Total No. of Questions : 6]

SEAT No. : ____

P5146

[Total No. of Pages : 2

BE/Insem - 552
B.E. (E & TC)
Computer Networks
(2012 Pattern)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4. Q5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Draw the OSI model. List and explain functions of data link layer **[6]**

b) List the different types of cables used in networking with their connectors and applications. **[4]**

OR

Q2) a) Draw and explain data communication system **[6]**

b) Draw star topology and explain its advantages and disadvantages **[4]**

Q3) a) Explain bit stuffing framing method. **[6]**

b) Explain 1 persistent and nonpersistant CSMA protocol. **[4]**

OR

Q4) a) Explain 3 types of HDLC frames. **[6]**

b) Explain the Go back N sliding window protocol. **[4]**

P.T.O.

Q5) a) Explain Basic and Extended Service sets in 802.11 standard **[6]**

b) List the connecting devices and explain any one. **[4]**

OR

Q6) a) Explain Bluetooth architecture. **[6]**

b) Explain the concept of virtual LAN` **[4]**

Total No. of Questions : 6]

SEAT No. : [ ]

P5153

[Total No. of Pages : 2

B.E./Insem. - 559

B.E. (E/TC) (Semester - I)

ELECTRONIC PRODUCT DESIGN

(2012 Pattern) (Elective -II)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q5 or Q.6.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable data if required.***
5) ***Use of non-programmable calculator is allowed.***

Q1) a) Explain the following terms - **[6]**

i) Cognition

ii) Reliability

iii) Ergonomics

iv) Quality

b) Explain the importance of vibration & shock test to be carried out on an electronic product with suitable example. **[4]**

OR

Q2) a) Explain the concept of user-centered design. **[6]**

b) What is the need of grounding? Briefly explain different types of grounding. **[4]**

Q3) a) What is prototyping? Discuss different types of prototyping indicating their advantages and drawbacks. **[6]**

b) Explain what do you understand by the term design reviews. **[4]**

OR

P.T.O.

Q4) a) Explain the design process of any one electronic product using neat block diagram. **[6]**

b) Discuss the methods of module debug & test. **[4]**

Q5) a) State the features of good programming. **[4]**

b) Explain the various phases of bug introduction & common bugs present in software. **[6]**

OR

Q6) a) Explain the term user interface wrt to software. **[4]**

b) Discuss any two with the help of neat diagram/schematic. **[6]**

i) Structured programming

ii) Coupling & cohension

iii) Documentation for software

Total No. of Questions : 6]

SEAT No. :

P5149

[Total No. of Pages : 2

B.E./Insem - 555
B.E. (E & TC) (Semester - I)
Embedded Systems & RTOS
(2012 Pattern) (Elective -I)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain following design metrics: **[5]**

i) NRE cost

ii) Time to Market

iii) Power

b) Explain system development spiral model with diagram. **[5]**

OR

Q2) a) What are different types of embedded processor technology? Explain their merits and demerits of them. **[5]**

b) Explain system development V shape model with diagram **[5]**

Q3) a) Explain different states of task with services as an example. **[6]**

b) Explain with example why mutual exclusion is necessary while using shared resources. **[4]**

OR

Q4) a) Explain how priority inversion occurs with example of three tasks diagram.**[6]**

b) What is difference between preemptive kernel & Non Preemptive Kernel.**[4]**

P.T.O.

Q5) a) What is difference between functions OSSEMPend() and OSSEMAccept(). Which one of these functions is used in ISR and why? **[4]**

b) Explain following functions in RTOS **[6]**

i) OSINIT()

ii) OSSTART()

OR

Q6) a) Explain with block diagram use of memory management and queue functions for data acquisition system. **[6]**

b) Explain following function **[4]**

i) OSQPost()

ii) OSQPend()

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P5147 **[Total No. of Pages : 2**

BE/Insem - 553

B.E. (E & TC) (Semester - I)

MICROWAVE ENGINEERING

(2012 Pattern)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q5 or Q.6.***
2) ***Neat Diagrams must be drawn wherever required.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Explain the following terms related to the rectangular waveguide. **[6]**

i) Cut off wavelength

ii) Dominant Mode

iii) Wave Impedance

b) What is Cavity Resonator? Draw and explain the re-entrant cavity resonator. **[4]**

OR

Q2) a) A rectangular waveguide has dimensions 4 x 2 cms. Determine the guide wavelength, phase velocity and phase constant β at a wavelength of 6cms for the dominant mode. **[6]**

b) Write a short note on : **[4]**

i) Advantages and applications of microwave.

Q3) a) What is a directional coupler? Draw and explain the operation two hole directional coupler. **[6]**

b) Explain the operation of circulator using two magic tees. **[4]**

P.T.O.

OR

Q4) a) With the help of schematic, explain the working principle of an Isolator. **[6]**

b) Give the difference between Strip lines and Microstrip lines. **[4]**

Q5) a) Explain the following terms **[6]**

i) Intrinsic Impedance

ii) Wave Impedance and

iii) Characteristics Impedance.

b) Explain the construction and operation of Gyrator. **[4]**

OR

Q6) a) A signal of power 20 mw is fed into the one of the collinear ports of the H-plane Tee. Determine the powers at the remaining ports when other ports are terminated by means of matched loads. **[6]**

b) State and explain the need of network and circuit concept for microwave analysis. **[4]**

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Total No. of Questions : 6]

SEAT No. :

P5154

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B.E./Insem.-560
B.E. (E & TC)
PLC's & AUTOMATION
(2012 Pattern) (Elective - II) (Semester - I)

Time : 1 Hour] *[Max. Marks :30*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
5) ***Assume suitable data, if necessary.***

Q1) a) Draw and explain architecture of Industrial Automation system. **[6]**

b) Evaluate the control system with following criteria: **[4]**

i) Stability

ii) Steady state Regulation.

iii) Transient Regulation.

OR

Q2) a) With suitable example explain Industrial Automation. **[6]**

b) Draw and explain block diagram of Analog Control System. **[4]**

Q3) a) Define the Transmitter. Explain need of transmitters in process industry. **[6]**

b) Resistance of sensor changes linearly from 100 Ω to 180 Ω as temperature changes from 20°C to120°C. Find the linear equation relating resistance and temperature. **[4]**

OR

Q4) a) Explain role of smart and intelligent transmitters in process control. **[5]**

b) Write a short note on RTD. **[5]**

P.T.O.

Q5) a) Write a short note on Brushless DC motor. **[5]**

b) Explain cascade PID controller with suitable example. **[5]**

OR

Q6) a) Write a short note on Pneumatic actuator. **[5]**

b) Write a short note on different types of switches. **[5]**

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