

FACULTY OF ENGINEERING**B.E. 4/4 (IT) I – Semester (Main) Examination, November / December 2016****Subject: Middleware Technologies****Time: 3 Hours****Max.Marks: 75****Note: Answer all questions from Part A. Answer any five questions from Part B.****PART – A (25 Marks)**

- 1 Define web service. Give some practical uses of web services. 2
- 2 What are the different types of middleware? 2
- 3 What are the life cycle methods of servlet? 3
- 4 Write the different steps to develop struts applications. 3
- 5 Differentiate between CMP and BMP. 3
- 6 Define home interface and remote interface. 2
- 7 What is IDL and why is it useful? 2
- 8 Define distributed system. Give examples. 3
- 9 What is the purpose of CLR? 2
- 10 Differentiate between COM and CORBA. 3

PART – B (5x10 = 50 Marks)

- 11 a) Explain about the different WSDL components. 4
- b) How are the servers classified? Describe each type in detail. 6
- 12 a) Explain MVC design pattern in Struts framework with a neat diagram. 5
- b) Name different types of JDBC drivers and explain each in detail. 5
- 13 a) Explain EJB architecture in detail with a neat sketch. 5
- b) Discuss briefly about different session beans in detail. 5
- 14 a) Explain about CORBA and Networking Model with a neat diagram. 6
- b) Discuss about CORBA alternatives. 4
- 15 a) Explain the architecture of .Net framework. 6
- b) Describe about proxy and stub in COM. 4
- 16 a) Write short notes on SOA. 5
- b) Explain about different session tracking methods. 5
- 17 Write short notes on the following:
 - a) Roles of EJB. 3
 - b) CORBA object model. 3
 - c) Marshalling and Demarshalling. 4

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B.E. 4/4 (IT) I - Semester (Main) Examination, November / December 2016

**Subject : Wireless and Mobile Communications
(Elective – II)**

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

- 1/ Define Brewster angle. (2)
- 2/ List out the features of 2G, 3G cellular networks. (2)
- 3/ Write the differences between wireless and fixed telephone networks. (3)
- 4/ Differentiate DSSS and FHSS. (3)
- 5/ Explain two outdoor propagation model. (3)
- 6/ Differentiate between wireless and fixed networks. (2)
- 7/ Explain GRPS. (2)
- 8/ Compare TDMA, FDMA techniques. (3)
- 9/ What is the usage of WLL? (2)
- 10/ Explain what is mobile IP. What are the problems with mobile IP? (3)

PART – B (50 Marks)

- 11/ (a) Describe improvement the capacity and coverage techniques in cellular system. (6)
(b) Explain the various Channel assignment strategies. (4)
- 12/ (a) Frequency Reuse Techniques. (5)
(b) Handoff Strategies. (5)
- 13/ Explain Constant Envelop Modulation Techniques. (10)
- 14/ (a) Explain any three indoor propagation models. (6)
(b) Explain knife edge diffraction. (4)
- 15/ Explain the architecture of GSM in detail and channel types in it. (10)
- 16/ What is TCP? Explain the different types of TCP. (10)
- 17/ Write short notes on the following: (4)
(a) Trunking and GoS (4)
(b) DHCP (3)
(c) MSK



FACULTY OF ENGINEERING**B.E. 4/4 (CSE / I.T.) I - Semester (Main) Examination, December 2016****Subject : Information Security****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART - A (25 Marks)**

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|---|---|
| 1/ What is the difference between vulnerability and exposure? | 2 |
| 2/ What is Race conditions? | 2 |
| 3/ Describe risk transference. | 2 |
| 4/ What is cost benefit analysis? | 2 |
| 5/ What are the three common methods of risk avoidance? | 3 |
| 6/ What is security blue print? | 3 |
| 7/ List and describe three major steps in executing the project plan. | 3 |
| 8/ What are the two basic functions used in encryption algorithm? | 2 |
| 9/ What are the different Cipher methods? | 3 |
| 10/ What are the requirements of digital signature? | 3 |

PART - B (50 Marks)

- | | |
|---|----|
| 11/ Difference between threat and attack. Explain different types of attacks. | 10 |
| 12 a) What is Risk identification? Explain different components of risk identification. | 5 |
| b) Explain risk handling decision points. | 5 |
| 13 a) Write briefly about scanning and analysis tools. | 5 |
| b) Discuss in detail different firewall architectures. | 5 |
| 14/ What is IDPS? Explain different types of IDPS in detail. | 10 |
| 15 a) Explain Bull's-Eye model. | 5 |
| b) Explain about maintenance model. | 5 |
| 16 a) What is VPN? Briefly discuss the two approaches using which a VPN can be implemented? | 5 |
| b) What Is Honey pot? Explain its role. | 5 |
| 17 Discuss short notes on : | 10 |
| a) Defense in depth | |
| b) Disaster recovery | |
| c) NSTISSC security model | |

FACULTY OF INFORMATICS**B.E. 4/4 (IT) I - Semester (Main) Examination, November / December 2016****Subject : Software Reuse Techniques (Elective – III)****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions from Part-A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 What is the incremental model of systematic reuse? (3)
- 2 What are the reasons to reuse use case components? (3)
- 3 What are the different types of variation points? (2)
- 4 What is the intent of singleton pattern? (2)
- 5 Draw the structure of Adapter pattern, mention the participants of the adapter pattern. (3)
- 6 What is the purpose of decorator pattern? (2)
- 7 Differentiate structural and architectural patterns. (3)
- 8 When can you apply a template pattern? (2)
- 9 What are the challenges establishing requirements for a component system? (3)
- 10 List the advantages of pipes and filters pattern. (2)

PART – B (50 Marks)

- 11 (a) Describe reusable design and implementation components. (5)
- (b) Explain in detail how facades control access to component system internals. (5)
- ✓ 12 (a) How can we use a design pattern? Give a simple approach to applying a design pattern effectively. (5)
- (b) Describe the intent and structure of an abstract factory pattern with the help of an example. (5)
- ✓ 13 Discuss about any two structural patterns explaining their motivation, structure and consequences. (10)
- ✓ 14 (a) What are the advantages of observer pattern over other behavioural patterns? (5)
- (b) Discuss the pipes and filter architectural design pattern. (5)
- 15 (a) Briefly describe the software engineering process in the reuse business. (5)
- (b) Explain the process of testing reusable components and frameworks. (5)
- ✓ 16 Explain Strategy pattern in detail with its implementation and consequences. (10)
- ✓ 17 Describe the intent, structure and participants of
 - (a) Chain of responsibility pattern (5)
 - (b) Flyweight pattern (5)

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B.E. 4/4 (IT) I - Semester (Main & Backlog) Examination, December 2016

Subject : VLSI Design

Time : 3 Hours

Max. Marks: 75

*Note: Answer all questions from Part-A and answer any five questions from Part-B.***PART - A (25 Marks)**

1. Draw the transmission gate structure of 2 : 1 MUX. (3)
2. Write about pass characteristics of nFET (2)
3. Obtain the stick diagram representation of NOT gate. (3)
4. List the layers used in CMOS integrated circuit. (2)
5. What are the design rules used in the design of CMOS ICs? (3)
6. What is propagation delay and write an expression for the same? (2)
7. Compare static CMOS & dynamic CMOS circuits. (2)
8. Draw the pseudo nMOS structure if 4 i/p AOI gate. (3)
9. Differentiate blocking & non-blocking assignments in verilog. (2)
10. What is floor planning & routing? (3)

PART - B (50 Marks)

- 11 (a) Draw FET RC model. Obtain expression for drain resistance R_n and capacitances (7)
- (b) A CMOS process produces gate oxide with thickness $t_{ox} = 100$ nm, Electron mobility $\mu_n = 550$ cm²/v-sec. Calculate the oxide capacitance per unit area and the process transconductance of nFET (3)
- 12 (a) What is Latch-up? Write the steps to prevent latch-up? (4)
- (b) Draw the layouts of following basic structures (6)
 - i) n+ region ii) p+ region iii) Active contact
- 13 (a) Analyze the DC characteristics of CMOS inverter and obtain an expression for the mid-point voltage V_M . (6)
- (b) Define rise time and fall time of inverter and write the expressions for the same. (4)
- 14 (a) Explain the operation of dynamic CMOS logic circuit with an example. (6)
- (b) Describe the operation modes of basic SRAM cell. (4)
- 15 (a) Write verilog code for a 8:3 priority encoder. (5)
- (b) Describe different routing techniques used in design of Integrated circuits. (5)
- 16 (a) Draw the CVSL structure of AND/ NAND gate & OR/NOR gates. (6)
- (b) Describe carry save adder (4)
- 17 Write short notes on:
 - (a) VLSI design Hierarchy (3)
 - (b) Difference between active contact & via contact (3)
 - (c) Photo Lithography (4)
