NOTRE DAME UNIVERSITY

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Faculty of engineering ECCE Department

Exam 2 ENG 202 – Computers and engineering

Date: 19/05/2010 Duration: 50min

Name:

ID No.:

Grade	P 1-1	P1-2	P1-3	P2-1	P2-2	P2-3	P2-4
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Answer all questions on question sheet. Use back of paper when necessary

Note: this exam contains 9 pages including this

Solution: $\chi = L0:0.1:10J$ $y_1 = 5.52.23+3$ $y_2 = -7.$

PART ONE: MATLAB

Problem #1-1: (20 pts)

Let x be a vector of values : $0 \le x \le 1$ with a step of 0.1

Let $y1=5x^2+2$ for every value of x and y2=20x-5 for every value of x

create a matlab program that:

- 1. defines x, y1, y2
- 2. plots the two functions
- 3. displays for how many values of x is y1>y2 and for how many values of x is y2>y1
- 4. then gives the interval of x where the two curves intersect.

Should put a Got	-11
1. $x = [0:0:1:1]^2$	
$\frac{1}{2} = 5 \times 12 + 2 \times 1$	
$v_2 - 20*v_5 2$	
2. plot(x, yi) plot (x, y) 1	
3. How many = X(Y, >42)	
How-many = x(x, y) 3	
$-10\omega - many - x(yz)y,$	
4.	

Solution: $X = input (input a value for x : X = i)$
STAR-X
while STAR <= 10000
Dual land #1 2. (20 m/s)
create a matlab program that:
Cole (V)
 asks you to enter a value, X then asks you to enter a second value, Y multiplies X*Y, puts the result in a variable, STAR
4. then asks you to enter Y again,
5. then multiplies STAR *Y6. the program repeats steps 4 and 5 until the resulting product exceeds 10000
7. at the end, displays the statement: "the values of X, Y and STAR are: " then
displays the value of X, all the values of Y, and the value of STAR.
1 X input please give me the value of XI).
Az input plante give me the value of y 2
2/ Name - STARES
STAD BUXXI
JAMES CRIS
Jo Cation >
They also of xy and Star are!")
1 0 0 0 0 0

Solution: Function (L, I, F, E) = Life (H, E, A, R, T)

L = T + 2*E + A. 3;

T = E.*A.*T;

F = A + R + T;

E = H * / E.* A. / T;

Problem #1-3: (10 pts)

Write a Matlab function, call it Life. The function calculates the following

L=T+2*E+A^3

I=E*A*T

F=A+R+T

E=H/E*A/T

The function has all variables to the left as outputs and all variables to the right as inputs. Explain what happens to the variable E in this case.

function (L, I, F, E) = J. fe (H, E, A, R, T)

L-T+2*E+A*T;
F-A+K+T;
E=He/E-*A-/T;

PART TWO: EXCEL

Problem #2-1: (12 pt)

Consider the following excel sheet:

1. the numeric result in the cell B15 is:

2. the numeric result if the function in B15 is copied to

		\$H\$10		
	Α	land, a Barrer	C.	J. D
1				
2			di :	
3	2	7	5	and the state of t
4	4	14/	5	
5	3 .	8	5	
#5	5	16	5	
1 7	4	9	5	
8	6	18	5	
9	5 .	10	5	The state of the s
10	7	20	5	
1 11	6	11	5	
12	8	22	5	
13				
14				
15	2	=(A5+B5)/\$A\$15		
16		A6+B6/SA915		
17				

Problem #2-2: (20 pt)

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Sample	Diameter (in)		†	1	1						1
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3	3.495										<u> </u>
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6	3,504					-	-			<u> </u>	<u> </u>
7	3.509					ļ	ļ		<u> </u>	ļ	<u> </u>
8	3,497		ļ	1	ļ		ļ	<u>}</u>	ļ		
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19 20	3,508						·}	<u></u>	÷	1	-3
20					-			÷			

1. Write excel functions that would give the range (interval of values), the mean and the standard deviation of the data above. Use as many cells as you find necessary.

C1=_	4	range	B5: B21	1) ×	
		mean			
C3=	-	Stdde	V) "	4

2. Fill in necessary cells needed in order to draw the histogram of the data. A histogram is required with 5 intervals of equal width starting from minimum to maximum values.

We Fill in Cells A5 to A24 and cells B5 -> B24.

Then Click on insert -> histogram

<u>Problem #2-3:</u> (10 pt)

	A in the				E E
1		Initial Drop	Temperature	Yaporization	
2 (Fluid	Size (ml)	Difference (°C)	Time (secs)	E STEELSTEELSE STREET
3	Water	0.0335	200		\$ ALLENSAN A
4	Water	0.0335	250	81	Garaga annamana ana
5	Water	0.0335	300	74	Opensylvania and an arrangement of the
6	Water	0,0335	350	67	HYDERNER HER HER OFFICE HAS
7	Vater	0.0335	400	61	A CONTRACTOR OF THE STATE OF TH
8	Water	0.0335	450	56	
91	Water	0.0335	500	50	AND HAME THE RESTRICTION AND
101	Water	0.0335	550	45	A TOTAL OF STREET
111	Vater	0.0265	200	80	
12	Water	0.0265	250	72	
13	Water	0.0265	300	-66	i de la companya de l
14	Water	0.0265	350	59) And and and and and and and and and and a
15	Water	0.0265	400	54	The state of the s
16	Valer	0.0265	450	49	1
17	Water	0.0265	500	46	
181	Water	0.0265	550	45	
19	Ethyl Alcohol	0.0158	200	25	The state of the s
201	Ethyl Alcohol	0.0156	250	22	
21	Ethyl Alcohol	0.0156	300	20	I
22	Ethyl Alcohol	0.0156	350	18	The state of the s
23	Ethyl Alcohol	0.0158	400	17	F §
24	Ethyl Alcohol	0.0156	450	The second secon	P. S. C.
2 5	Ethyl Alcohol	0.0156	500	A MARIANTA M	THE REAL PROPERTY.
26 T	Ethyl Alcohol	0.0156	550	14	
27	Ethyl Alcohol	0.0121	200	22	E SACRETON CONTRACTOR
28	Ethyl Alcohol	0.0121	250	15	I g
29	Ethyl Alcohol	0.0121	SOUTH	1	WALKER BURGERIEF
30	Ethyl Alcohol	0.0121	NORMONINA ESTANDOS A CADAS CARROCAS PARA CADA PARA CADA PARA PARA PARA PARA PARA PARA PARA P	16	Manufactures and the control of the
311	Ethyl Alcohol	0.0121	ACO	1	recommendation of the second
32	Ethyl Alcohol	0.0121	450	- H	**
331	Ethyl Alcohol	0.0121	500	DESPRESENTATION OF A THE WAY NO A CONTRACT THE REST OF THE STATE OF	A CONTRACTOR OF THE PARTY OF TH
34 1	Ethyl Alcohol	0.0121	550	12	k i
35	Benzene	0.0177	200	17	THE RESIDENCE AND A SECOND
36	Benzene	0.0177	250		
37	Benzene	0.0177	300	HATELONG PHYTHERED CHOCKERS PROPERTY OF THE TOTAL SACRET COMMISSED AND AND AND AND AND AND AND AND AND AN	MARKET MARKETON WINES
38	Benzene	COLLA	350	NAMES OF THE PROPERTY OF THE P	
39 T	Benzene	0.0177	400	an anna anna anna anna anna anna anna	had here a solven and a had
40 T	Benzene	0.0177	450	property and construction of the control of the con	are digar black out the beautiful in the re-
41	Benzene	0.0177	AND THE PROPERTY OF THE PROPER	PRINCE THE PROPERTY OF THE PRO	NAMES OF THE OWNERS OF THE OWNER, WHEN
42	Benzene	0.0177	550	· teaspeace assister, e.e. winings amount of the teaspeace and the contract of)
431	Benzene	0.0141	200	1	and our navement of the
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46	Benzene Benzene	0.0141	350	and the state of t	1
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48	Benzene	0.0141	- 450	The second secon	3
49	Benzene	0.0141	500		9
50	Benzene	0.0141	Company of the Compan	THE ADDRESS AND ADDRESS OF THE PROPERTY OF THE PROPERTY OF THE PARTY O	3

1. How was this information sorted?

This information was sorted from in Order,
from the highest to the Cowest values.
By Column A was sorted by names, and then By was sorted by value (lowest to the highest)
2 TVI at any long to the shows data so that it annears as follows?

2. What was done to the above data so that it appears as follows?

	A	B	Angli C	$\mathbf{p} = \mathbf{p}$	
i		Initial Dro	Temperature 3	Vaporizatio *	-
3	Water	0.0335	200	90	*********
4	Water	0.0335	250	81	egupummanan derme 2 no 2 n
5	Water	0.0335	300	74	
11	Water	0.0265	200	80	
12	Water	0.0265	250	72	
13	Water	0.0265	300	66	A
19	Ethyl Alcohol	0.0158	200	25	
20	Ethyl Alcohol	0.0156	250	. 22	
21	Ethyl Alcohol	0.0156	300	20	
27	Ethyl Alcohol	0.0121	200	22	
28	Ethyl Alcohol	0.0121	250	19	
29	Ethyl Alcohol	0.0121	360	18	
35	Benzene	0.0177	200	17	\$ \$ \$
36	Benzene	0.0177	250	15	Surcasa
37	Benzene	0.0177	300	13	
43	Benzene	0.0141	200	15	GARAGES AND A LEADER
44	Benzene	0.0141	250	13	MARK - ARREST M. CAMPAGA
45	Benzene	0.0141	300	12	-
53	-			-	-

e we filtered the data 2

22 > 26, 30 -> 34, 38 -> 42, 65 > 52).

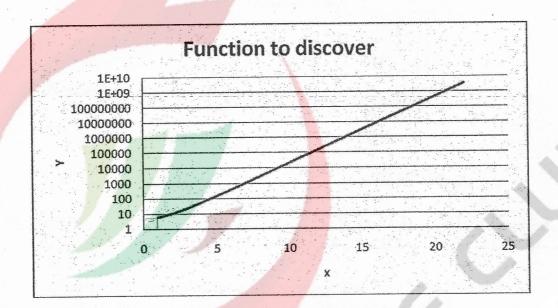
We fiftered the temperature to a maximum

value et 300 (range 200-300)

Problem #2-4: (8 pt)

Which one of the following is plotted below? Why?

- 1. $Y = x^2 + 5$ $\sqrt{2}$ $Y = \exp(x) + \frac{1}{2}$
- 2) $Y=\exp(x)+3$ 3. $Y=\log(x)-5$
- 4. $Y = \cos(x)^2$



2.
$$y = exp(x) + 3$$

because the graphe starts from L. (Yaxis).