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B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL 2014

INFORMATION TECHNOLOGY
Semester II

IT8201 INFORMATION TECHNOLOGY ESSENTIALS

(Regulation 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. List the desirable features that need to be considered while designing a web site.
2. Write the output of the following code and explain.

```
<html>
<head>
<title>Checkboxes</title>
<?PHP
$ch1 = 'unchecked';
if (isset($_POST['Submit1'])) {
    if (isset($_POST['ch1'])) {
        $ch1 = $_POST['ch1'];
        if ($ch1 == 'net') {
            $ch1 = 'checked';
        }
    }
}
?>
</head>
<body>
<FORM NAME ="form1" METHOD ="POST" ACTION ="checkBox.php">
<Input type = 'Checkbox' Name =ch1' value ="net"
<?PHP. print $ch1; ?>
>Visual Basic .NET
<INPUT TYPE = "Submit" Name = "Submit1" VALUE = "Choose your book">
</FORM>
</body>
</html>
```

3. Write a piece of Javascript code to check if the value of two fields – 'password' and 'confirmPassword' are the same, and display a message if they are not.
4. What is the difference between GET and POST methods?
5. With an example, show how an array can be stored in a session.
6. Give the name of a protocol used in each layer of the network.
7. What is meant by encapsulation and decapsulation ?
8. What is meant by frequency reuse factor in a cellular network ? Draw the arrangement of cells for a frequency reuse factor of 3.

9. In the 900 MHz band of GSM, 890-915 MHz are allocated for the uplink, and 935-960MHz for the downlink; i.e., a 25MHz bandwidth for each direction. If 200 KHz is allotted for each channel, how many channels can be supported? If each channel is further divided into 8 time slots, how many users can be supported?
10. List 5 important features for a social networking app.

Part - B (5 x 16 = 80 marks)

11. (i) Consider a table PRODUCT_DETAILS with PID, PNAME, and UNIT_PRICE. Write a HTML form to accept the PID and QUANTITY_REQUIRED from the user and display the total amount to be paid in another text box. Get the unit price for a given PID from a database table. (8)
- (ii) If you are a Chennai cell phone customer roaming in Mysore, and your friend who is a Delhi customer sends you an SMS from Delhi, trace all the steps that take place to deliver the SMS to you. (8)
12. (a) (i) Using DIV element, write HTML code to design a web site for an online catering service. The web site should provide some highlighting facilities provided by them. The web site must provide the available menu and cost of each menu item in a tabular form. The web site must also accept the order form which includes any number of items and quantity required. Write java script to validate the form and to compute the total amount to be paid. Draw the layout of your web site first and write HTML code for each page. (10)
- (ii) Explain how you can create a web-based application using XAMPP. Give all the steps required in detail. (6)

OR

- (b) (i) Write a PHP program to accept a positive integer 'N' through a HTML form and to display the sum of all the numbers from 1 to N. (8)
- (ii) Write a user defined function 'CalculateInterest' using PHP to find the simple interest to be paid for a loan amount. Read the loan amount, the number of years and the rate of interest from a database table called LOANDETAILS having three fields AMT, YEARS, and RATE, and calculate the interest using the user defined function. (8)
13. (a) (i) Consider an associative array called person_age with name and age of 10 persons. Write a PHP program to calculate the average age of this associative array. (8)
- (ii) Explain the architecture of a GSM network using a diagram. (8)

OR

- (b) (i) You lose your cell phone, an expensive one. (12)
A. How can you trace it ?
B. You inform your service provider to stop calls from your cell phone. How is the service provider able to do that ?
C. You get a new phone. You still have the same number. How is this achieved ?

(ii) What are multi-band and multi-mode phones ? (4)

14. (a) (i) Explain the functions of each layer in the network protocol stack. (10)

(ii) What are the different topologies that can be used to set up a LAN. (6)

OR

(b) (i) Explain how an Ethernet based LAN works. You have only 32-port switches. You have to construct a network that can connect 200 nodes. How will you connect them up ? (10)

(ii) Explain how IP version 4 addresses are designed. How are they used by a router to forward packets ? (6)

15. (a) (i) List the steps involved in mobile application development. If you have to design a mobile app for techofes/mitafes - giving details of all events - show the UI design. (8)

(ii) Consider a multinational company which sells different electronic gadgets such as desk tops, lap tops, tablets, cameras, mobile phones, etc. through online or various dealers. Dealers are registered with the company. Customers can buy through online or dealers. Delivery of electronic goods will be through various agencies. Every shipment of goods will be insured through insurance company. Considering this as an Information System project, describe the various requirements for building this Information System. (8)

OR

(b) (i) Explain the architecture of a text search system. How would this have to be modified for music search ? (8)

(ii) Design an app for your personal use - reminders for homework ! If you also have to remind your class-mates and friends, what additional features would you need ?(8)

**** GOOD LUCK ****

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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2014

IT

Third Semester

IT9201/ IT272 Computer Organization

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Convert $(BA5.3F)_{16}$ into decimal and octal number systems.
2. Draw the logic diagram of the function, $F=xy + (x'y' + y)z$ using only NOR gates
3. Convert a two-to-four line decoder with enable input to 1 x 4 demultiplexer.
4. What is meant by triggering the flip-flop? List the types of triggering.
5. List the two types of instruction sequencing.
6. Differentiate RISC and CISC processors.
7. Define a *datapath* in a CPU.
8. Write the advantages and disadvantages of hardwired and microprogrammed control.
9. Draw the memory hierarchy diagram
10. How does a subroutine differ from an interrupt-service routine?

Part – B (5 x 16 = 80 marks)

11. (i) Explain the following theorems with an example to each: Demorgan's, Consensus and Duality Theorems (8)

(ii) Simplify the given Boolean function in SOP form using K-Map
 $F(A,B,C,D) = \sum m(4,5,6,8,9,10,13) + \sum d(0,7,15)$ (8)

12. a) (i) Design a 4-bit decimal adder using 4-bit binary adders. (8)

(ii) Implement the following Boolean functions using Multiplexers
 $F1(A,B,C,D) = \sum m(0,1,4,7,8,10,12,15)$ and
 $F2(A,B,C,D) = \sum m(2,3,5,7,10,11,13)$. Select any one function at the output using another multiplexer. (8)

(OR)

- b) (i) Design the sequential counter specified by the following sequence of states. Also check whether your design is self correcting.
 $0 \rightarrow 1 \rightarrow 3 \rightarrow 5 \rightarrow 6 \rightarrow 9 \rightarrow 11 \rightarrow 12 \rightarrow 14 \rightarrow 0$ (12)
- (ii) Arrive the state diagram to design a logic circuit which detects a sequence '1000' (4)

13. a) (i) List the basic instructions types and explain them with examples. (8)

(ii) Explain the two types of instruction sequencing with examples. (8)

(OR)

b) (i) What is meant by addressing mode in a computer? Explain generic addressing modes with an example to each. (10)

(ii) Explain the function of shift and add multiplier with a neat block diagram (6)

14. a) (i) Explain each step, in detail, how a complete instruction is executed in a simple processor with an example instruction. (16)

(OR)

b) (i) How does pipelining improve the performance of a processor? Discuss the limitations of pipelining a processor's datapath. Suggest the methods to overcome them. (16)

15. a) (i) Define hit rate and miss penalty with respect to cache memory. (4)

(ii) Justify why Cache memory is needed? Explain the three mapping methods of cache memory. (12)

(OR)

b) (i) What is the use for Direct Memory Access? Explain about DMA. (8)

(ii) Write the sequence of operations carried out by a processor when interrupted by a peripheral device connected to it. (8)