ميكانيكا ستاتيكا وتمارين

فصل دراسي أول

Tanta University-Faculty of Science Department of Mathematics 1st Semester 2017- Final Exam. Course Title: Statics(MA1204) Level: 1 Math.(Faculty of Science)	جامعة طنطا- كلية العلوم-قسم الرياضيات الفصل الدراسي الأول- نهائي 2017 اسم المقرر : إستاتيكا(MA1204) المستوى : الأول الشعبة : الرياضيات (كلية العلوم)

كلية العلوم

تاريخ الاختبار: الأحد 4 |06| 2017م

السؤال الأول:(25 Degree)

(a) أثبت أن المتجهات $\overline{A}=3\hat{\underline{i}}-4\hat{\underline{j}}-4\hat{\underline{k}}$ و $\overline{B}=2\hat{\underline{i}}-\hat{\underline{j}}+\hat{\underline{k}}$ و $\overline{C}=\hat{\underline{i}}-3\hat{\underline{j}}-5\hat{\underline{k}}$ تمثل أضلاع مثلث قائم الزاوية وأوجد مساحته.

(b) أثبت أن معادلة خط المحصلة تعطي علي الصورة: $\underline{M}_o-xR_y+yR_x=0$ مع دراسة الحالات الخاصة. وإذا أثرت القوي P,Q,R في أضلاع المثلث المكون من المستقيمات $x+y=1,\ y-x=1,\ y=2$ أوجد معادلة خط عمل المحصلة.

السؤال الثاني:(25 Degree)

(a) أثبت أن: (1) $div\ curl\ \ \underline{V}=0$ (2) $Curl\ grad\ \phi(x,y,z)=0$

(3) للدوال القياسية للموضع أثبت أن: $d\phi=\left(d\bar{r}\cdot\nabla\right)\phi$ or $\delta\phi=\left(\delta\bar{r}\cdot\nabla\right)\phi$ ∴ ومن ثم أثبت أن معدل التغير في الدالة $\varphi(x,y,z)$ في اتجاه المماس لسطح ما هو: $\frac{\partial\phi}{\partial s}=\hat{\underline{T}}\cdot\nabla\phi$

(b) يرتكز قضيب منتظم طوله $32a$ بأحد طرفيه علي السطح الداخلي لاسطوانة ملساء محورها رأسي نصف قطرها a *وبنقطة علي حافتها*. اثبت أن القضيب يميل زاوية $60°$ علي الأفقي في وضع الاتزان وفي هذه الحالة تصبح الاسطوانة علي وشك الانقلاب عندما يكون وزنها ستة أمثال وزن القضيب.

السؤال الثالث:(25 Degree)

(a) اوجد مركز ثقل جزء من قوس المنحني $x^{2/3}+y^{2/3}=a^{2/3}$ المحدد في الربع الأول من الإحداثيات.

(b) أثبت أن عزم قوة ما $\underline{F}$ حول نقطة $o(x,y,z)$ يساوي عزم هذه القوة حول أي نقطة أخري $o'(x,y,z)$ مضافاً إليه عزم قوة مساوية للقوة $\underline{F}$ حول $o(x,y,z)$ ويمر خط عملها بالنقطة $o'(x,y,z)$.

السؤال الرابع:(25 Degree)

(a) أوجد وحدة المتجه العمودي على السطح $x\,y-5x^2\,z-3y=10$ عند النقطة $(2,-2,3)$ ثم أوجد قيمة التغير الإتجاهى في الدالة $\phi(x,y,z)=x\,y-5x^2\,z-3y$ عند النقطة $(1,-1,2)$ في اتجاه المتجه $\bar{r}=-\hat{\underline{i}}+2\hat{\underline{j}}+\hat{\underline{k}}$. ثم أوجد أكبر قيمة للتغير الإتجاهى في الدالة $\varphi(x,y,z)$.

(b) اوجد مركز ثقل المساحة المنتظمة المحددة بالقطع $x^2=ay$ والمحور y والمستقيم $y=a$

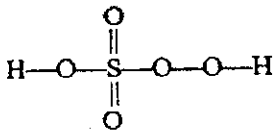
بيولوجيا + جيولوجيا + علوم بيئية

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY		
	FINAL EXAMINATION FOR 1ST YEAR STUDENTS (ALL GROUPS)		
	COURSE TITLE: General Chemistry (I)		COURSE CODE: CH1101
DATE: 9TH JANUARY, 2017	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150	TIME:2 Hours

Answer the following questions with questions 1, 4, 5, 6, 7 out of 15 marks each. Questions 2, 3 and 8 out of 25 marks each.

1- Underline the correct answer and complete as appropriate then transfer to your Answer Sheet:

(a) In persulphuric acid of the following structure:



Given the electronegativity of S = 2.58, that for O = 3.44 and that for H = 2.20, then:

- The number of O atoms having oxidation number = 0 is (0 / 1/ 2 / 3/ / 4 / 5) atoms.

- The number of O atoms having oxidation number = -1 is (0 / 1/ 2 / 3/ / 4 / 5) atoms.

- The number of O atoms having oxidation number = +1 is (0 / 1/ 2 / 3/ / 4 / 5) atoms.

- The number of O atoms having oxidation number = -2 is (0 / 1/ 2 / 3/ / 4 / 5) atoms.

- The oxidation number of S is .....and that of H atoms is .....

(b) For $_{24}Cr$, the electronic configuration $3d^4 4s^2$ has (6 / 10) exchanges but the electronic configuration $3d^5 4s^1$ has (6 / 10) exchanges. Therefore, the stable electronic configuration of $_{24}Cr$ is ($3d^4 4s^2$ / $3d^5 4s^1$). The oxidation state Cr^+ arises from the electronic configuration ($3d^4 4s^2$ / $3d^5 4s^1$).

(c) $MnO_4^- + 8H^+ + n\,e^- \rightleftharpoons Mn^{2+} +$ .....

To get the equivalent weight of $KMnO_4$, we divide the molecular weight by .....

(d) $H_3C-\underset{\underset{O}{\|}}{C}-CH_2-COOEt \rightleftharpoons$ .....

Keto-form Enol-form

2- (a) Calculate the mole fraction of a solute in its 2 molal methanolic solution. (For methanol M = 32 amu)

(b) Work out the formal charge in CO and O_3 then indicate the accepted structure of each compound given you have $_6C$ and $_8O$.

(c) According to VSEPR theory, give the geometry of the following molecules:

- ammonia molecule $\ddot{N}H_3$, ammonium ion NH^{4+} and iodine heptafluoride IF_7.

(d) Apply Graham's law of diffusion to the uranium enrichment process to D ($^{235}UF_6$) / D ($^{238}UF_6$) Given the atomic mass of each fluorine as 19 amu.

أنظر خلف الصفحة

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF PHYSICS

EXAMINATION FOR FRESHMEN (FIRST YEAR) STUDENTS OF GEOLOG+-PHYSICALSCIENCE

:OURSE TITLE: Heat & Properties of Matter (Physics 1) COURSE CODE:PH 1121

DATE: 4 /1/2017 TERM: FIRST TOTAL ASSESSMENT MARKS: 150 TIME ALLOWED: 2 HOURS

Answer the Following Questions

Firs Question :(35 Marks)

- a) a)Explain in details the Platinum resistance thermometer and show what the Calendar and Griffiths Bridge is used for (15 Marks)

b Explain an electrical method for determination the specific heat of a liquid(20 Marks)

Second Question :(40 Marks)

a) Write the three fundamental laws of heat transfer mechanisms, explain each term in the different cases and write the units (20 Marks)

b) A liquid takes 5 minutes to cool from 70°C to 50°C. How much time will it take to cool from 60°C to 30°C. The temperature of the surroundings is 20°C (10Marks)

c) For an ideal gas if its specific heat under constant pressure $C_p = (5/2) R$, calculate the following for one mole :

i-The ratio γ

ii- The change in internal energy, the work done and the total energy transferred when its temperature increases from - 40 °F to 0 °C (R=8.31 J/mol K) (10Marks)

Third Question :(40 Marks)

a-Define the following with dimensions and units

Viscosity - Surface Tension – Stress - Bulk Modulus. (20Marks)

b-The critical velocity (V_c) depends on the radius(r) of tube, the viscosity of liquid (η) and density (ρ).Find dimensionally relation for critical velocity. (20Marks)

Fourth Question:(35Marks)

a- Proof formula for centripetal force. (20 Marks)

b-A 5 cm cube gelatin has its upper surface displaced o.64 cm by a tangential force of o.3 Newton.What is the shear modulus of gelatin. (15 Marks)

GOOD LUCk

Examiners:Prof.Dr.Ahmed Abdel-Azeem.

Prof.Dr.Neima Zakaria Darwish- Prof Dr S Aboul Enein

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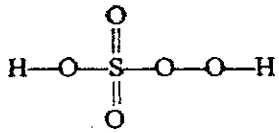

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أنظر خلف الصفحة

DEPARTMENT OF MATHEMATICS
TANTA UNIVERSITY
FACULTY OF SCIENCE
(Computer Science Division)

EXAMINATION FOR PROSPECTIVE STUDENTS (1ST YEAR)

COURSE TITLE: Programming			COURSE CODE: CS1101	
DATE:24-1-2017	JAN 2017	TERM: I	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

Question 1:

- Define computer program and computer software and networks? Define source code? Define object code? Write the four man type of Variables with their format?
- Write a program to printout the following number 8756.456 as Integer number, then float with two decimal number, and float number?
- Can you write the nested for loop to calculate the multiplication Table till mxn?
- Write a program that take the Character and print out the ASCII Code of that Character using Scanf and Printf? What are the main three types of secondary memory?

Question 2:

- Define Algorithm and program? What are a good Algorithm and a good program? What is the job of the printf and scanf functions? Give an example with integer and float variables?
- Define the array? How to assigned variable and string to it? Write an example to fill array? What you should do to print out the values of array, give an example?
- Write a C program to read an array with ten float numbers and multiply it by number 10 and then print it on the screen?
- Write a program to calculate the factorial for any value n? Write a program to read four real numbers on the screen then calculate the summation, multiplication with the avrage and print them.

Question 3:

- Write if.....else if....else if ... else and switch..... Case Branches with same example? What is the deference between while loop and do ....while loop, give an example?
- Describe the three main component of any Function? Can you describe the differences between void-functions and functions that return value? Write an example?
- Write a C program that calling function to calculate the Cube and square of any number n? How to describe the two dimensional array, Give an example? How to initialize the two dimension array by characters?
- Write a program to read two float numbers and then replace (swap) the two values and print the two values on the screen?

EXAMINERS	PROF. DR./ ATLAM ELSAYED	DR/ MOSAAD WGEEH
	DR/	DR/

With my best wishes

انتهت الأسئلة.....مع أطيب الأماني والتوفيق