Ministry of Higher Education
& Scientific Research
Al-Muthanna University
College of Science
Department of mathematics
and computer application

Subject:Logic Design
Stage:first
Date: / /2018
Time :three hour

04. 06. 2018

((Assessment of the final exam for the second semester))

45

Academic year 2017 -2018

Q1/ a-Convert the following: (5marks)

1- $(1001011)_2 \longrightarrow (\quad)_{10}$
2- $(3428)_{10} \longrightarrow (\quad)_8$
3- $(BCDE.1)_{16} \longrightarrow (\quad)_2$
4- $(98214)_{10} \longrightarrow (\quad)_{16}$
5- $(3726)_8 \longrightarrow (\quad)_{16}$

b- Explain memory capacity. (3marks)

Q2\ a- Express the following As SOP and POS : (3marks)

1- $AB + BC + AC$
2- $A + \bar{B}C$

b- what are the steps of K-map ,apply it on the following: (5marks)

1- $F(x, y, z) = \sum(m0, m3, m5, m6, m7)$
2- $F(a, b, c, d) = \sum(m1, m5, m7, m8, m10, m12, m13)$

Q3\ a- There are two method to find 2's complement ,explain with example . (3marks)

b- By using Boolean rules to simplify the following:- (2marks)

1- $(a + b + \bar{c})(\bar{a}\bar{b} + c)$
2- $\overline{(a\bar{b} + \bar{a}b)}(a + b)$

c- Explain universal logic gates . (3marks)

Q4\ a- Implement binary subtractor circuit, the perform subtraction on (10110),(000101). (3marks)

b-define encoder ,design 4*2 encoder. (2marks)

c-drawing the following circuits:- (3marks)

1- $\overline{AB + (\bar{A}BC \oplus AB)}$
2- $(X + \bar{Y}Z \odot XYZ)\bar{X}$
3- $(A + \bar{B} + C)(AB + \bar{C} + \bar{B})$

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follow

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Q5\ a- explain the following: (4marks)
1- T F.F
2- Delay flip flops.
b- state the theorems for Demorgan's and negations. (2marks)
c- what are the different between Full and Half adder . (2marks)

Best of Luck

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2018-6-13

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Subject :programming fundamental with pa
Stage: first class
Date: / /2018
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Q1// A) Explain the different between each of the following Statements. (4 Marks)

1-procedure & function 2- write & writeln
3- read & readln 4-sub program &main program variables

B) give the syntax of the following statements with example. (4 Marks)

1-record 2- repeat-until 3- for-do 4- 2D-array .

Q2// A) Rewrite the following (case) statements as a(if) statement. (4 Marks)

```
Case((color)of
    'Red':writeln('stop');
      'yellow':writeln('wait');
        'green':writeln('pass');
End;
```

B) write the following statements in a correct Pascal . (4 Marks)

1- to display the character which follows 'w'.

2- to display the ASCII value of the letter 'm' .

3- to find the summation of the main diagonal elements in an integer 2D array sized 4*4.

4- to compare the character variable' front' to the character constant 'A', and if less, prints the text string "accept", otherwise print the text string "excellent"

Q3// A) Fill the following blanks: (4 Marks)

1- The condition to satisfy the elements of the lower triangle of the secondary diagonal is …… .

2- to obtain a group of results of the program we use the …… .

3- When printing text using write or writeln, the text is enclosed by ……

4- the condition to print the elements of the third column in 2D array 3*3 is …… .

B) : Classify each of the following according to the four basic data types. (4 Marks)

34.276 _____ <> _____ .
Z _____ < _____ .
dd _____ 5.09E+27 _____ .
0 _____ 0.0 _____ .

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Q4// A) Choose the correct answer. (4 Marks)

1-one of the following is Repeats a statement or group of statements until a given condition is true. It tests the condition before executing the loop body.
(for-do loop) (while-do loop) (repeat – until loop).

follows

2- to overcome the problem existed in arrays which accepting same data type we use. (procedure),(record), (function),(none of them).

3- any pascal program terminated with (.) ,( ) ,( ) ,(;),(none of them).

4- one of the following statements executed when the Boolean expression is false . (if- statement) ,(else – statement),(both of them),(none of them).

B -What does the following program display on the screen. (4 Marks)

```
Program print;
Var
   A: array [1..4, 1..4] of integer;
   I, J, S: integer;
Begin
   Writeln (' enter the values of array: ');
      For I: = 1 to 4 do
      For j: =1 to 4 do
   Readln (A [I, J]);
      S: =0;
      For I: = 1 to 4 do
      For J: = 1 to 4 do
If (I < J) then
   S: = S + A [I, J];
Writeln (' the sum: = ', S);
End.
```

06.06.2018

Q5//A) i:write a pascal function to returning the max value between 2 values . (4 Marks)

Ii: what do you means by returning value by using functions?give example.

B) i- Write a Pascal program to print out the series below. (4 Marks)

A123 B123 C123

ii-define the following functions which identified in a pascal .with examples.

1-Succ 2- Pred 3- Exp 4-Trunc .

Best of luck

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2018. 6. 13

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Ministry of Higher Education
& Scientific Research
Al-Muthanna University
College of Science
Department of mathematics
and computer application

Subject :calculus II
Stage :first
Date: / /2018
Time :three hours

23. 05. 2018

((Assessment of the final exam for the second semester))
Academic year 2017 -2018

45

Q1\\Calculate each of the following integrals (chose 5 only)

1- $\int \frac{\tan x}{\sec x+\tan x}\,dx$ 2- $\int \frac{e^{2x}-1}{e^{2x}+1}\,dx$ 3- $\int \frac{dx}{x\sin^2(\ln x)}$

4- $\int \frac{\sin 2x}{3\sin^2 x+5\cos^2 x}\,dx$ 5- $\int \frac{2xe^{\tan^{-1}x^2}}{1+x^4}\,dx$ 6- $\int_{-\infty}^{0} \frac{dx}{(x-1)^2}$

(15marks)

Q2\\ Find the area bounded by the curves $2(y-1)^2 = x$ and $(y-1)^2 = x-1$ (With graph)

(8marks)

Q3\\ Find the length of the arc of parabola $x^2 = 4y$ from vertex to point where x=2 .

(7marks)

Q4\\ Let R be the region bounded by the graphs of $y = x^2$, x=0 and y=1 , compute the volume of the solid formed by revolving R about :-

i-y-axis ii- x-axis iii- the line y=2

(8marks)

Q5\\ What is the area of the region that lies inside the cardioid r=1+sinθ and outside of the circle r=1?

(7marks)

Q6\\ By techniques of integration, Calculate the given integral :

1- $\int x^2 a^x\,dx$ 2- $\int \tan^3 x\,\sec^3 x\,dx$ 3- $\int \frac{x^2+2x+3}{(x-2)(x^2+2x+2)}\,dx$

4- $\int_0^1 \frac{x^3\,dx}{\sqrt{1+x^4}}$ 5- $\int \frac{x^3+3x^2+1}{(x^2+1)^2}\,dx$

(15marks)

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2018-6-13

Ministry of Higher Education
& Scientific Research
Al-Muthanna University
College of Science
Chemistry and Mathematics &
Computer Applications Departments

Subject: English Languag
Stage: First
Date: / /2018
Time : 3 Hours

((Assessment of the final exam for the second semester))
Academic year 2017 -2018

45

Note: Answer all the questions.

Q1//Read the paragraph carefully.

Mrs Jones did not have a husband, but she had two sons. They were big, strong boys, but they were lazy. On Saturdays they did not go to school, and then their mother always said,(Please cut the grass in the garden this afternoon, boys).The boys did not like it, but they always did it. Then somebody gave one of the boys a magazine, and he saw a picture of a beautiful lawn-mower in it. There was a seat on it, and there was a woman on the seat. The boy took the picture to his mother and brother and said to them,(Look, that woman s sitting on the lawn-mower and driving it and cutting the grass. We want one of those).One of those lawn-mowrs? his mother asked.(No the boy said. We want one of those woman. Then she can cut the grass every week.

Answer these questions.(five only)(15m)

1-What did Mrs Jones say to her sons on Saturdays? 2-Why did they not like that work? 3-What did one of the boys see in a magazine? 4-What did the boy say to his mother and brother? 5-What did his mother say? 6-And what did the boy answer?

Q2//Make a sentences using the expressions listed below.(five only)(15m)

1-Any+ noncount noun. Question. 2-Some+ plural count noun. Affirmative.
3-There+ be+ subject+ place. Negative. 4-Present Simple .Question.
5-Subject+ can+ infinitive. 6-Present Simple. Negative

Q3//Complete the sentences. Use (has, or, have).(five only)(15m)

1-I-----two brothers and a sister. 2-My parents------a house in the county.
3-My wife------a Japanese car. 4-My sister and I-------a dog.
5-You-----a very nice family. 6-Our school-------fifteen classrooms.

Q4//Change the sentences to the Past Simple.(five only)(15m)

1-Bob is in class today. 2-Layla is at the library today. 3-I am happy this night.
4-Ann is in her office today 5-Ali and layla are in their offices this evening.
6- I walk to university every day.

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Ministry of Higher Education
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Al-Muthanna University
College of Science
Chemistry and Mathematics &
Computer Applications Departments

Subject: English Language
Stage: First

Date: / /2018
Time : 3 Hours

45

((Assessment of the final exam for the second semester))
Academic year 2017 -2018

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