Benha University
Faculty of Engineering at Shoubra
Civil Engineering Department
First Year Civil Engineering

First Term Exam 2016/2017
Date: Wednesday 18/1/2017
Subject: Computer Applications
Code: **CVE 113**
Duration: 2 hours

- Answer all the following questions
- Illustrate your answers with sketches when necessary

- No. of questions : 6
- Total Marks: 75 Marks

Part (A)

Question (1) *(15 Marks)*

1- A _____ is a grid with labelled columns and rows.
a. Dialog box **b. Worksheet** **c.** Clipboard **d.** Toolbar

2- When a formatted number does not fit within a cell, it displays
a. #### **b.** #DIV/0 **c.** #DIV@ **d.** None of these

3- Red triangle at the top right corner of a cell indicates
a. There is an error in the cell **b. There is a comment associated with the cell**
c. The font color of the text in cell is red **d.** The cell can't accept formula

4- In Excel, which term refers to a chart created on the same worksheet as the data?
a. In-place chart **b. Embedded chart** **c.** Inside chart **d.** Linked chart

5- Which is an example of a formula?
a. =A1+A2 **b.** =add(A1:A2) **c.** A1+A2 **d.** SUM(A1:A2)

6- B7:B9 indicates:
a. Cells B7 and B9 only. **b. Cells B7 through B9** **c.** Cell B8 only. **d.** None of these

7- In EXCEL, you can sum a large range of data by simply selecting a tool button called …..?
a. AutoFill **b.** Auto correct **c. Auto sum** **d.** Auto format

8- Which of the following operator used to combine 2 texts in a formula?
a. Apostrophe (') **b.** Exclamation (!) **c. Ampersand (&)** **d.** Hash (#)

9- NOT, AND, and OR are:
a. Logical Operators **b.** Arithmetic operators
c. Relational operators **d.** None of the above

10- Which function will you use to enter current day in a woksheet cell:
a. = today() **b.**= now() **c.**time() **d.**All of them

11- Which function in Excel checks whether a condition is true or not?
a. = Sum() **b.**= Count() **c.= If()** **d.**= Average()

12- What is the correct way to refer the cell A10 that exists in sheet3 from sheet1?
a. sheet3!A10 **b.** sheet1!A10 **c.** Sheet3.A10 **d.** A10

13- A function inside another function is called:
a. Round function **b.**Sum function **c.**Text Function **d.Nested function**

14- A numeric value can be treated as label value if it preceded by:
a. Apostrophe (') **b.**Exclamation (!) **c.**Hash (#) **d.**Ampersand (&)

15- The following function formula: =sum(if(A1<12,12,if(A1>50,50,18)),15) is named as:
a. Simple function **b.**Compound function **c.Complex function** **d.**None of these

Question 2: (20 Marks)

a. If range (A1:E1) contains the values (12,3,15,9,27), find the result for the following excel formulae
= A$1*$B1+C1/(E1+D1)*(E1-D1).
Answer: **43.5**

b. For the below spread-sheet, if we copy C10 to D10. Find the value of D10

	A	B	C	D	E
1	Column ID		Col. 1	Col. 2	
2		Column Width	50	15	cm
3		Column Depth	25	15	cm
4		Column Height	300	250	
5		E	221350	2000000	kg/cm^2
6					
7	Ultimate Load (Pu)		200		tons
8					
9	Deflection Claculations				
10		δ	=$C7*1000*C4/(C5*C3*C2)		cm

Answer: **0.1111**

c. For the following beam, write Excel Spread sheet to calculate: Max. Slope (θ_{max}), and Max. Deflection (v_{max})

Beam	Slope	Deflection
	$\theta_{max} = -\dfrac{PL^2}{2EI}$	$v_{max} = -\dfrac{PL^3}{3EI}$
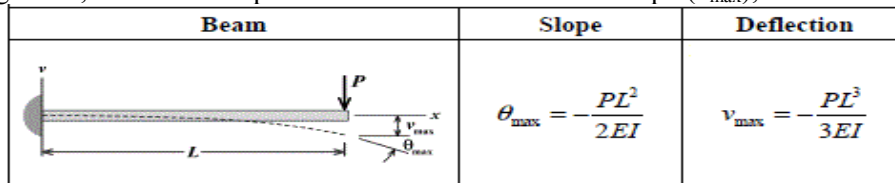
Answer:

	A	B	C	D
1	**Input**			
2		Load (P)	18	ton
3		Span (L)	2.5	m
4		Young's modulus (E)	2213600	t/m^2
5		Moment of Inertia (I)	0.0004	m^4
6	**Output**			
7		Slope (θmax)	=-1*C2*C3^2/(2*C4*C5)	Rad
8		Deflection (Vmax)	=-1*C2*C3^3/(3*C4*C5)	m
9				

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Answer of Part (B)

Question (3) **ILO's: a3, a4, a6, b2)**   *(10 Marks)*

Use the forward interpolation Equation to interpolate **the value** of **y** corresponding to **x = 1.6** for the given set of data and then write down **Excel formula of "y"**

X	1	2	3	4	5	6
Y	1	5	13	44	136	300

	A	B	C	D	E	F	G	H	I	J
1	xi	yi	Δyi	Δ²yi	Δ³yi	Δ⁴yi	Δ⁵yi			
2	1	1	4	4	19	19	-46		u=	0.6
3	2	5	8	23	38	-27			h=	1
4	3	13	31	61	11					
5	4	44	92	72						
6	5	136	164							
7	6	300								
8										
9	x=	1.6	y=	2.294592						
10										
11	y "Formula"=	=B2+J2*C2/J3+J2*(J2-J3)*D2/(2*J3^2)+J2*(J2-J3)*(J2-2*J3)*E2/(6*J3^3)+J2*(J2-J3)*(								
12		J2-2*J3)*(J2-3*J3)*F2/(24*J3^4)+J2*(J2-J3)*(J2-2*J3)*(J2-3*J3)*(J2-4*J3)*G2/(120*J3^								
13		5)								

Question (4) **ILO's: a3, a4, a6, b2)**   *(10 Marks)*

Using Newton – Raphson method, construct Excel worksheet and write **Excel formulas for two iteration lines only** to estimate the root of the equation $X^2 - X - 6 = 0$, using initial guess of $X_0 = 10$

	A	B	C	D	E
1	Iter. No.	X1	F(X)	F'(X)	$F(X_n)-F(X_{n-1})$
2	1	10	B2^2-B2-6	2*B2-1	
3	2	B2-C2/D2	B3^2-B3-6	2*B3-1	C3-C2

Question (5) **ILO's: a3, a4, a6, b2)** *(10 Marks)*

Construct Excel work and **write down only Excel formulas** to solve the two following equations;

	A	B	C	D	E	F	G	H
1	$2x + y = -1$							
2								
3	$4x + 5y = 2$		M=	2	1		R=	-1
4				4	5			2
5								
6			$M^{-1}=$	0.833333333	-0.166666667		X=	**-1.166666667**
7				-0.666666667	0.333333333		Y=	**1.333333333**
8								
9			$M^{-1}=$	MINVERSE(D3:E4)	MINVERSE(D3:E4)		X=	MMULT(D6:E7,H3:H4)
10				MINVERSE(D3:E4)	MINVERSE(D3:E4)		Y=	MMULT(D6:E7,H3:H4)
11								

Question (6) **ILO's: a3, a4, a6, b2)** *(10 Marks)*

Write a VBA program to calculate the area and volume of sphere, knowing its radius;

$$A = \pi r^2 \text{ and } V = 4/3\, \pi r^3$$

```
(General)

Sub area()
Dim r, area, volume As Single
r = InputBox("the circle radius =")
area = 22 / 7 * r * r
volume = 88 / 21 * r ^ 3
MsgBox ("the shpere area   = " & area)
MsgBox ("the shpere volume = " & volume)
End Sub
```

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