the steps to create custom renderer	08
	b)	Which Renderer and View Customize explain in brief.	07
Q.8	a)	What are the different gesture in xamarin explain any two	08
	b)	What is Triggers? Explain in detail various types of Triggers.	07
Q.9	a)	Create and Explain custom renderer for an Entry	08
	b)	Explain in detail Dependency Service for Implementing Text-to-Speech.	07
Q.10	a)	Explain in brief SQLite Database for Xamarin	08
	b)	What is Effects? Write various Steps to create effects	07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-288
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-II)
Elective-II: Satellite Communication
(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. Solve any two questions from remaining questions in each section.
(ii) Figures to right indicate full marks.
(iii) Assume suitable data wherever necessary.

Section A

Q.1	Write a short note on (any two) (a) Apogee and Perigee (b) Sun transit outage (c) Ionospheric effects (losses) (d) Preamble and post amble in TDMA frame		10
Q.2	(a) State and explain Kepler's three laws governing motion of planetary bodies.		08
	(b) The apogee and perigee of an elliptical satellite. Satellite orbits are 3000 km and 200 km. Determine the eccentricity. Semi-major axis and semi minor axis.		07
Q.3	(a) Explain the equation of Link Power budget in detail.		08
	(b) In a link budget calculation at 12 GHz the free space loss is 206 dB. The antenna pointing loss is 1dB, and the atmospheric absorption is 2 dB. The receiver [G/T] is 19.5 dB/K and receiver feeder losses are 1 dB. The EIRP is 48 dBW. Calculate the carrier to noise spectral density ratio.		07
Q.4	(a) Explain EIRP in details.		08
	(b) What are various multiplexing schemes? Explain TDMA in detail		07
Q.5	(a) Describe SPADE System.		08
	(b) Explain Reference burst of TDMA.		07

Section B

Q.6	Write short note on (any two)	10
	(a) Thermal Control	
	(b) Station Keeping	
	(c) Tracking	
	(d) LEO	
Q.7	a) What is attitude control? Explain attitude control for space segment.	08
	b) Describe antenna subsystems.	07
Q.8	(a) What are the different types of earth stations? Explain in detail.	08
	(b) Write a short note on earth station antennas.	07
Q.9	(a) Explain weather forecasting satellite	08
	(b) What is a need of satellite navigation? Explain navigation satellite.	07
Q.10	(a) Explain equipment reliability and space qualification.	08
	(b) What is DTH? With neat block diagram explain the operation of DTH.	07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-305
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-I)
Digital Image Processing
[OLD]

[Time: Three Hours] **[Max. Marks: 80]**

Please check whether you have got the right question paper.

N.B
i. Q. 1 and 6 are compulsory.
ii. Solve any two from remaining in each section
iii. Assume suitable data whenever required

Section A

Q.1 Answer any two
a) Explain digital image file formats 05
b) Explain simple image formation model 05
c) Explain any two properties of DFT with proof 05

Q.2 a) Explain fundamental steps in digital image processing 08
b) Explain image sampling and quantization. 07

Q.3 a) Write short note on stereo imaging 07
b) Write short note on DCT. 08

Q.4 a) Explain image enhancement using arithmetic and logical operators. 07
b) Apply histogram equalization to following data of image. 08

r_K	0	1	2	3	4	5	6	7
h_K	790	1023	850	656	329	245	122	81

Q.5 a) Explain image smoothing filters in spatial domain. 07
b) For image shown below v={0, 1} find the length of shortest 4 path and shortest 8 path between p and q if a particular path does not exists explain why? 08

	3	1	2	1
	2	2	0	2
	1	2	1	1
(p)	1	0	1	2

(q)

Section B

Q.6	Write short note on (any two)		
	a)	Dilation and erosion	05
	b)	Redundancy	05
	c)	Boundary Descriptors	05
Q.7	a)	What is an image segmentation? How point and line detection is done?	08
	b)	Explain edge detection in detail?	07
Q.8	a)	Explain simple image compression model.	07
	b)	Explain fidelity criteria in detail.	08
Q.9	a)	Explain regional descriptors in detail.	07
	b)	Explain topological descriptors in detail.	08
Q.10	a)	Explain region filling with suitable example	08
	b)	Explain transform coding.	07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-339
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-I)
Embedded Systems
(OLD)

[Time: Three Hours] **[Max.Marks: 80]**

Please check whether you have got the right question paper.

N.B
1) Q.No.1 and 6 are compulsory.
2) Solve any 2 questions from remaining from each section.
3) Assume suitable data wherever necessary.
4) Figure to right indicate full marks.

Section A

Q.1 Solve any two questions from following. 10
a) Explain software design testing in embedded system.
b) Explain in brief ARM nomenclature and core extensions.
c) Discuss RTC module in detail.

Q.2 a) Explain with neat diagram I^2C protocol. 08
b) Discuss in detail common design metrices& its optimization in embedded system. 07

Q.3 a) Justify how barrel shifter increases power and flexibility of data processing operations. 08
b) Explain different register in ARM core architecture. 07

Q.4 a) Discuss MSR, MRS and SWAP instruction in ARM core. 08
b) Write an ARM 7 based program to transfer 16bytes of data from one memory array to another array. 07

Q.5 Write short notes on:-(Any Three) 15
a) Load-store instruction.
b) ARM bus architecture.
c) CPSR and SPSR.
d) Thumb Instruction Set.

Section B

Q.6 Answer any two questions from following. 10
a) Discuss features of μcos-II.
b) State difference between Desktop OS & RTOS.
c) Explain porting of RTOS.

Q.7 a) Write embedded C program with neat interfacing diagram to rotate stepper motor in clockwise direction. 08
b) Explain in brief need of interfacing and interfacing techniques in embedded system. 07

Q.8	a)	Explain semaphore related function in embedded system.	08
	b)	Explain memory management in μcos-II.	07
Q.9	a)	Explain any two μcos-II services functions.	08
	b)	Explain designing of ARM based smart card.	07
Q.10		Write short notes on(Any Three)	15
	a)	Task state and task scheduler.	
	b)	Message queue.	
	c)	Kernel and its architecture.	
	d)	Touch screen interfacing in ARM7.	

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-374
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (EC/ECT/E&C) (Sem-I)
VLSI Design
[OLD]

[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 indicates full marks.
5) Assume suitable data if necessary.

Section - A

Q.1 Attempt any two from the following: 10

a) What are basic elements of VHDL?
b) Compare with function and procedure in VHDL.
c) Write Syntax for signal, variable and constant in VHDL.
d) Define the term controllability and observability.

Q.2 a) Explain the operator used in VHDL. 07
b) Compare different types of modeling in VHDL. 08

Q.3 a) Draw and explain architecture of XC4000 FPGA family. 07
b) Write VHDL Code for D Flip Flop with its test bench. 08

Q.4 a) What is test bench? Write a test bench to verify design of NOR gate. 07
b) Write a VHDL code to design 8:1 Multiplexer with test bench. 08

Q.5 Write short notes on any three 15

i) Architecture of XC9500 FPGA
ii) Package and Library
iii) BIST
iv) TAP Controller

Section B

Q.6 Attempt any two from the following:- 10

a) What is Velocity Saturation in CMOS?
b) What is Noise Margin & Power delay Product?
c) Explain Junction Leakage and Tunnelling Effect in CMOS.

d) What is Pass Transistor explain in details.

Q.7 a) What are types of CMOS Logic families and define ratios circuit. 07

b) Explain with the help of neat diagram operation of CMOS inverter & its I-V characteristics. 08

Q.8 a) Draw the 4:1 multiplexer using transmission gates. 07

b) Sketch schematic for the following equation using CMOS $Y = AB + \bar{C}\bar{D}$ 08

Q.9 a) Draw layout of CMOS inverter circuit and explain the layout DRC. 07

b) Sketch schematic for the following equation using CMOS $Y = ABC + \bar{E}\bar{F}\bar{G}$ 08

Q.10 Write short notes on (any three) 15

a) Body Effect in CMOS
b) Power Dissipation in CMOS
c) Stick Diagram
d) Transmission Gates