مقرر / حقوق الإنسان
كود المقرر / ع ١٠٣
زمن الإمتحان / ساعتان
المستوى الأول (جميع البرامج)

كلية العلوم
جامعة المنصورة
التاريخ ٢٠١٥/١٢/٣٠

أجب على الأسئلة الآتية:-

السؤال الأول:- ضع علامة صح أو علامة خطا بدون تعليل

١-صدر الإعلان العالمي لحقوق الإنسان في العاشر من ديسمبر عام ١٩٥٨.

٢-يعتبر رضاء المجني عليه سبباً لإباحة الفعل في القتل بدافع الرحمة .

٣-تعد حرية الرأي هي الحرية الأم بالنسبة لطائفة الحريات المعنوية .

٤-يعد اتخاذ الدولة ديناً رسمياً لها عائقاً أمام الحرية الدينية .

٥-حق التقاضي يمكن الشخص من اقتضاء حقه عن طريق العدالة الخاصة .

السؤال الثاني:- اكتب في موضوع واحد فقط مما يلي :-

١-تكلم عن حق التقاضي مبينا ماهيته ومصادره والضمانات اللازمة له.

٢-تكلم عن حق الإنسان في الحياة في الإسلام .

المستوى : الأول المادة : جبر وهندسة كود المادة : (ر111)	كلية العلوم – قسم الرياضيات	دور: يناير 2016 الزمن : ساعتان التاريخ : 9/ 1/ 2016

البرامج: كيمياء-الكيمياء الحيوية- كيمياء وحيوان- ميكروبيولوجى- كيمياء ونبات-علوم بيئة- جيولوجيا- جيوفيزيقا

أجب عن الأسئلة الآتية: **الدرجة الكلية :** 80 درجة

السؤال الأول:

أ –استخدم مبدأ الاستنتاج الرياضي فى اثبات أنه لاى عدد طبيعى $n \in N$ فان:

$$\frac{1}{1\times3}+\frac{1}{3\times5}+\ldots.+\frac{1}{(2n-1)(2n+1)}=\frac{n}{(2n+1)}$$ (10 درجات)

ب – اوجد نقطة تقاطع المستقيمين $2x+y+5=0$, $x+y+2=0$ والزاوية بينهما

ثم اوجد معادلة المستقيم الذي يمر بنقطة التقاطع وعمودى على المستقيم $2x+3y+7=0$

(10 درجات)

السؤال الثاني:

أ – اختار الاجابة الصحيحة مع الرسم وتوضيح جميع البيانات على الرسم

المعادلة $y^2-4y+x-8=0$ تمثل: ا) قطع ناقص, ب) دائرة , جـ) قطع مكافىء

(10 درجات)

ب – اوجد المقياس والسعة للعدد المركب $z=\frac{2-2i}{1+i}$ ثم اوجد $z^{\frac{4}{3}}$. (10 درجات)

السؤال الثالث:

أ- باستخدام طريقة كرامر اوجد حل المعادلات الخطية الآتية:

$2x-3y+z=-1$, $x+2y-z=2$, $3x+y+2z=11$ (10 درجات)

ب- اوجد معادلة القطع الناقص الذى مركزه عند النقطة(2 , 3 -) و احدى بؤرتيه (2 , 3)

واحدى رؤوسه عند النقطة (2 , 8) موضحا جميع المعلومات الخاصة به مع الرسم .

(10 درجات)

السؤال الرابع :

أ-حلل الكسر الآتى إلى كسوره الجزيئية $\frac{3x^2+x+4}{x^3+4x}$ (10 درجات)

ب – أوجد معادلة المنحنى $x^2+y^2-12x-8y+50=0$ عند نقل المحاور

موازية لنفسها إلى النقطة $o'(6,4)$ وحدد نوع المنحنى . (10 درجات)

مع أطيب التمنيات بالتوفيق: اسرة التدريس

Mansoura University
Faculty of Science
Department of Physics

Time Allowed: 2 h
Date: 16 / 1 / 2016
All Programs

First Term Exam 2015-2016
Physics (101)

Answer the following Questions:

Q.1) What is the meaning of each expression: **(20 Mark)**

1- The work done to produce a quantity of heat equal to 1 cal.
2- Particles that are very close together can transfer heat energy by.....
3- The quantity of heat (Q) that flow perpendicular to the face during a time (t).
4- The rate of heat flow per unit area per unit temperature gradient when the heat flow is at right angle to the faces of a thin parallel material under steady state condition.
5- The amount of time it takes to complete one oscillation or 1 cycle.
6- The amount of heat per unit mass needed to change one gram of a solid substance into one gram of liquid without changing its temperature.
7- The deformation produced in the body is not completely recovered after the removal the load.
8- The negative ratio between the lateral strain to longitudinal strain.
9- An external pressure applied to an enclosed fluid is transmitted uniformly throughout the volume of the liquid.
10- If a body is totally or partially immersed in a fluid, the buoyant force will equal to the weight of displaced fluid.

Q.2) Write 'T' if the statement is true and 'F' if the statement is false. **(10Marks).**

1- Hooks law is applied correctly up to Elastic limit. ( )
2- Insulators do not have free electrons and so they conduct heat as well as metals. ( )
3- Heat conduction is the transfer of heat by the direct collision between particles of matter. ( )
4- The heat travels between the Sun and the Earth by conduction or by convection. ( )
5- The latent heat of vaporization of a substance is always Greater than its latent heat of fusion. ( )
6- The coefficient of linear expansion is twice the area of thermal expansion. ( )
7- Substances with higher heat capacities heat up more slowly than those with lower heat capacities. ( )
8- In steady flow, the velocity of an incompressible fluid at each point does not remains constant. ( )
9- A thermometer is an instrument that measures the temperature of a system in a quantitative way. ( )
10- Change in shape or size (or both) of a body due externally applied force is called stress. ( )

Q.3) Solve these Problems **(10 Marks)**

1- A 0.1 Kg unknown (ingot) of metal is heated to 300 °C and then dropped into a beaker containing 0.5 Kg of water initially at 25 °C. If the final equilibrium temperature of the mixed system is 50 °C. Find the specific heat of the metal. ($C_w = 4190$ J)
2- The smaller and larger pistons of a hydraulic press have diameters of 4 cm and 12 cm. What input force is required to lift a 4000 N weight with the output piston?
3- The extremes of temperature in the bottom of the earth, over a period of 50 years, differ by 116 °F. Express this range in Celsius degree?
4- A square hole 8.00 cm along each side is cut in a sheet of copper. Calculate the change in the area of this hole if the temperature of the sheet is increased by 50.0 K. $\beta_C = 34 \times 10^{-6}\ K^{-1}$.
5- .If the force F equal $F = 2\pi r L v\eta/R$ where r is radius L is length, v is speed and R is distance, what are the dimensions of η (viscosity)?

Q.4) Answer these questions: **20 Marks)**

1- If the general equation of simple harmonic motion is gives by $[d^2x/dt^2 + (k/m)x = 0]$. Prove that the angular frequency $\omega^2 = k/m$ where x is the displacement k is the spring constant and m is the mass of object.
2- Write the difference between the tensile, the Bulk and the Rigidity modulus.
3- Bernoulli's equation studies the relation between pressure P, density ρ, velocity υ and height h and their ability to describe fluids in motion. Discuss this equation in When i- the liquid at rest, ii- if the height is constant. iii- When there is no change in pressure
4- There are three temperature scales that are used by scientists to measure temperature. How are they different from each other?

Good luck
Examiners

Prof . Dr. Moustafa Tawfik
Ass. Prof. Maysa -Ismael
Dr. Afaf Sarhan

Prof . Dr. Rizk Moustafa
Dr. Mohamed Mekamer
Dr. Menem Reda

Mansoura University
ESPC
Faculty of Science

First Year English Examination
23/ 1/ 2016
Time: Two Hours

Section One: Reading Skills:

Below is a short passage comparing Solar energy to other sources of energy. Read the passage in order to do the tasks which follow:

(1) Solar energy is a renewable energy source. This means that we cannot run out of solar energy, as opposed to non-renewable energy sources (e.g. fossil fuels, coal and nuclear). We will have access to solar energy for as long as the sun is alive – another 6.5 billion years according to NASA. It is also abundant: The potential of solar energy is beyond imagination. The surface of the earth receives 120,000 terawatts of solar radiation (sunlight) – 20,000 times more power than what is needed to supply the entire world. An abundant and renewable energy source is also sustainable. Sustainable energy sources meet the needs of the present without compromising the ability of future generations to meet their needs. In other words, solar energy is sustainable because there is no way we can over-consume.

(2) Harnessing solar energy does generally not cause pollution. It is clear that solar energy reduces our dependence on non-renewable energy sources. This is an important step in fighting the climate crisis. Solar energy is available all over the world. Not only the countries that are closest to the Equator can put solar energy to use. The majority of today`s solar power systems do not require a lot of maintenance. Residential solar panels usually only require cleaning a couple of times a year. Serious solar manufacturers ship 20- or 25-year warranties with their solar panels.

(3) Solar vs. Wind : Wind turbines can take a lot of space and can be noisy, so they're better suited for rural rather than urban locations. Wind energy works best in windy places, not surprisingly. Solar power is adaptable – Germany is currently the largest market for solar panels, even though it's not known as a particularly sunny place. In other words: it is more important to live in a windy place if you want to use wind turbines than it is to live in a sunny place if you want to use solar panels. Wind turbines require maintenance, and solar is virtually maintenance-free. Wind power can be less expensive to produce initially. On the other hand, the federal tax credit, state and local incentives are making solar power more affordable.

(4) Solar vs. Hydropower: Hydropower is typically done in large-scale dams rather than for homeowners (although someone with a rushing stream or river on their property might be able to use small scale "micro-hydro"); solar can be used almost anywhere. Large dams are extremely expensive to build. Flooding large areas of land destroys habitat and can force human relocation; solar panels can be installed on existing unused space like rooftops. Building large dams can cause geological damage leading to earthquakes. Dams can unfairly alter water supply between communities and countries. Building dams alters the natural water table level and can negatively affect wildlife such as salmon.

(5) Solar vs. Biomass: Biomass (wood or plants) is usually used for fuels rather than electricity production, though it can be used either way. Right now, most homeowners in the U.S. do not have the option to purchase electricity made from biomass, though it's available in a very small number of areas. Crops like sugar cane and other sources for biomass require land that could otherwise be used for growing food. Algae helps avoid this problem somewhat because it can grow in water. Solar panels do not necessarily need to use land space, since they can go on existing roofs. Burning biomass creates CO_2 emissions, though less than fossil fuels like coal. Solar energy does not create emissions as it produces power. Solar panels have efficiencies as high as 19%, meaning that much of the sun's energy is converted into electricity. The efficiency of biomass is much, much lower – perhaps less than 1%.

I. Answer the following questions briefly:

1. What are some of the negative effects of a) dams, b) wind turbines, and c) coal?

2. According to the information in the passage, explain in your words how solar energy is a) abundant, b) sustainable, c) renewable, and d) efficient.
3. Based on the text , how is solar energy more friendly to the environment and less expensive than the other sources mentioned ?

II. Are the following statements true or false? Justify your answer with evidence from the text:

1. Establishing solar energy panels requires a lot of space on land.
2. Solar energy can be produced in places where the weather is not very hot .
3. Hydropower may be produced on a small scale by homeowners.
4. Generating solar pollution leads to noise pollution.
5. Biomass is more friendly to the environment than solar energy.

III. Find words in the passage which mean:

1) Whole (Paragraph 1) 2) Need (Paragraph 2) 3) Influence (Paragraph 4)
4) Changed (Paragraph 5)

Section Two: Language Skills:

I. Each of the sentences in the passage below has one grammatical mistake. Find the mistake and rewrite each sentence correctly.

(1) Acid rain describing any form of precipitation with high levels of nitric and sulfuric acids. (2) It can also occur in the form of snow, fog, and tiny bits of dry material that settles to Earth. (3) When humans burn fossil fuels, sulfur dioxide (SO2) and nitrogen oxides (NOx) released into the atmosphere. (4) These chemical gas react with water, oxygen, and other substances to form mild solutions of sulfuric and nitric acid. (5) Winds may spread this acidic solutions across the atmosphere and over hundreds of miles. (6)When acid rain reaches Earth, it flows across the surface in runoff water, entering water systems, and sinks into the soil.

II. Each of the definitions below has a mistake. First, decide if it is (1) giving an example, (2) using a word from the term to be defined, or (3) absence of general class word. Then , rewrite the definition correctly.

1. Geometry is the study of geometric figures.
2. A degree is given by a university to a student who has passed the appropriate examinations.
3. A dictionary is a book like 'Oxford Dictionary'.

III. Punctuate the following sentences

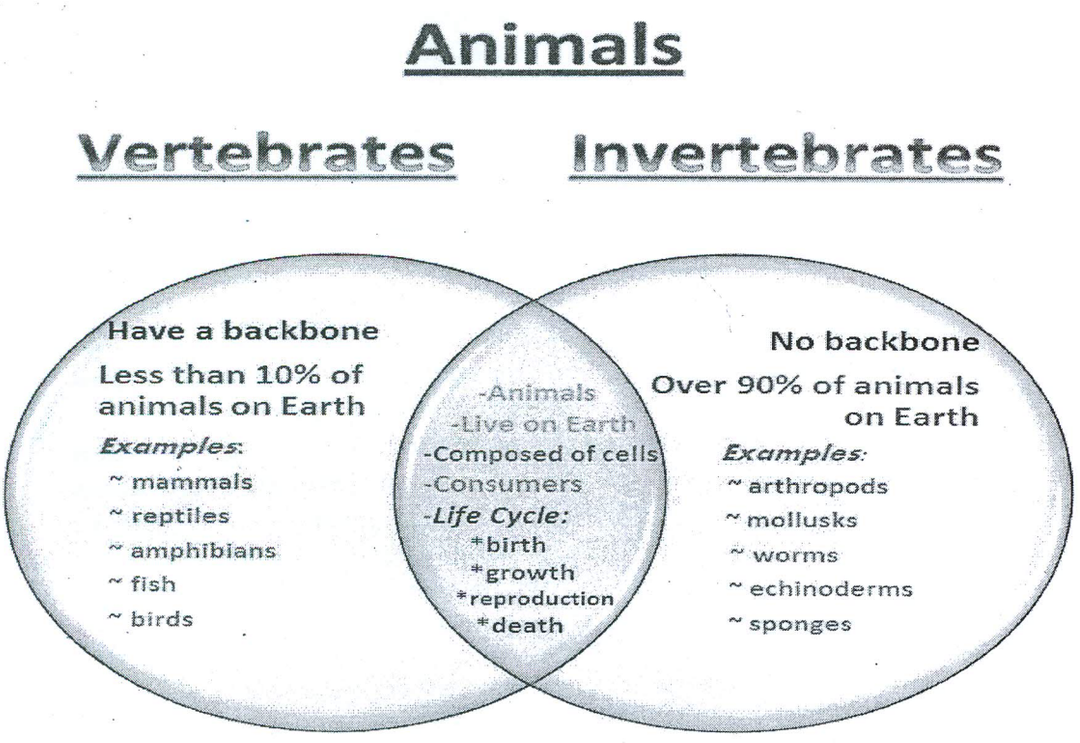
1. although peter lives by the ocean he won t go in water
2. i have some news for you john s father has arrived
3. he said there is a u turn on two blocks on first avenue

IV. Do as shown in brackets:

1. _____ can't make the person rich. (Add a gerund phrase).
2. Working in the yard all day, I got a sore.
   Working in the yard all day, my back got sore.
   Working in the yard all day, it became very neat.
   (Choose the only correct structure avoiding Dangling Modifiers)
3. Having seen black pool tower, the Eiffel tower is more impressive. (Correct the sentence)
4. He gave a present to his sister wrapped in a bright paper. (Correct the sentence)
5. Iceland has little agriculture (beside – besides – despite – during) grazing land for sheep, horses and cattle.

Section Three: Writing Skills: Choose 0nly one topic: either A) or B):

A) Using the information in the following diagram, write down a paragraph of about 150 words to compare between vertebrates and invertebrates:



B) Using the information in the following table, write a paragraph of about 150 words comparing between Bacteria and Viruses.

Viruses	Bacteria
• 20x smaller than bacteria	• 20x larger than viruses
• Single-celled micro organisms	• Non-cellular and sub-microscopic (much smaller)
• Contain: a central core of DNA surrounded by a protein coat, no nucleus, no cytoplasm, no cell membrane, no cell walls, no ribosomes, enzymes needed to invade a cell and replicate their nucleic acids	• Contain: a single chromosome, a cell wall, cytoplasm, a cell membrane, ribosomes and enzymes to break down food and build cell parts
• Only capable of reproducing inside other living cells	• Capable of independent reproduction, host cells not needed
• Do not feed, excrete, and grow • Non-living	• Feed, excrete, grow, and reproduce • Living

إمتحان الفصل الدراسى الأول
دور يناير ٢٠١٦
المستوى الأول – كيمياء
زمن الامتحان : ساعتان
مقرر : بلورات ومعادن

جامعة المنصورة
كلية العلوم
قسم الجيولوجيا
تاريخ الامتحان : ٢٠١٦/١/١٢
كود المقرر : (ج ١٠٢)

السؤال الأول : أكمل ما يأتى :

١. من أمثلة الكوارتز مستتر التبلور ..... ، ..... ، ..... ، ..... ، ومن استخداماته ..... وفصيلة تبلوره .....
٢. من المعادن التى لا تنصهر ولا تذوب فى الاحماض..... ، وتركيبه الكيميائى ..... وفصيلة تبلوره ..... ، ومن أنواعه ..... ، ..... ، ..... ، ..... .
٣. من المعادن النفيسة ذات حلقة السيليكات السداسية ..... وتركيبه الكيميائى ..... ويتبلور فى فصيلة ..... ويستخدم فى ..... ، ..... .
٤. نحصل على معدن الجبس من مياه البحار عن طريق ..... ويأتى بعد ترسيب ..... .
٥. تعتبر معادن سينابار واستبنايت ومركزيت من مكونات ..... التى تتكون عند درجة حرارة ..... .
٦. تعتبر جميع المواد الصلبة الموجودة فى الطبيعة ..... .
٧. من أمثلة المواد الصلبة الغير متبلورة ..... ، ..... ، ..... ، ..... .
٨. للفحم ثلاثة أنواع هم ..... ، ..... ، ..... ، ويتميز الأخير بأنه أنقاهم .
٩. توصف بلورات المركبات العضوية بأنها ..... .
١٠. تنقسم عروق المعادن المائلة للشقوق من حيث الأهمية إلى ..... ، ..... .

السؤال الثانى : فرق بين كل من :

١. رواسب الترافرتين والسنترسليسى ؟
٢. رواسب الصواعد وراوسب الهوابط ؟
٣. تكوين معدن كبريتيد الانتيمون ومعدن كبريتيد المولبيدنيوم ؟
٤. تكون المعادن عن طريق غازات ماجمانية قريبة من سطح الأرض وأخرى بعيدة عن سطح الأرض ؟
٥. المادة الأيزوتروبية والمادة الغير أيزوتروبية ؟

السؤال الثالث : ضع علامة (√) أو علامة (×) أمام العبارات :

١ من احدى أوصاف هيئة البلورة أنها لا تكون أبداً نصلية. ( )
٢ يرجع نشأة المعادن إلى أصول أربعة منها تكونها فى المصانع الكيميائية . ( )
٣ ليس لكل معدن بناءاً ذرياً منتظماً ولا تركيبياً كيميائياً منظماً ( )
٤ تمثل رواسب المعادن الأولية الموضعية برواسب التجمعات عند الشواطئ. ( )
٥ يمثل الذهب إحدى معادن اللافلزات العنصرية . ( )
٦ تعتبر المادة البلورية عديمة الأوجه مادة غير بلورية. ( )
٧ لا تتشكل هيئة بلورة المعدن الواحد نتيجة اختلاف نوع السائل الذى تنمو فيه. ( )
٨ تستخدم بلورة الكوارتر فى أغراض الارسال اللاسلكى وأجهزة الراديو نظراً لخاصية الكهرباء الحرارية التى تتميز بها. ( )
٩ يعرف معدن الاليكتروم بأنه معدن الماس الذى يحوى نسبة من الفضة. ( )
١٠ عند عدم تساوى سرعة الضوء على الاسطح المختلفة لبلورة المعدن تسمى هذه الظاهرة بخاصية عدم التجاهى. ( )

لجنة التصحيح:

١. أ.د / عادل محمد السيد جنيدى
٢. أ.د./ محمود ابراهيم الشربينى
٣. أ.د / ابراهيم كرات
٤. د./ هيثم العطفى

Mansoura University Faculty of Science Chemistry Department Subject:Physical Chemistry Course :Chem.141	كلية العلوم جامعة المنصورة	First Term First Level Students Date : Jan., 2016 Time Allowed : 2 hours Full Mark : 60 Marks

(Atomic weight of C=12, H=1, O=16,S=32 and N=14)

Two Marks for each question

Answer the Following Questions

A)1- 50 ml of H_2 take 25 minutes to diffuse out of a vessel. How long 40 ml of O_2 take to diffuse out

a) 20 min b) 80 min c) 100min d) 200 min.

2- The pH of .01 M CH_3COONa is (K_a=1.8x10-5) K_w=10-14)

a) 9.5 b) 7.8 c) 8.4 d) 5.6

3- When 1gm of CH_4 burns in O2 55.6 KJ of heat is produced. Enthalpy of combustion of CH_4 is

a) + 889 KJ b) -55.6 KJ c) -889 KJ d) +55.6 KJ

4-A binary liquid (AB) shows positive deriation from Raoults law when :

a) $P_A > P°_A . X_A$, $P_B > P°_B . X_B$

b) Inter molecular forces A-A, B-B > A-B

c) $\Delta H_{mix} > 0$

d) All of the above

5- K_c for the reaction $N_2 + 3H_2 = 2NH_3$ at 400 K is 0.5 that value of K_p is

a) $2.5x10^{-3}$ b) $4.6x10^{-4}$ c) $6.2x10^{-4}$ d) $1.2x10^{-8}$

6- For preparing a liter $\frac{M}{10}$ H_2SO_4 solution we need H_2SO_4

a) 10.2 gm b) 6.1gn c) 4.9 gm d) 9.8 gm

7- The degree of ionization of 0.1M CH_3COOH ($K_a=1.8x10^{-5}$) at 25°C is

a) 2.1% b) 1.53% d) 1.34% d) 2.32%

8- Heat of combustion of $CH_4(g)$, C (gr) and $H_2(g)$ are -20, -40 and –10 KJ, respectively. The heat of formation of $CH_4(g)$ is

a) + 50 KJ b) + 86KJ c) -40KJ d) -80 KJ

9- If mole fraction of solvent in a solution decreases.

a) Boiling point increases b) Osmatic pressure increases

c) Vapour pressure decreases d) All

10- A vessel contains 0.32g methane (CH_4) and 0.56 g nitrogen (N_2). The ratio of the partial pressure of methane to nitrogen in the mixture is.

a) 4 : 9 b) 2 : 3 c) 4 : 1 d) 1 : 1

B) 1- The solubility product of AgCl is $1.7x10^{-10}$. The solubility in presence of 0.1 M HCl is

a) $1.7x10^{-5}$ b) $1.7x10^{-2}$ c) $1.7x10^{-4}$ d) $1.7x10^{-9}$

2- What would be the heat released when 0.5 M of HNO_3 acid solution is mixed with 0.2 M KOH ($\Delta N_{eutralization}$ =-57 KJ)

a) 11.4 KJ b) 22.8 KJ c) 28.5KJ d) 57.2 KJ

3- The vapour pressure of pure benzene (C_6H_6) and toluene (C_7H_8) are 160 and 60 torr, respectively. The ratio fraction of toluene in vapour phase in contact with equimolar solution of benzene and toluene is

a) 0.61 b) 0.52 c) 0.27 d) 0.74

4- For system A + 2 B $\rightleftharpoons$ C the equilibrium concentration of A = .06 mole /l, B=0.12 mole /l and C = 0.216 mole /l. The value K_c is

a) 250 b) 127 c) 418 d) $4x10^{-3}$

5- Kinetic energy of a gas depends on

a) Volume of gas b) pressure, temperature and volume

c) Pressure of gas d) temperature of gas

6- A mixture of 0.1M C_3H_7COOH acid and 0.1M C_3H_7COONa the pH of the mixture is ($Ka=1.8x10^{-5}$)

a) 4.12 b) 6.25 c) 4.37 d) 6.52

7- Which is correct relation?

a) $K_c = K_p (RT)^{\Delta n}$ b) $K_p / K_c = (RT)^{\Delta n}$

c) $K_p - K_c = (RT)^{\Delta n}$ d) $\Delta G = + 2.303 \log K$

8- The values of the observed and calculated molecular weight of $AgNO_3$ are 92.64 and 170 respectively. The degree of dissociation of AgNO3 is:

a) 60% b) 83.5 c) 56.7 d) 70.23

9- A mixture of gas consists of 5.0 g CH_4, 5.0 g C_2H_2, and 5.0 g C_2H_4. What are the mole fractions of each?

	X_{CH4}	X_{C2H2}	X_{C2H4}
(a)	0.321	0.192	0.177
(b)	0.333	0.333	0.333
(c)	0.217	0.375	0.408
(d)	0.457	0.281	0.262

10-Given the following reactions

Fe_2O_3 (s) + 3CO (s) $\rightleftharpoons$ 2Fe (s) + $3CO_2$ (g) $\Delta H° = -28.0$ kJ

3Fe (s) + $4CO_2$ (s) $\rightleftharpoons$ 4CO (g) + Fe_3O_4 (s) $\Delta H° = +12.5$ kJ

the enthalpy of the reaction of Fe_2O_3 with CO

$3Fe_2O_3$ (s) + CO (g) $\rightleftharpoons$ CO_2 (g) + $2Fe_3O_4$ (s)

Is:

(a) 40.5 kJ (b) +109 kJ (c) -15.5 kJ (d) -59.0 kJ

C) 1- The value of $\Delta H°$ for the following reaction is -3351 kJ:

2Al (s) + $3O_2$ (g) $\rightleftharpoons$ $2Al_2O_3$ (s)

The value of $\Delta H°f$ for Al_2O_3 (s) is:

(a) -3351 kJ (b) -1676 kJ (c) +3351 kJ (d) -16.43 kJ

2- The specific heat capacity of methane gas is 2.20 J/g-K. How many joules of heat are needed to raise the temperature of 5.00 g of methane from 36.0°C to 75.0°C?

(a) 22.9 J (b) 88.6 J (c) 429 J (d) 0.0113 J (e) 1221 J

3- What is the pH of a 0.015-M aqueous solution of barium hydroxide?

(a) 12.18 (b) 1.52 (c) 12.48 (d) 1.82 (e) 10.35

4- Which one of the following is the weakest acid?

a) HF ($K_a = 6.8 \times 10^{-4}$) b) Acetic acid ($K_a = 1.8 \times 10^{-5}$)

c) HNO2 ($K_a = 4.5 \times 10^{-4}$) d) HClO ($K_a = 3.0 \times 10^{-8}$)

e) HCN ($K^a = 4.9 \times 10^{-10}$)

5-A solution is prepared by dissolving 6.00 g of an unknown nonelectrolyte in enough water to make 1.00 L of solution. The osmotic

pressure of this solution is 0.750 atm at 25.0°C. What is the molecular weight (g/mol) of the unknown solute?
(a) 195 (b) 110 (c) 16.4 (d) 30.6 (e) 5.12×10^{-3}

6- Calculate the freezing point (°C) of a 0.055 m aqueous solution of $NaNO_3$. The molal freezing-point-depression constant of water is 1.86°C/m.
(a) -0.2046 (b) -0.1023 (c) 0.1023 (d) -0.05627 (e) 0.0286

7- A mixture of 0.75 mol $H_2(g)$ and 0.75 mol $N_2(g)$ is introduced into a 15.0-liter container having a pinhole leak at 30°C. After a period of time which of the following is true?
(a) The partial pressure of H_2 exceeds that of N_2 in the container.
(b) The partial pressure of N_2 exceeds that of H_2 in the container.
(c) The partial pressures of the two gases remain equal.
(d) The partial pressures of both gases increase above their initial values.
(e)The partial pressures of the two gases remain unchanged.

8- Calculate the pressure (in atm) exerted by 1.00 mole of acetylene at 125°C in a 20.0-liter container. The van der Waals constants for acetylene are: a = 20.0 $L^2 \cdot atm/mol^2$, b = 0.100 L/mol.
(a) 0.485 (b) 0.533 (c) 1.59 (d) 1.64 (e) 1.86

9-In which of the following reactions would increasing pressure at constant temperature not change the concentrations of reactants and products, based on Le Chatelier's principle?
a) $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ b) $2N_2(g) + O_2(g) \rightleftharpoons 2N_2O(g)$
c) $N_2(g) + 2O_2(g) \rightleftharpoons 2NO_2(g)$ d) $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ e) $N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$

10- Nitrosyl bromide decomposes according to the following equation. $2NOBr(g) \rightleftharpoons 2NO(g) + Br_2(g)$ A sample of NOBr (0.64 mol) was placed in a 1.00-L flask containing no NO or Br_2. At equilibrium the flask contained 0.46 mol of NOBr. How many moles of NO and Br_2, respectively, are in the flask at equilibrium?

a) 0.46 and 0.23 b) 0.18 and 0.090 c) 0.46 and 0.46
d) 0.18 and 0.360 e) 0.18 and 0.18

With Best Wishes Prof. Dr. A.H. Elaskalany Prof. Dr. M.E. Emam