

**University of Asia Pacific**  
**Department of Computer Science and Engineering**  
**Mid semester Examination, Spring-2016**  
**Program: B. Sc. Engineering (3<sup>rd</sup> Year / 1<sup>st</sup> Semester)**

Course Title: Digital Electronics and Pulse Technique      Course No: ECE 303      Credits: 3.00  
 Time: 1.00 Hour.      Full Marks: 60

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

1. (a) Implement the following logic functions using CMOS logic [5+5]

$$y1 = m(\bar{n} + \bar{o})p + q$$

$$y2 = (\bar{m}n + o)p\bar{q}$$

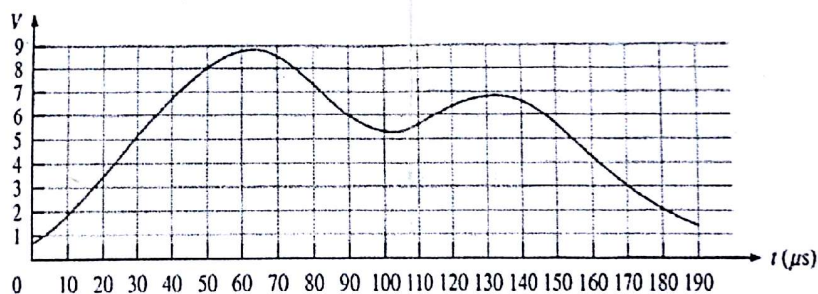
$\pi$

- (b) Draw the TTL and DTL circuit diagram of  $F = (\bar{A} + B\bar{C}) + D$  [5+5]

2. (a) Draw the Pseudo Static Ram cell and explain its operations. [10]

- (b) Draw the block diagram of Digital signal processing system. [10]  
 Briefly explain the sample and holding block.

3. (a) What is quantization? Reconstruct the following analog signal from 4 bit quantization taking 10 samples. What is the resulting sequence of binary codes? [15]



- (b) "In order to reconstruct a signal sampling time and quantization bits have to be increased." Briefly explain. [5]

4. (a) Draw and explain how 3 bit flash ADC works. [8]

- (b) Explain how 555 monostable circuit works. What will be the output width of the 555 timer when  $R = 10 \text{ k}\Omega$  and  $C = 0.002 \mu\text{F}$  [12]

$$2.22 \times 10^{-5}$$

$$T = 1.1RC$$

**University of Asia Pacific**  
**Department of Basic Sciences & Humanities**  
**Mid-term Examination, Spring 2016**  
**Program : B. Sc Engineering (Computer Science)**  
**3<sup>rd</sup> Year/ 1<sup>st</sup> Semester**

Course Title: Statistics and Probability    Course Code: MTH 301  
 Time: 1.00 hr

Marks : 40  
 Credits : 2.00

Answer any **TWO** of the following questions.

1. A medical research team studied the ages of patients who had strokes caused by stress. The ages of 34 patients who suffered stress strokes were as follows.  
 29 30 36 41 45 50 57 61 28 50 36 58 60 38 36 47 40 32 58 46 61 40 55 32 61 56 45  
 46 62 36 38 40 50 27  
 (a) Construct a frequency distribution for these ages. Use 8 classes beginning with a lower class limit of 25. 20  
 (b) Convert the distribution of part (a) into a relative and percentage frequency distribution.  
 (c) Construct a histogram and Pie diagram of the above frequency distribution.

2. The weekly wage of the employees at a company are given by the following frequency distribution. Find the mean, median and mode of the following frequency distribution.

Wages (\$)	Number of employees	
250.00-260.00	8	20
260.00-270.00	10	
270.00-280.00	16	
280.00-290.00	14	
290.00-300.00	10	
300.00-310.00	5	
310.00-320.00	2	

3. The minimum temperatures of 10 weather stations in Britain on a winters day are 5, 9, 3, 2, 7, 9, 8, 2, 2, 3 (°Centigrade).  
 Find the range, quartile deviation, mean deviation and standard deviation of the above temperatures. 20

$$\begin{array}{ccccccc}
 x & \bar{x} & f & |x - \bar{x}| & f|x - \bar{x}| \\
 x & \bar{x} & x - \bar{x} & (x - \bar{x})^2
 \end{array}$$

# University of Asia Pacific (UAP)

## Department of Computer Science & Engineering

Mid Term Examination. Year: 3<sup>rd</sup> year 1<sup>st</sup> semester  
Course no. CSE 321 Course title: Database Systems  
Full Marks: 60

Semester: Spring, 2016

Credit: 3.0

Time: 1 hr

Answer any three questions

1. 

a. What are the drawbacks of using file systems to store data?	5
b. What are the advantages of using Database?	5
c. What is DBMS, RDBMS? Give some example of Database applications.	5
d. What are the functionalities of a DBMS?	5
2. 

a. Give an Overview of Database Design.	5
b. What is primary key and foreign key? Why we use it? Explain using example.	5
c. What is ISA ('is a') Hierarchy? Give examples.	5
d. What is data redundancy? Explain with examples	5
3. Draw a detailed ER diagram for University Management System. 20
4. Database Table:  
Students(StudentID, Name, ClassYear, City, State, Zip, BirthDate, AdvisorID, Term)  
Faculty(FacultyID, FirstName, LastName, Phone, EMail)  
Majors(MajorID, MajorName, Department, ChairID)  
StudentInterest(StudentID, InterestID)  
Interests(InterestID, InterestName, Category, URL)
5. Write the SQL query for following queries : 4
  - a) Find all students name from Dhaka city. 4
  - b) Find Student name and advisor last name. 4
  - c) Find Student name, name of football team student is interested in. 4
  - d) Find Student name whose advisor name is "Khan Md. Anwarus Salam". 4
  - e) Find all Student information who have "Marketing" Major. 4



# University of Asia Pacific

## Department of Computer Science & Engineering

### Mid-Semester Examination Fall-2015

#### Program: B. Sc Engineering (3<sup>rd</sup> Year/ 1<sup>st</sup> Semester)

Course Title: Computer Architecture Course No. CSE 331

Credit: 3.00

Time: 1.00 Hours.

Full Mark: 60 (Font 12)

There are **Four** Questions. Answer any **Two** questions from **One to Three**. **Question 4 is mandatory to answer**. Figures in the right margin indicate marks.

- 1 a. What is clock speed of CPU? What does it mean if a processor speed is 3 GHz. 5
- b. Write down the function of Control Unit and Arithmetic Logic Unit in CPU. 5

2. Suppose a program runs in 6 seconds on computer A, which has a 3.2 GHz clock. We are trying to help a computer designer build a computer, B, which will run this program in 5 seconds. The designer has determined that a substantial increase in clock rate is possible, but this increase will affect the rest of the CPU design, causing computer B to require 1.5 times as many clock cycles as computer A for this program. What clock rate should we tell the designer to target? 10

3. Given a Conditional statement in C Programming Language. Translate it to MIPS code. Hints: the given decimal are in floating point. 10

```
if (i == j)
    f = (g + h)*2.5;
else
    f = (g - h)*0.5;
```

4. Given an equation to calculate the value of X. The equation contains three floating point numbers in decimal as followed:  $X = 1.225 + .375 - 0.7$ 
  - a. Convert the given three floating points to binary. 10
  - b. Represent three converted binary values to IEEE 754 format. (Single Precision 32 bit) 10
  - c. Complete the hardware diagram for the floating point addition to calculate the value of X. The incomplete diagram is given at Appendix 01 for your reference. Two copies of Appendix 01. 20