

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR FALL SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2017-2018
BATCH 2016-2017

Time: 3 Hours

Dated:09-03-2018
Max.Marks:60

Business Communications & Ethics - HS-208

INSTRUCTIONS:

- Attempt **FIVE** questions in all. **Question no. 1 is mandatory**, attempt at least **ONE** question from Section A, at least **TWO** from Section B, and select **ONE** question from any section.
- Please be specific and legible in your answers. Start every question from a fresh page.

* **Q.1 (A):** Mr. Hashim Raza works for an automobile manufacturer company as a junior graphics engineer. He is the member of a team that is working on a new car's design. The car is to be launched within a month, but 2 parts of the car have yet not been tested. Head of the team has much pressure to launch the car on time. The head decides to assemble the parts without a prior test, because of shortage of time. Mr. Hashim knows that can be dangerous for the car drivers and citizens. Mr. Hashim is also aware of the fact that he is junior and head of the team will ignore his suggestions. He is afraid that his interference can be harmful for his career at the organization.

- What should Mr. Hashim do? Support your answer with relevant ethical theories, PEC Code of Conduct and logic in the case. [06 Marks]

Q.1 (B): Elaborate with at least two examples the concept of gender discrimination and sexual harassment at work place. [06 Marks]

SECTION A

Q.2 (A): Discuss importance of any three non-verbal communication with particular reference to oral presentations. [06 Marks]

Q.2 (B): Identify barrier of communication in the following situations and concisely explain each barrier. [06 Marks]

- A manager used an idiom with her subordinate, the subordinate took literal meaning of the idiom and misunderstood the meanings.
- A presenter from Japan was presenting in Pakistan, at the end of the session his audience interpreted the message differently than the presenter expected.
- Some construction work was in progress during class in a nearby building and the students could not understand the lecture.

* **Q.3:** Often employers look for a well-rounded personality in candidates and therefore they probe various aspects of interested candidates during interview. Considering yourself to be an employer, develop **THREE** questions from each of the four areas that you would like to ask candidates Trainee Engineer position.

[12 Marks]

- a. Academic qualification
- c. Working style

- b. Field experience
- d. Career objective

SECTION B

* Q.4: You are the Managing Director of a private firm, ABC Corporations. Now you are planning to start non-profit business that builds homes for needy families. For this purpose, you need funds. You have identified that there are many businesspersons, who can sponsor your project. One of the sponsors is Mr. Muhib Zia, CEO of Zia & Sons Ltd., DHA Phase II, Defense, Karachi. Write a persuasive letter to convince him, to sponsor your project and provide you sufficient funds. [12 Marks]

* Q.5: Your department has set up a team of six students to organize 2018 Annual Dinner. You are nominated as head of the organizing team.

(A) Draft agenda for the first meeting to discuss five important issues related to the event organization. [06 Marks]

(B) Write minutes of the meeting – assume the meeting was held. [06 Marks]

Q.6: AMAZON Corporation provides machinery, equipment, and engineering services for various industries. The AMAZON Corporation has now decided to expand business in Karachi. Management has been considering the options of opening the new site office, which is closer to its clients and can serve them better. However, the management cannot find the suitable location for their site office in Karachi. The management of the company has requested to investigate the situation and conduct a survey to identify the best location. After conducting the survey, you have identified that Korangi Industrial area is the most suitable location for the site office.

Write a short report on the survey of new site office in Korangi Industrial area. Write a brief introduction; describe the method; findings; analysis; conclusion; and recommendations. The findings and analysis section should provide details about the availability of space; opportunity for business growth in this area; and available facilities of electricity, telephone, transportation, and other utilities. The report should include graphs/charts/tables or other graphical representations. You may assume necessary details.

[12 Marks]

**ARMED FORCES INSTITUTE OF CARDIOLOGY
THE MALL RAWALPINDI**

JOB OPPORTUNITIES

Following adhoc appointment is vacant in this institute to be filled in immediately:

S.No.	Name of Post	No. of Posts	Age Limit Max	Qualification/Experience
1.	Software Engineer	01	35	Qualification: MIT/MCS/BE (Software Engineering) Experience: a. 2-3 years in Software development & implementation. b. Having knowledge of web based scripts & languages i.e. PHP, Oracle form & reports etc.

Terms & Conditions:-

- a. Application alongwith Photocopies of documents will be submitted upto 8 February 2013.
- b. Test/interview of selected candidates will be conducted on 13 February 2013.
- c. Original documents should be produced at the time of interview.
- d. No TA/DA will be given to the candidates for test/interview.

GSO- 1 (Admin)
(AFIC/NIHD)
The Mall Rawalpindi, Ph: 9271002

PID(I) No. 3455/2012

* Q.7 (A): Prepare your Resume according to the above advertisement.

[06 Marks]

Q.7 (B): Write a job application according to the above requirement.

[06 Marks]

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR FALL SEMESTER (BACHELOR OF SCIENCE IN COMPUTER SCIENCE &
INFORMATION TECHNOLOGY/
SOFTWARE ENGINEERING)
EXAMINATIONS 2017-2018
BATCH 2016-2017

Time: 3 Hours

Dated: 12-03-2018
 Max. Marks: 60

Differential Equations & Linear Algebra - MT-273

NOTE: Attempt FIVE questions out of SEVEN, selecting any TWO questions from Section "A" and THREE questions from section "B"

SECTION-A (DIFFERENTIAL EQUATIONS)

✓ Q.1 Solve the following PDE's: (12)

- a) $(D^2+DD'-6D'^2) z = x+y$
- b) $(D^3-4D^2D'+4DD'^2) z = 2\sin(3x+2y)$
- c) $yq - xp = z$

✓ Q.2 Solve the following ODE's: (12)

- a) $3e^x \tan y \, dx + (1 - e^x) \sec^2 y \, dy = 0$
- b) $x^2 \, dy + y(x+y) \, dx = 0$
- c) $dy/dx + y \sec x = \tan x$

Q.3 Solve the following ODE's: (12)

- a) $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 9y = e^{3x}$
- b) $x^2 \frac{d^2y}{dx^2} - x \frac{dy}{dx} + y = \sin(\ln x^2)$ (Cauchy Euler's DE)
- c) $\frac{d^2y}{dx^2} + y = \cosec x$ (Method of variation of parameters)

SECTION-B (LINEAR ALGEBRA)

Q.4 (a) Use Gauss Jordan method to solve the system of linear equation: (6)

$$x_1 + 5x_2 + 2x_3 = 9 ; x_1 + x_2 + 7x_3 = 6 ; -3x_2 + 4x_3 = -2$$

✓ (b) Discuss the Consistency of the following system of equations: (6)

$$2x+3y+4z=11 ; x+5y+7z=15 ; 3x+11y+13z=25. \text{ In case the system is consistent, solve it.}$$

✓ Q.5 (a) Find the Eigen values & Eigen vectors of the matrix (6)

$$Q = \begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$$

(b) Find the characteristic equation of the matrix (6)

$$B = \begin{bmatrix} 1 & 2 & -2 \\ 1 & 1 & 1 \\ 1 & 3 & -1 \end{bmatrix}; \text{ Hence find } A^{-1}. \text{ By applying Cayley-Hamilton theorem.}$$

Q.6 (a) Define an orthogonal matrix. Prove that, (6)

$$A = 1/3 \begin{bmatrix} -1 & 2 & 2 \\ 2 & -1 & 2 \\ 2 & 2 & -1 \end{bmatrix} \text{ is orthogonal.}$$

(b) The matrix A is defined as: (6)

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & -2 & 6 \\ 0 & 0 & -3 \end{bmatrix}; \text{ Find the Eigen values of } 3A^3 + 5A^2 + 6A + I$$

Q.7 (a) Prove that the vectors $v_1 = (1, 2, -3)$; $v_2 = (1, -3, 2)$; $v_3 = (2, -1, 5)$ in R^3 are linearly independent. (6)

(b) Express the vector $v = (1, -2, 5)$ as a linear combination of the vectors $v_1 = (1, 1, 1)$; $v_2 = (1, 2, 3)$ & $v_3 = (2, -1, 1)$ (6)

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR FALL SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2017-18
BATCH 2016-2017

Time: 3 Hours

Dated: 16-03-2018
Max. Marks: 60

Software Engineering - SE-207

Instructions: Answer 5 questions

All questions carry equal marks

Q#1.

- ✓ a. You have been appointed as a project manager within an information systems organization. Your job is to build an application that is quite similar to others your team has built, although this one is larger and more complex. Requirements have been thoroughly documented by the customer. What software process model(s) you choose and why? [03]
- ✓ b. List all the designs concepts and give description for each [09] 1

Q#2.

- a. Discuss how structural partitioning can help to make software more maintainable. [03]
- b. Write the advantages and disadvantages of waterfall and prototyping model. [06]
- c. What are the elements of analysis model? [03]

Q#3.

- ✓ a. Assume that you are the project manager for a company that builds software for consumer products. You have been contracted to build the software for home security system. Write a statement of scope that describes the software. [04] 3
- ✓ b. Define software requirement engineering and describe the activities of software requirement engineering. [05] 5
- ✓ c. Explain the inputs and outputs of Domain analysis [03]

Q#4.

- ✓ a. Develop a Use case diagram, Use case text and Data flow Diagram for network based course registration system of university. [08]
- ✓ b. Discuss software engineering as a layered technology. [04]

Q#5.

- ✓ a. Propose a specific software project that would be amenable to the spiral model, present a scenario for applying the model to the software. [04]
- ✓ b. Differentiate i. Black box and White box testing ii. Functional and Non-functional requirements iii. Reactive and Proactive risk strategies [06] 6
- ✓ c. List the Lean software Development principles [02] 2

Q#6.

- ✓ a. Define agile methodology also discuss scrum in detail [05]
- ✓ b. Is unit testing possible or even desirable in all circumstances? Provide examples to justify your answer [02]
- ✓ c. Discuss different testing strategies used in software engineering. [05] X

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR FALL SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2017-18
BATCH 2016-2017

Time: 3 Hours

Dated: 19-03-2018
Max. Marks: 60

Computer Graphics - SE-202

Note: Attempt Any Five.

Q.1) (a)	Use block diagram and define each components of Computer Graphics. Also state that why we use computer graphics.
(b)	Use Bresenham algorithm to find coordinates between $(2, \text{Floor}(N/2))$, $(8, N)$. N is your roll number. If $N > 10$, Sum the roll number digits. If $N \leq 5$ take $N = 5$.
Q.2) (a)	Define 2-Dimensional Geometric and Coordinate transformation. What is the relation between Geometric and Coordinate transformation? Prove relation Mathematically.
(b)	Perform a 60° Ant-clockwise rotation of triangle A (0,0), B (1,5), C (4,2) about the fixed point P (-3, 5).
Q.3) (a)	A cube ABCDEFGH each side length 2 unit is projected on to the view plane $Z = 0$ w.r.t the center of perspective C (0, 0, -4). What would be the projected image?
(b)	Reflect the diamond-shaped whose vertices are (-5, 0), (0, -4), (5, 0) and (0, 4), about the fixed line which passes through two points (0, -N) and (N, 0). Where 'N' is your class roll number.
Q. 4) (a)	A tree is placed on a ground. You observed that the tree is at distance of 25 and 15 unit horizontal and vertical respectively. You moved away from the tree and covered a distance vector $[3N, 2N]$ and then you took a turn about 135 degree clockwise direction. What would be the new position of the tree you observed? If 'N' is your roll number. If roll number is greater than 10 then add the digits until their sum is less or equal to 10.
(b)	Define Quantization with reference to computer graphics.
Q.5) (a)	Derive the Projection matrix for a fixed point (0, -b, 0) such that the projection plane is XZ-plane.
(b)	Define Tilting as a rotation about x-axis followed by a rotation about y-axis, derive the tilting matrix..
Q.6.	Derive the ML (Mirror reflection about a line) transformation matrix which reflects an object about the line: $5y = 5mx + 5b$.

1.5 + 17
NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR FALL SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2017-2018
BATCH 2016-2017

Time: 3 Hours

Dated: 14-03-2018
Max. Marks: 60

Logic Design & Switching Theory - CS-251

INSTRUCTIONS:

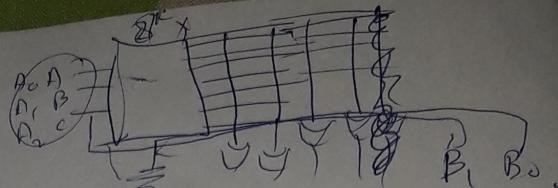
1. Attempt all questions.
2. You can attempt questions in any order but all parts of a question must be together.
3. Show all steps of calculations and make assumptions where necessary. But mention your assumptions if there are any.

Question 1

- a Name the term / concept the following statements refer to: [5]
- i. This version of ICs help implementing wired AND logic.
 - ii. It is the time elapsed from the instance input is presented to the gate till the point stable output is available.
 - iii. This register requires the same number of pulses to load and about the same number of pulses to read the contents as the size of the register.
 - iv. It refers to the maximum number of distinct states any counter can count.
 - v. These are edge triggered memory devices.
 - vi. It is the set of rules used with digital variables to develop, manipulate and simplify logic expressions.
 - vii. In this expression every product term involves every variable or its complement and it can directly be obtained from a truth table by writing one product term for each input combination that produces an output of 1.
 - viii. These input patterns never appear in the input combinations to a logic circuit, so it does not matter whether they are treated as 1 or 0.
 - ix. This combinational device provides a way of selecting one out of many input signals.
 - x. These are the logic circuits in which current output is the function of current inputs only.
- b Convert the following expression to standard SOP and POS forms: $F(A, B, C) = B \cdot (\bar{A} + \bar{C})$ [5] 83
- c Write dual of the expression: $\bar{A} \cdot (A + B) \cdot (A + \bar{B}) = 0$. [1] 7
- d Convert the following expressions to XNOR gate: $Y = \overline{A \oplus B \oplus C}$ [1] 7
- e What do you understand by the term tri state logic? [2] 7
- f Can a XOR gate be used as an inverter? Illustrate. [1] 7

Question 2

- a Identify the following as BCD, excess-3 and/or gray: [2] 7
- i. Is a unit distance coding system. 5
 - ii. Is a weighted coding system. 3
 - iii. Requires an addition/subtraction of 3 for correction of invalid codes. 1
 - iv. Works with most seven-segment displays



- b) Implement an even parity generator for BCD numbers using:

- (i) 8-to-1 multiplexers
- (ii) 16-to-1 multiplexer
- (iii) 4-to-16 decoder

- c) Design a combinational circuit using a ROM. It accepts a three bit number and outputs its square.

Question 3

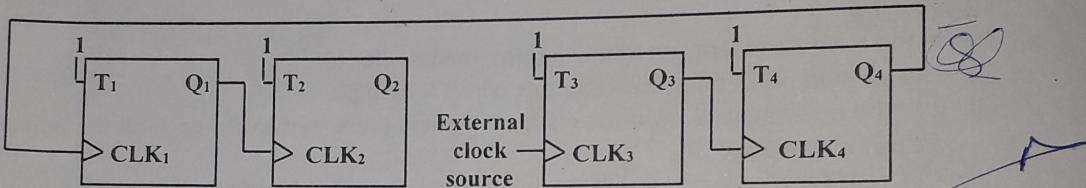
- a) Design a MOD 4 binary asynchronous up counter (block diagram only). [3]

- b) For the counter implemented in part a,

- i. Draw the timing diagram.
- ii. Why is the counter named asynchronous?

- iii. Can the same circuit with same edge triggering be used as a down counter?

- c) What sequence of outputs ($Q_4 Q_3 Q_2 Q_1$) will be produced by the following counter circuit? Assume initial state to be 0000₂. [3]



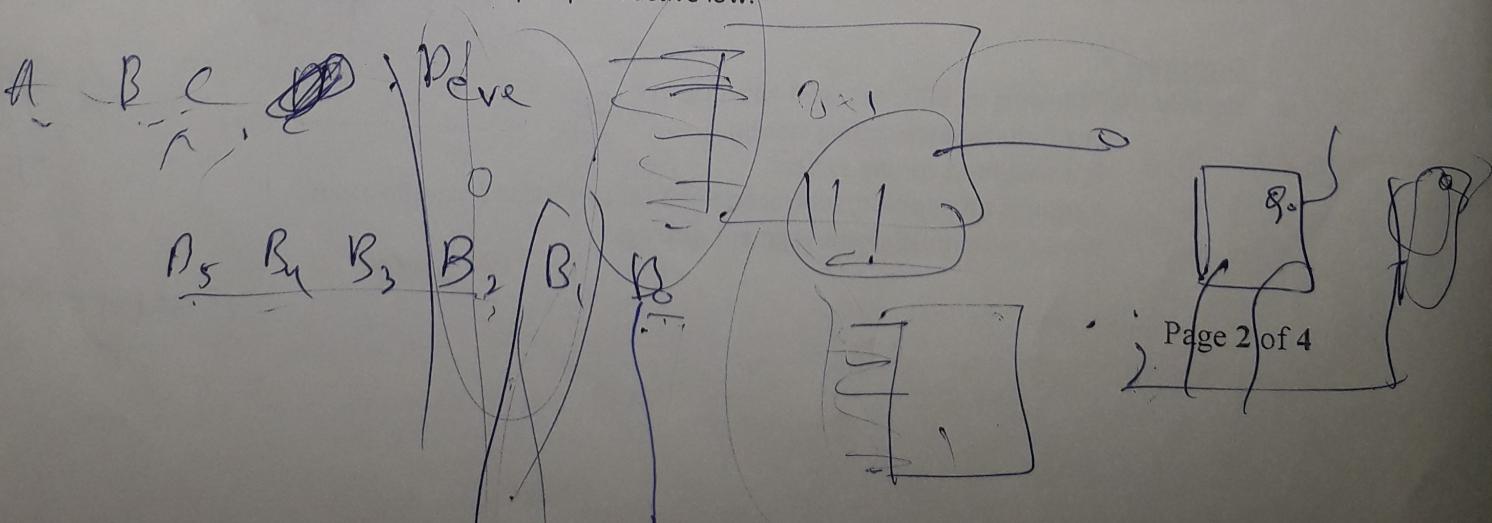
- d) Find values at all the output pins of the following ICs with the indicated inputs: (See IC Pin diagrams on the last pages) [5]

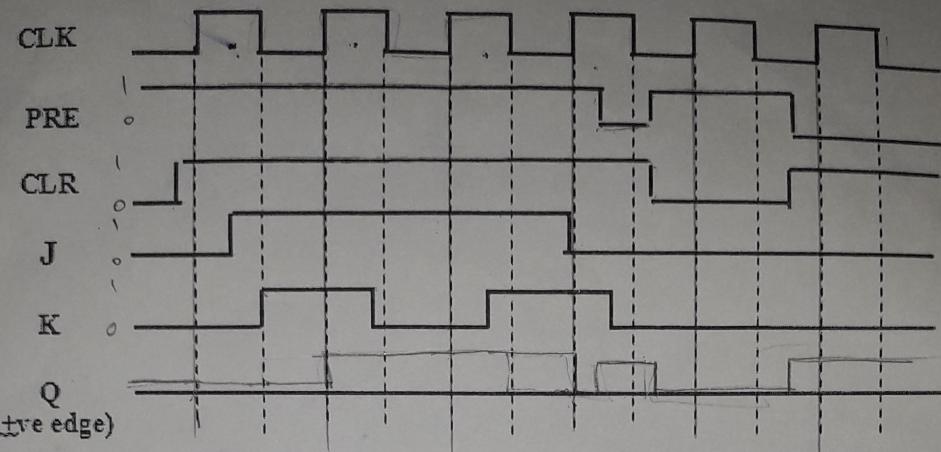
- i. 74138 – 3x8 line decoder: A, B, C are kept high (1), and all enables are kept low. 11111111
- ii. 74147 – Decimal to BCD priority encoder: All inputs are kept low (0). 0000
- iii. 74148 – Octal to binary priority encoder: E1, D0, D6 are kept high (1) and remaining inputs are kept low (0). 111
- iv. 74194 – 4 bit bidirectional universal shift register: Positive edge is applied at the CLK input, S1 is kept high (1), all remaining inputs are kept low (0). 0000
- v. 7490 – Decade counter: CLK B is connected to QA, all remaining inputs are kept high (1). 1001

Question 4

- a) Design a 2-bit up/down even sequence counter. Use SR flip flop. Map all unused states to don't cares. [5]

- b) Complete the following waveform to show the output of a positive edge triggered JK flip flop. The PRE and CLR inputs to the flip flop are active low. [2]





c Find straight binary value of the following and convert it to gray code:

$$0010\ 0011\ 0100_{BCD}$$

$\checkmark [2]$

d A digital system uses 12 special characters, which are coded in the forms of unique combinations of binary bits. The codes are assigned as follows:

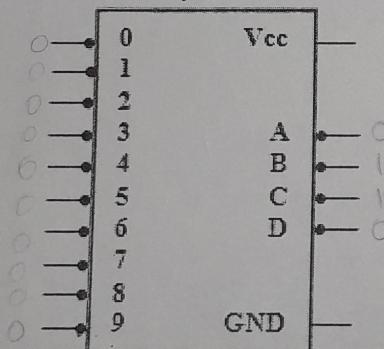
Operator	{	}	[]	%	?	&	\$	()	!	@
Code (in decimal)	0	1	2	3	4	6	7	8	9	10	11	12

$$\overline{A} + \overline{B} + \overline{C} + P$$

- i. Design a simplified logic circuit to detect appearance of any invalid code at the input lines. [3]
ii. Give NAND implementation for the logic expression obtained part i. [3]

IC Pin Diagrams

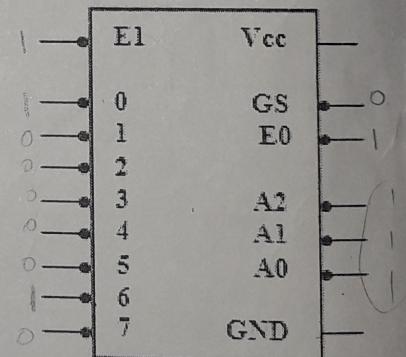
74147 – Decimal to BCD Priority Encoder



0 to 9 – Inputs to the encoder

A, B, C, D – Outputs (A being the LSB)

74148 - Octal to Binary Priority Encoder



E0 – Active if none of the inputs is ON

GS – Active if any of the inputs is ON

0 to 7 – Inputs to the encoder

A2, A1, A0 – Outputs (A2 being the MSB)

E1 – Enable input

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR SPRING SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2018
BATCH 2016-2017

Time: 3 Hours

Dated: 28-08-2018
Max. Marks: 60

Software Requirement Engineering - SE-208

- (1) Attempt all questions.
- (2) All questions carry equal marks.
- (3) Give examples and draw diagrams where necessary

40+33
73

4+4.5
(8+6+6)

(CLO3)

* (a) Define goals? Explain the advantages of using goal-oriented requirements engineering?

* (b) Define functional and non-functional goals. Define different goal categories (CLO3)

* (c) Construct a goal graph of a Library Management System. The parent goal from where you should start is *Achieve/BookRequestSatisfied* (CLO3)

* Q.No.2

(a) Define stakeholder-driven requirements elicitation and artefact-driven requirements elicitation methods. Explain in detail different methods of artifact-driven requirements elicitation. (10) 6

(CLO2)

Q.No.3

* (a) Define

i. Fault trees

ii. Product-related risks

3+2

(4+6)

(CLO1)

(b) Construct a security threat tree for the risk of denial of service incurred by your favourite e-mail server. (CLO1)

Q.No.4

5+3

(5+5) 7

* (a) Explain the classical requirements engineering process.

(CLO2)

(b) Discuss a standardized template for organizing a requirements document. (CLO2)

(CLO2)

* Q.No.5

8

(10)

(a) Define Obstacles. Discuss why we liken obstacles to risks. Consider the goal *AuthenticatedAccess* is obstructed by the obstacle *PasswordForgotten* in a Web service. Justify that this obstacle is the indication of a risk and has to be mitigated. Explore goal restoration countermeasures to this obstacle. (CLO1)

— X —

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR SPRING SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2018
BATCH 2016-2017

Time: 3 Hours

Dated: 01-09-2018
Max. Marks: 60**Web Engineering - SE-206****Instructions:**

45 + 37

(82)

- Attempt ALL questions.
- Make neat and clean diagrams where necessary.
- Questions can be attempted in any order but all parts of a question must be attempted together.

Q1**(a)**

There is a requirement to build web application “homesecurity.com”. The WebApp will serve as the hub for product marketing and sales, as well as the focus for a new generation of security monitoring services. You’ve been chartered with the job of building a Web Engineering team that will create the Web App. At the moment, nothing exists but a broad strategy and a few good ideas. The need is immediate, and a Web presence must be up and running as soon as possible. EXPLAIN how the Web Engineering framework activities will be conducted for the given scenario (1 iteration of WebE Process framework is required). [CLO-1]

5
[6]**(b)**

EXPLAIN how a website can be secured using the HTTPS protocol. [CLO-1]

5
[6]**Q2****(a)**

EXPLAIN the Web Engineering (WebE) process framework with the help of diagram. [CLO-1]

6
[6]**(b)**

DIFFERENTIATE between 3-tier and 2-tier Web Application Architecture with the help of diagrams. [CLO-1]

6
[6]**Q3****(a)**

Briefly EXAMINE how Security testing is done to validate the security of a web application. There is a popular news site. At any given time, 5000 concurrent users submit a request (a transaction T) once every 20 seconds on average. Each transaction requires the WebApp to download a news article that averages 15 Kbytes in length. Calculate the throughput and Link Speed for this web application. [CLO-2]

5
[6]**(b)**

ANALYZE with the help of diagram the Database Testing mechanism for validating the Dynamic Contents of Web Application. Highlight the main layers of interaction as well. [CLO-2]

1
[6]**Q4****(a)**

A simple web form takes input from the user. If the number is less than 10 or greater than 30, an error message will be displayed. ANALYZE this input validation using Java Script Validation API. [CLO-2]

5
[6]

6

(b)	<p>There is a requirement to build a web application mycompany.com.pk comprising of different forms and pages. Following are the requirements</p> <ul style="list-style-type: none">• Form should have fields for Name, Comments, Email Address, Date• Form should have an embedded CSS for presentation of font spacing, size and color.• Input Validation should be done to minimize the load on the server. <p>ANALYZE this scenario to build a form fulfilling the requirements for this application using appropriate client-side technology. [CLO-2]</p>	[6]															
Q5 (a)	<p>Consider a web application test.com requiring backend connectivity. ANALYZE using either the MySQLi or PDO based object-oriented approach of PHP, how the following data can be inserted in database. Write down the relevant code. Also, do the input validation for email field. [CLO-2]</p>	3 [6]															
	<table border="1"><thead><tr><th>User id(primary Key)</th><th>First name</th><th>Last name</th><th>Date</th><th>Email</th></tr></thead><tbody><tr><td>1</td><td>John</td><td>Mike</td><td>10/07/2018</td><td>john@test.com</td></tr><tr><td>2</td><td>Sam</td><td>Kim</td><td>11/07/2018</td><td>sam@test.com</td></tr></tbody></table> <p>(b) With the help of simple PHP form that takes three input from user "name", "password", "email" ANALYZE the difference between GET and POST PHP methods of Data submission. [CLO-2]</p>	User id(primary Key)	First name	Last name	Date	Email	1	John	Mike	10/07/2018	john@test.com	2	Sam	Kim	11/07/2018	sam@test.com	3 [6]
User id(primary Key)	First name	Last name	Date	Email													
1	John	Mike	10/07/2018	john@test.com													
2	Sam	Kim	11/07/2018	sam@test.com													

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR SPRING SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2018
BATCH 2016-2017

Time: 3 Hours

Dated: 04-09-2018

Max. Marks: 60

Database Management Systems - SE-204

Instructions:

- Attempt all questions. All questions carry equal marks.
- Avoid unnecessary details
- Draw the diagrams with pencils
- Neat and clean work shall attract more marks

44 + 37

(81)

Question#1

(CLO-1)

- ✓ a) Discuss the concept of data independence and explain its importance in a database environment. (6 marks) 6
- ✓ b) Compare and contrast the two-tier client-server architecture for traditional DBMSs with the three-tier client-server architecture. (6 marks) 6
- c) Discuss Fourth Generation Languages (4GLs)? (3 marks) 2

Question#2

(CLO-1)

- a) Explain the relationships between mathematical relations and relations in the relational data model. (6 marks) 2 4
- b) Describe the relationships between mathematical relations and relations in the relational data model. (5 marks) 2
- d) Discuss the advantage and disadvantages of DDBMS. (4 marks) 4

Question#3

(CLO-2)

- a) Each employee in an engineering company has at most one recognized skill, but a given skill may be possessed by several employees. An employee is able to operate a given machine-type (e.g., lathe, grinder) if he has one of several skills, but each skill is associated with the operation of only one machine type. Possession of a given skill (e.g., mechanic, electrician) allows an employee to maintain several machine-types, although

employee
has | operates
skills. machine

P.T.O

maintenance of any given machine-type requires a specific skill (e.g., a lathe must be maintained by a mechanic). 2

Draw an ER diagram for the above scenario. (7 marks)

- b) Demonstrate the problem of **Inconsistent Analysis Problem** with example due to the lack of Concurrency Control and also determine how the two-phase locking (2PL) mechanism can be used to resolve this problem. (8 marks)

8

Question#4

(CLO-2)

- a) Given the following relation and example data:

student_id	class_name	time	location	professor_id
999-40-9876	Math 148	MWF 11:30	Rm. 432	prof145
999-43-0987	Physics 113	TR 1:30	Rm. 12	prof143
999-42-9842	Botany 42	F 12:45	Rm. 9	prof167
999-41-9832	Matj 148	MWF 11:30	Rm. 432	prof145

Determine third normal form (3NF) of the following table. (8 marks)

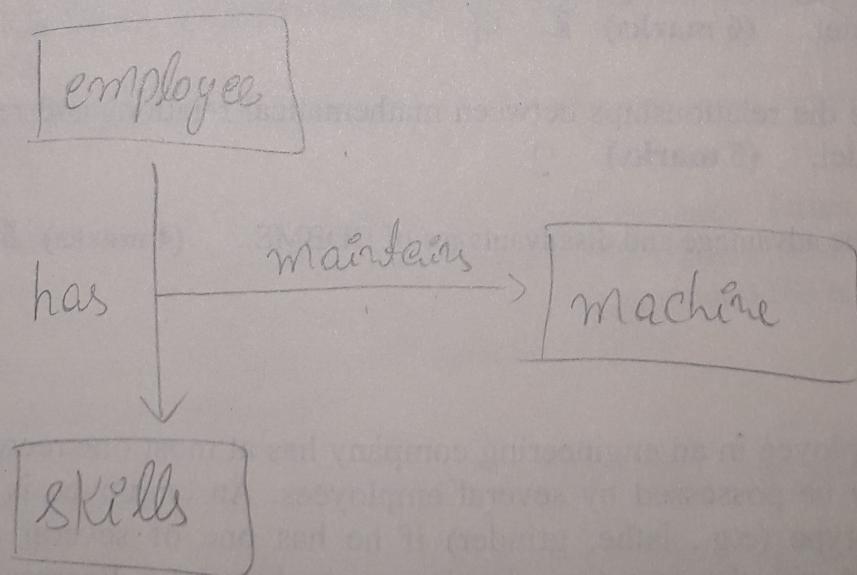
6

- b) Determine the approaches for securing DBMSs on the Web.

(7 marks)

X

4



(75)

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
SECOND YEAR SPRING SEMESTER (SOFTWARE ENGINEERING)
EXAMINATIONS 2018
BATCH 2016-2017

Time: 3 Hours

Dated:06-09-2018
Max.Marks:60**Computer Architecture & Organization - CS-252**Instructions:

- Attempt all questions.
- Questions may be attempted in any order but all parts of a question must be together.

Question [CLO-2],C3**No.1**

- a) i. Explain the significance of ALUOp control signals in the design of [4]
 Main Control Unit
 Describe the use of branch and jump control signals in main control unit design
 ii. Illustrate PCSrc signal for beq instruction in datapath design. Modify PCSrc signal to incorporate bne instruction.
 iv. Briefly illustrate implementation of main CU using Programmable logic array.
- b) Draw the internal logic diagram of read/write ports of a register file which has [4] 8 registers each of 4-bits. Show the number of bits in your diagram
 c) Design datapath for a single cycle MIPS processor for lw instruction

Question [CLO-1],C2**No.2**

- Determine the range of decimal numbers that can be represented using 32 bits [2] in the following schemes:
- i. Unsigned representation
 - ii. Sign-magnitude representation
 - iii. 1's complement representation
 - iv. 2's complement representation

~~b) c)~~

- Compare MIPS and MFLOPS throughput type performance parameters [2]
 Briefly describe Daisy chain bus arbitration scheme and give its advantages [2]

- d) i. Illustrate different ways of identifying interrupting devices.
 ii. Differentiate between isolated IO and memory mapped IO

Question [CLO-2],C3**No.3**

- a) Suppose that a machine M is currently 1.8 times faster than its closest [2] competitor. If the competition improves by a factor of 1.5 each year (i.e. 3.4% per month), how long will it take this competitor to catch up, assuming that M

2.14**(1.8 + 0.34)**

1101 →
 0101 0101
 0010 1011
 0010 + 0111
 3 = 0111

- b) is unchanged?
- c) Use Booth's algorithm to multiply following numbers. Use as many bits as required for 2's complement representation of operands.
- $5 \times (-3)$
 - $(-8) \times (-4)$
- d) Find the following ranges expressible in IEEE 754 Single Precision format.
- Largest negative number
 - Smallest Negative number
 - Smallest positive denormalized number
- e) Express the following IEEE 754 floating point number in their decimal values:
- 0x3BCDA000
 - 0x00000000

No.4 Question

- a) Consider a cache with 32 lines that holds blocks from a memory of total size 128 blocks. Determine in which cache line the memory block 50 may reside if the cache is:

Direct Mapped Cache

Fully Associative Cache

2-way Set Associative Cache

- Find the cache hit ratio if a system performs memory access in 40ns with cache and 250ns without cache. Assume cache uses 20ns memory

Find address partitioning in each of the following cases:

- 256K Words Main Memory, 16 words/Line, 8-way set associative 2K words cache
- 16 MB Main memory, 32 KB cache, 8B/Line fully associative.
- 32KB Direct Mapped cache with line size of 16B. Addresses are 32-bit wide.

- d) Explain thrashing.

No.5 Question

- a) Differentiate between Synchronous and Asynchronous buses. Processor-memory bus is synchronous whereas IO bus is asynchronous. Comment.
- b) Discuss advantage of Interrupt driven I/O over Programmed I/O technique.
- c) Compare Burst mode and cycle stealing mode of DMA.
- d) Compare unified and split cache.
- e) Discuss the following briefly:
- Memory reference instructions in MIPS ISA use Base-Addressing Mode.
 - Fixed length instructions in MIPS ISA helps in finding the next sequential address in contrast to x86 ISA with variable length instructions.
 - A sequence of instructions that pop a word from stack in MIPS ISA

46 + 35

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 EXAMINATIONS 2018
 BATCH 2016-2017

(81)

Time: 3 Hours

Dated:30-08-2018

Max.Marks:60

Financial & Cost Accounting - CT-258

All questions carry equal marks. Question 1, is compulsory Attempt a total of five questions, including Q1.

Q.1. MCQs: Select the best answer to the following questions (more than one answer may be correct) 6 (10)

1. Which of the following statement is not consistent with generally accepted accounting principles relating to asset valuation?
 - a. Assets are originally recorded in accounting records at their cost to the business entity.
 - b. Subtracting total liabilities from the total assets indicates what the owner's equity in the business is worth under current market conditions
 - c. Accountants assume that assets will be used in business operations rather than sold at current market prices.
 - d. Accountants prefer to base the valuation of assets upon objective, verifiable evidence rather than upon appraisals or personal opinion.
2. A transaction caused a Rs.100,000 decrease in both total assets and total liabilities. This transaction could have been:
 - a. Purchase of a delivery truck for Rs.100,000.
 - b. An asset with a cost of Rs.100,000 was destroyed.
 - c. Repayment of a Rs.100,000 bank loan.
 - d. Collection of a Rs.100,000 account receivable.
3. Which of the following would you expect to find in a correctly prepared income statement
 - a. Cash balance at the end of the period
 - b. Revenues earned during the period
 - c. Contributions by the owner during the period
 - d. Expenses incurred during the period to earn revenues
4. Water Boat Shop purchased a jeep for Rs.120,000 making a down payment of Rs.50,000 cash and signing a Rs.70,000 note payable due in 90 days. As a result of this transaction:
 - a. Total assets increased by Rs.120,000.
 - *b. Total Liabilities increased by Rs70,000.
 - c. From the viewpoint of a short-term creditor, this transaction makes the business more liquid.
 - d. This transaction had no immediate effect on the owner's equity in the business.

5. Exceptional-Air has a Rs9,0000 account receivable from Geo-Tours Co. on Jan.25. Geo-Tours Co. makes a partial payment of Rs20,000. The journal entry made by Exceptional-Air to record the transaction includes:
- a. A credit to Cash account of Rs.20,000
 - b. A credit to Account Receivables of 20,000 and a debit to Cash of 20,000
 - c. A debit to cash account of Rs.70,000
 - d. A debit to the Accounts Receivable account of Rs.70,000
6. A class of capital stock usually having preferences as to dividends and in the distribution of assets in the event of liquidation.
- a. Common Stock
 - b. Bonus Share
 - c. Preferred Stock
 - d. All of the above
7. The accounting principle of providing with financial statements any financial facts necessary for the proper interpretation of those statements is
- a. Cost principle
 - b. Realization principle
 - c. Adequate disclosure principle
 - d. Consistency principle
8. Which of the following accounts are not closed to the Income Summary account at the end of the accounting period (more than one answer may be correct)
- a. Rent expense
 - b. Accumulated Depreciation
 - c. Unearned Revenue
 - d. Supplies expense
9. The primary purpose of using an inventory flow assumption is to
- * a. parallel the physical flow of units of merchandise
 - b. offset against revenue an appropriate cost of goods sold
 - c. Minimize income taxes
 - d. Maximize the reported amount of net income.
- 10.. Which of the following is not based upon the Realization Principle and Matching Principle?
- a. adjusting entries
 - b. closing entries
 - c. accrual basis of accounting
 - d. Measurement of net income under GAAP

11. Define any Two of the following terms

- i) Capital Stock
- ii) Cost Principle
- iii) Retained Earnings
- iv) Realization and Matching Principle

Q.2: Following is the adjusted Trial Balance on December 31, 2017 of Techno- Corporation.

Techno- Corporation
Adjusted Trial Balance
December 31, 2017

Cash	33,392	
Accounts Receivable	7,250	
Office Supplies	1,200	
Unexpired Insurance	3,000	
Land	52,000	
Building	36,000	
Accumulated Depreciation:Building	1,650	
Tools and Equipment	12,000	
Accumulated Depreciation:Tools & Equipment	2,200	
Notes Payable	4,000	
Accounts Payable	2,690	
Income Tax Payable	5,580	
Unearned Rent Revenue	6,000	
Capital Stock	100,000	
Retained Earnings	0	
Dividend	17,000	
Ticket Sales Revenue	172,000	
Rent Revenue earned	6,000	
Advertising Expense	3,900	
Wages Expense	58,750	
Supplies Expense	7,500	
Depreciation Expense:Building	1,650	
Depreciation Expense: tools and Equipment	2,200	
Utilities Expense	19,400	
Insurance Expense	15,000	
Income Tax Expense	26,628	
Interest Expense	3,250	
	300,120	
	300,120	
		<u>Y</u>
		(4) <u>2</u>
		(3) <u>3</u>
		(4) <u>3</u>
		(1)

- i) Prepare Income statement
- ii) Retained Earnings Statement
- iii) Balance Sheet
- iv) Comment on the financial position and profitability of the company

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X
Describe t

(2)

Q.3(a).Why are adjustment entries required? Describe any two types of entries for which end of the period

adjustments are made.

Q.3(b). December is the first month of operations of Simon-Brothers. Calculate Depreciation of building, Depreciation of Tools& equipment using straight line method. Useful life of Building: 40 years, Useful life of tools and equipment: 10 years. During the month of December Rs.5000 worth of Shop Supplies were used.

(2)

Simon-Brothers
Unadjusted Trial Balance
December 31, 2017

Cash		495,000	
Notes Payable	Receivable	30,000	
Account Receivable		9,500	
Shop Supplies		15,000	
Land		600,000	
Building		480,000	
Tools & Equipment		120,000	
Notes Payable		350,000	
Accounts Payable		82,000	
Interest Payable		2,625	
Osman Ali Capital		794,500	
Naman Ali Capital		500,000	
Osman Ali Drawing		51,000	
Noman Ali Drawing		30,000	
Repair Service Revenue		240,000	
Advertising Expense		50,000	
Wages Expense		86,000	
Interest Expense		2,625	
		1,969,125	
		1,969,125	

(c) Prepare a 10 column Worksheet (according to the following format) for Simon Brothers. (8) (8)

This is an example (with sample date , some data in between has been omitted)

ABC Services Worksheet											
For the year ending December 31, 2013											
		Trial Balance		Adjustments		Adjusted Trial Balance		Income Statement		Balance Sheet	
		Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr
Balance Sheet Accounts:											
Income Statement Accounts:											
Net Income											
Totals											
*Adjustments:											
(a)											

Q.4. Following is the Adjusted Trial Balance of Super Gym Corp.

Super Gym.Corp.
Adjusted Trial Balance
December 31, 2017

Cash		
Account Receivable	Rs.150,000	
Prepaid Rent	9,400	
Unexpired insurance	50,000	
Supplies	7200	
Equipment	500	
Accumulated Depreciation: Equipment	18,000	
Notes Payable		Rs.7,200
Accounts Payable		10,000
Salaries Payable		3,200
Income taxes payable		51,000
Unearned Gym.Revenue		6,000
Capital Stock		8,800
Retained earnings		100,000
Dividends		40,000
Gym. Revenue earned	6,000	
Salary Expense	85,000	143900
Supply Expense	3900	
Rent Expense	12,000	
Insurance Expense	1,900	
Advertising Expense	500	
Depreciation expense: equipment	1,800	
Interest expense	900	
Income tax expense	23,000	
	Rs.370,100	Rs.370,100

- 8/ (8)
u/ (4)
- a) Prepare the necessary closing entries for December 31, 2017
 - b) Prepare an after closing trial balance dated December 31, 2017