University of Asia Pacific
Department of Computer Science & Engineering
Mid-Semester Examination, Fall 2018
Program: B.Sc. in Computer Science & Engineering
Year: 3rd, Semester: 1st

Course Title: English II: English for Communication. Course Code: CSE HSS 301 Credit: 3.00

Time: 1.00 Hour Full Marks: 20

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*Marks are indicated in the right margin.
*Answer all the questions

Read the passage below carefully and then answer the questions that follow:

Going away to university is a big transition, and the Freshers' Orientation Program is designed to make that transition easier. The purpose of Freshers' Orientation is to provide students with a smooth and helpful transition to university life. It is held for students prior to the **commencement** of each semester. In order to help students settle into life on campus, the university has put together a range of activities for Orientation Day for new students.

On the day of the program, students receive information about orientation, the Academic Advisory Service and course registration, and become familiar with the campus through a walking tour. They also receive practical information on studying and living on campus. The orientation usually uses video presentations to introduce rules, clubs, the library, the careers service, IT and other facilities at the university to the newcomers.

On Orientation Day, the university organizes social events so that students can get to know each other and join university clubs. Joining a club is a great way to balance students' academic careers with something that takes them away from their books and gets them into activities that they have never tried before, or back into something that they used to do. For example, sports clubs are run by students and for students, and are an excellent way to get **involved** in something active at university. The adventure club also provides freshers with an opportunity to travel and interact with classmates through the **exploration** of a variety of natural areas, while the language club is a great opportunity to meet new people and practice English.

The library includes **numerous** resources including books, course books, audio selections and journals. Students can take advantage of the full list of the library contents. Situated within the library building, the University Career Service offers workshops on a variety of topics related to career development, as well as hosting information sessions, networking events and career fairs.

On the first day, teachers and students usually meet for the first time as a group of strangers. The teacher gives a course overview to the students. The first day of the class is the teachers' opportunity to present their vision of the class to students. The teachers **clarify** the learning objectives and expectations to the class, and provide lecture notes and course outlines to the learners. All new

students are assigned to the Academic Advisory Service. If they need any help, they make an appointment with their teachers and receive advice.

1. Find the following words in the passage and select the meaning you think is most likely to correspond among the choices given. **1x5=5**

   a. ***commencement***
      i) ending ii) beginning iii) establishing iv) demonstrating
   b. ***involved***
      i) removed ii) scared iii) concerned iv) stored
   c. ***exploration***
      i) discovery ii) greenery iii) transitory iv) beautifully
   d. ***numerous***
      i) few ii) tiny iii) limited iv) abundant
   e. ***clarify***
      i) elucidate ii) conceal iii) put out of sight iv) confuse

2. **Answer the questions below (any two):** **1x2=2**

   a. What is the purpose of the adventure club?
   b. What does the language club do?
   c. What is the function of the Careers Service?
   d. What is the purpose of the Student Advisory Service?

3. **Imagine that the advertisement has been published in 'The Daily Mail' on November 15, 2018 and you are an eligible candidate for this post:**

Vacancy Announcement

XYZ company, specialized in Public Sector large scale automation, is looking for Software Engineer for the Technology Team.

Job Responsibilities:

- Software Analysis & Design, Software Development and Software Implementation.
- Languages: JAVA (Full stack).
- Database Knowledge: PostgreSQL.
- Excellent capability of writing complex programming.
- Knowledge in Agile-SCRUM is necessary.

Qualifications and Competencies: Candidate must have a BSC or MSc in Computer Science from a reputed university. He/she should have 5 (five) years practical work experience. Candidates having experience in large-scale software development project will get additional point.

Interested Candidates are requested to apply on or before December 10, 2018 to **The Human Resource Officer**, XYZ Company, SK Tower, 52, Panthapath, Dhaka.

Now prepare your **Cover Letter** along with **C.V.** in response to the advertisement. **(5+8 = 13)**

University of Asia Pacific
Department of Computer Science & Engineering
Program: B.Sc in CSE
Mid-Term Examination, Semester: Fall 2018

Course Code: CSE 303 **Course Title: Data Communication** **Credit Hr: 03**
Time: 1 hours **Total Marks: ~~150~~ 60**

Instructions:

1. There are **Four (4)** Questions. Answer any **Three (3)**. All questions are of equal value. Part marks are shown in the margins.
2. Non-programmable calculators are allowed.

1. a) Explain the importance of layered study of communication network with definition to layer, service and protocols. 10

   b) A telephone line is known to have a loss of 30_{dB}.The input signal power is measured as 1.0 W, and the output noise level is measured as 4.5 mW. Using this information, calculate the output signal-to-noise ratio in dB. 5

   c) What are the functions of IP, ARP, RARP, ICMP, and IGMP Protocols at network layer? 5

2. a) What do you understand by Bandwidth, Data rate and Baud? 5

   b) Distinguish between Baseband transmission and Broadband transmission. 5

   c) Sketch the signal waveform when 00110101 is transmitted in the following signal codes. 5

   d) A voice grade channel of a telephone network has a bandwidth of 3.4 Khz.

      i) Calculate channel capacity for S/N= 30db.

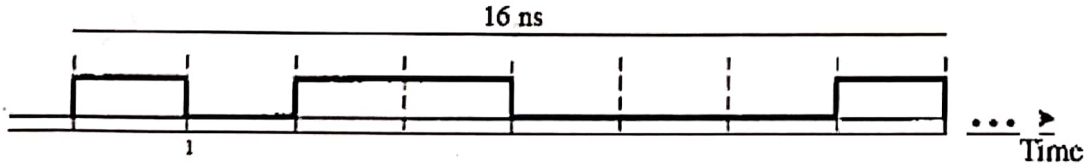
      ii) Calculate S/N required to support information transfer at 4800bps. 5

3. a) Distinguish between baseband transmission and broadband transmission with examples. 5

   b) What do you mean by transmission impairment? Explain the causes of transmission impairment? 10

   c) Consider an example that relates the Nyquist and Shannon formulations. Suppose that the spectrum of a channel is between 30 MHz and 40 MHz and $SNR_{dB} = 24$. Find the capacity of the channel using both Nyquist and Shannon formula. 5

4. a) What is the bit rate for the signal in the following figure: 5



   b) Define analog, digital, periodic and non-periodic signals and sketch these signals. 5

   c) Explain the various types of guided transmission media used in real-time applications. 10

Best of Luck

University of Asia Pacific

Department of Computer Science & Engineering

Mid-Semester Examination Fall -2018

Program: B. Sc. Engineering (3rd Year/ 1st Semester)

Course Title: System Analysis and Design Course No. CSE 305 (New) Credits: 3.00

Time: 1.00 Hours. Full Mark: 60

There are **Four** Questions. Answer any **Three**. Figures in the right margin indicate marks.

1. a) What is "Systems development life cycle (SDLC)"? Mention the fundamental phases of SDLC. 07

b) Who is the key person in the SDLC? Mention his roles. 06

c) Why do we need Feasibility Analysis?
Describe economic feasibility analysis briefly. 07

2. a) What is Joint Application Development (JAD)? Describe JAD facilitator's key functions. 07

b) What are the common qualities of Software requirement Specification (SRS)? 05

c) How many types of questions may be asked in interview? Sample interview questions are given below:

i) How do customers place orders?
ii) What are some of the problems you face on a daily basis?
iii) Can you give me an example?
iv) How many orders are received per day?

Mention appropriate question type for the questions given above. 08

3. a) Describe CASE tools. 05

b) What are the important factors that need to be considered in selecting appropriate system development methodology? 06

c) Compare waterfall, agile and RAD system development methodology for the below systems 09

i) System that is complex
ii) System which needs to be delivered in a short time
ii) System which has unclear user requirements

Department of Computer Science & Engineering
University of Asia Pacific(UAP)

Mid Term Examination | **Fall 2018** | **3rd Year 1st Semester**
Course Code: CSE 307 | **Course Title: Theory of Computing** | **Credits: 3.00**
Full Marks: 60 | | **Duration: 1 hours**

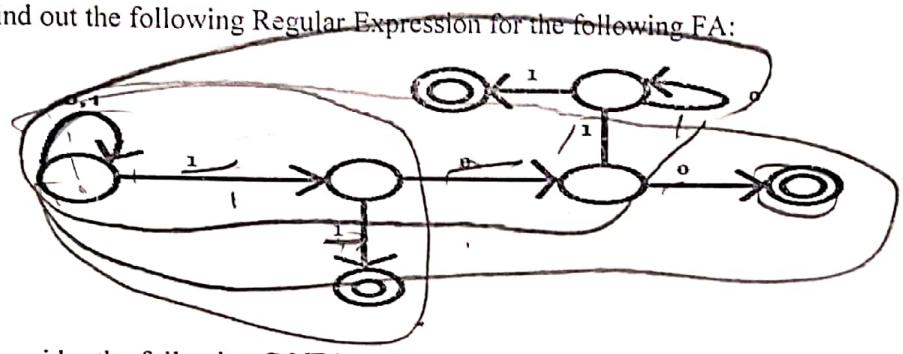
Instructions:

1. There are **Four (4)** Questions. Answer any **Three (3)**. All questions are of equal value. Part marks are shown in the margins.
2. Non-programmable calculators are allowed.

1. a) What are the applications of Automata? 5

b) Construct a Regular Expression of a grammar that starts with 2 zeroes (0), then consists a substring of zeroes (0) and ones (1) starting and ending with one (1) and then again 2 zeroes (0). 10

c) Find out the following Regular Expression for the following FA: 5



2. a) Consider the following Є-NFA: 20

i) Find out the Є-closure for each state
ii) Convert it into DFA
iii) Construct the Transaction Table for the converted DFA(Here, ϕ = empty set)

	Є	x	y	z
→ a	{b,c}	ϕ	{b}	{c}
b	ϕ	{a}	{b}	{a,b}
*c	ϕ	ϕ	ϕ	ϕ

3. a) What are the difference between DFA and NFA? 5

b) Convert the Following Regular Expression into FA: 15

((A+B)CD) + (EF)* + (G+H+JK)

4. a) Construct a DFA that starts with 1 and has 011 as a substring. 10

b) Convert the following NFA into DFA and also draw the diagram of the NFA. 10
(Here, ϕ = empty set)

	A	B
→w	{x,z}	{x}
*x	{y}	{x,y}
y	{z}	{w}
*z	ϕ	{w}

Department of Computer Science & Engineering
University of Asia Pacific (UAP)

Mid Examination **Fall 2018** **3rd Year 1st Semester**

Course Code: CSE 309 **Course Title: Object Oriented Programming II** **Credits: 3**

Full Marks: 60 **Duration: 1 Hour**

Instructions:

1. There are **Four (4)** Questions. Answer any **Three (3)**. All questions are of equal value. Part marks are shown in the margins.
2. Non-programmable calculators are allowed.

1 a) Write down the algorithm to find out both of the prime, & perfect number from a set of arbitrary numbers. 10

b) Design a system to find out both of the ${}^{n}P_{r}$ and ${}^{n}C_{r}$ from a set of arbitrary numbers. Draw the necessary flow chart. 10

2 Design a set of user interface for a social network to perform the following form operations with necessary HTML, CSS, JS & PHP scripts: 20

I. Registration
II. Log-in

3 eBay Inc is an American multinational corporation and e-commerce company, providing consumer-to-consumer and business-to-consumer sales services via the Internet. It is headquartered in San Jose, California from where they are operating their business around the world. Now imagine that you have asked to write a report on them. So draw the DFD up to level-1 with necessary description and directions. 20

4 Apollo Hospitals is an Indian hospital chain based in Chennai, India. It was founded by Dr Prathap C Reddy in 1983 and has hospitals in India, Bangladesh, Kuwait and Qatar. Several of the group's hospitals have been among the first in India to receive international healthcare accreditation by America-based Joint Commission International (JCI). Now imagine that you have asked to design a management system for them. Now draw the DFD up to level-1 with necessary description and guidelines. 20

University of Asia Pacific

Department of Computer Science and Engineering

Mid-Semester Examination Fall - 2018

Program: B.Sc Engineering (Year: 3rd Year 1st Semester)

Course Title: Microprocessor | Course no. CSE 311 | Credit: 3.00

Time: 1:00 Hour | Full Mark: 60

ANSWER ANY 3 QUESTIONS

Special Directions:

1. Clear figures and illustrations are appreciated where applicable.
2. Answers should not be fragmented and be written sequentially as possible.

1. (a) Draw a block diagram of an INTEL 8085 microprocessor architecture. Show the names of the sub-blocks. Write a short introduction about the processor. 20
(b) How many registers are there in an INTEL 8085 microprocessor? What are the names of those registers?
(c) Draw a block diagram showing how an 8-bit microprocessor is interfaced with decoder and memory unit.
(d) Write 5 basic types instructions of a microprocessor.

2. (a) Draw a typical computer hardware organization showing internal and external components of the CPU and relevant bus connections. 20
(b) What is a computer program? What is high-level and low-level programming languages?
(c) What is a compiler, an interpreter and an assembler?
(d) What is RAM and ROM? Which type of RAM requires memory refreshing?

3. (a) How the main memory system is used? 20
(b) What is the Program Counter? Draw a figure showing how the program counter works.
(c) What is computer instruction? Write a simple instruction and introduce its components.
(d) Write the advantages and disadvantages of Assembly language programing.

4 (a) Show a 2-Byte structure of an instruction. Give short introduction of Byte-1 and Byte-2 fields. 20
(b) Given an Instruction MOV BL,AL. Now convert this assembly language instruction in to the machine code step by step.
(c) Given the instruction MOV BX, CX is applied to 32-bit register operations. Now draw 2 figures showing before and after the MOV instruction execution.
(d) Write 3 example instructions showing Immediate, Direct and Register indirect addressing operations. How effective/offset address is determined?

A.H.M. Asadul Huq, Ph.D.
Professor.
19-11-2018