جيوفيزياء ٢/ ٢-٦ رياضيات بحته

الفرقة : الثانية شعبة :جيوفيزياء المادة: تفاضل عالى ومعادلات تفاضلية كود المادة (٢٠٦)	كلية العلوم قسم الرياضيات	دور يناير ٢٠١٥ الزمن : ساعتان التاريخ: ٣١/ ١/ ٢٠١٥

السؤال الأول: أ) حدد مجال ومدى الدالة $f(x,y)=e^{x+y}$

ب) أوجد نهاية الدالة $\lim\limits_{\substack{(x,y)\to(4,6)\\ y\neq 6}} \dfrac{y-6}{x^2y+7y-6x^2-42}$

ج) أوجد المشتقات $\dfrac{\partial f}{\partial x}, \dfrac{\partial f}{\partial y}, \dfrac{\partial f}{\partial y}$ إذا كانت $f(x,y,z)=\dfrac{1}{\sqrt{x^2+y^2+z^2}}$

السؤال الثاني: إذا كانت $w(x,y,z)=xz+yz-z^2$, $x=uv, y=uv$, $z=u$ فأحسب

$$\frac{\partial w}{\partial u}, \frac{\partial w}{\partial v} \quad at\ (u,v)=(1,3)$$

ب) حدد القيم العظمى والصغرى للدالة $f(x,y)=100x^2+70xy+49y^2$

ج) أحسب التكامل $I=\int_0^1\int_0^1 (4x-10y)\ dy\ dx$

السؤال الثالث: أ) أحسب منه التكامل $I=\int_0^4\int_0^x \frac{\sin y}{y}\ dy\ dx$

ب) إذا كانت $z=\tan^{-1}\dfrac{(x^3+y^3)}{x-y}$ فأثبت أن $x\dfrac{\partial z}{\partial x}+y\dfrac{\partial z}{\partial y}=\sin 2z$

ج) حقق نظرية جرين للتكامل $\oint_C (x^3-x^2y)\,dx+xy^2\,dy$ حيث C هو المنحنى الذى يحده المساحة المحصورة بين $x^2+y^2=4,\ x^2+y^2=9$

السؤال الرابع: أ) عرف كلا من المعادلة التفاضلية -رتبة المعادلة التفاضلية- درجة المعادلة التفاضلية

ب) حل كل من المعادلات التفاضلية الآتية

1- $2xy\,y'-y2+x^2=0$

2- $(x^3+xy^2\sin 2x+y^2\sin^2 x)\,dx+(2xy\sin^2 x)dy=0$

3- $(2-2xy-x^2)dx+x^2\,dy=0$

(٢٠١٤) علم المحور

Mansoura University
Faculty of Science
Geology Department
Date: 14-1-2015
Time : 2h

First Term Exam (January 2015)
Second Level (Geol. & geophys. Program)
Subject: G-203 (Petrology)
Total Marks: 60

Answer the following Questions:

Question One: Complete the following : **(20 marks)**

(1)..... is a good index to the maturity of sediments.

(2)Compacted and lithified sediments during burial are called .....

(3)Processes by which sediment particles laid down in beds called .....

(4)Physical and chemical changes that happened to sediments after deposition called .....

(5)Sediments with mud matrix, poor sorting and angular grains are described as.....

(6).....is a measure of the relation between the 3 dimensions of an object.

(7)..... and ..... describe spatial orientation and manner of arrangement of objects.

(8) Clay minerals such as .....,.....,.....,.....

(9) Heavy minerals such as .....,.....,.....,.....

(10)..... and .....are very important for occurrence of oil.

Question Two: Give a suitable name for these rocks: **(20 marks)**

(1) Terms used to describe transported and redeposited carbonate materials.
(2) Classification of conglomerates according to agent of fragmentation.
(3) Different types of arenites and wackes.
(4) Chemical precipitated silica.
(5) Non laminated lithified mud matrix containing angular to rounded polished rock particles.
(6) Fine grained rocks have sizes less than 1/16 mm (give three kinds).
(7) Pure chemical fresh water carbonate rocks.
(8) Accumulation of skeletal remains of bones and fossil shells.
(9) Biochemical carbonate rocks formed by constructive activity of organisms.
(10) Impure lime of calcium carbonate formed in arid region.

Question Three: Mentioned only : **(20 marks)**

1- Silicate minerals.
2- Minerals in the discontinuous reaction series.
3- Agents of metamorphism.
4-Metamorphic rocks show foliation, lineation and banding.
5- Textures distinguish igneous rocks.
6- Changes happened in the rock due to metamorphism.
7- Non-oriented metamorphic rocks.
8- Crystallization of igneous rocks from magma.
9- Dynamically metamorphosed rocks.
10- Minerals indicative the grade of metamorphism.

Exam Committee:

*Prof. Dr. Amin Gheith** *Dr. Hamdy Serag*

Mansoura University | Faculty of Science | Geology Department

Date: - 11/01/2015 | Allowed Time: - Two Hours | Full Mark: - 60 Marks

Final Theoretical Exam. - - 1st Term 2014 - 2015

نظام الساعات المعتمدة - برنامج :- الجيولوجيا + الجيوفيزياء - المستوي الثاني

الورقة الامتحانية :- ج 202 - المقرر :- بصريات المعادن والمعادن المكونة للصخور

OPTICAL MINERALOGY AND ROCK-FORMING MINERALS

ANSWER THE FOLLOWING QUESTIONS: - Each Question = 15 Marks (Each part = 5 Marks)

1-A- Explain the Becke line.

B- Describe the double refraction.

C- Write on the plagioclase series.

2-Compare between each pair of the followings:-

A- Optic axis and optic angle.

B- Mica plate and gypsum plate.

C- Birefringence and relief.

3-Classify and explain in detail:-

A- Pleochroism.

B- Interference colours.

C- Rock-forming minerals.

4-Draw the followings:-

A- Nicol prism.

B- Silicate structures.

C- Extinction and extinction angles.

Good Luck & Best Wishes

لجنة التصحيح:- أ.د. حسني حمدانحمامة - د. شعبان السيد مشعل*

Mansoura University Faculty of Science Physics Department	Geophysics, 2nd Level	First Term, 2014-2015 January, 2015 Time: 2 hours.

Waves, (Ph. 229) **Full Mark: 60 Marks**

Answer the following Questions:

1.a)	Define the following: i- free simple harmonic motion. ii- damped S.H. motion. iii- Forced oscillation and vi-coupled oscillation and v-the wave number.	5 Marks
b)	Find the wavelength and the velocity of a wave given in two directions by: $\varphi = a \sin (Ax + By - Dt)$.	5 Marks
c)	Study the forced oscillations.	5 Marks
2.a)	Study the energy of simple harmonic oscillations in an electrical system.	5 Marks
b)	A string is fixed at both its ends; find the normal mode of oscillation.	5 Marks
c)	Mass of 3 kg is attached with spring has k=750 dyne / cm. After it has the equilibrium position, a force given by 20 sin 2t is applied on it. Find its position at time t.	5 Marks
3.a)	Study the coupled oscillations in case of mono atoms system.	5 Marks
b)	Find the wavelength and the velocity of the two dimensions wave given by: $\varphi = 10 \sin (3x+4y- 5t)$.	5 Marks
c)	A spring is hanged vertically from its upper end. Its lower end is connected by a mass of 10 kg. Then it is pulled down a distance of 4 cm from its steady state position, if the spring constant = 1000N/ m. study its motion.	5 Marks
4.a)	Study the superposition of two perpendicular simple harmonic vibrations having the same frequency and differ in amplitudes and phase.	5 Marks
b)	Find the velocity of propagation of waves in a string if the mass per unit length is 9 gm/cm and the tension is $9x1o^4$ dyne.	5 Marks
c)	Prove that $\varphi = x \cos\theta + y \sin\theta - ct$ represents a wave in two directions which makes an angle θ with x-axis.	5 Marks

With our best wishes, Dr Safaa Abdel-Maksoud and Prof.Dr.A.Oraby.

ج. فيزياء - تيار متردد ودوائر كهربية ف٢٠١٥

Mansours University
Faculty of Science
Physics department

Final exam in physics

(Jan. 2015)

Phys. 228

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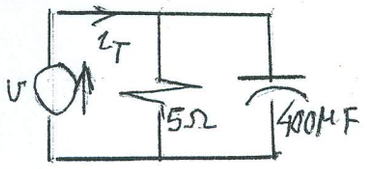
Time allowed: 2h

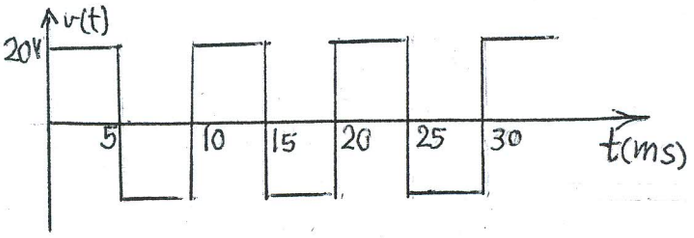
Subject: Physics

Alternating current and electric circuits

Answer the following questions:-

1-a) The parallel RC circuit has an applied voltage of waveform shown in Fig below, Determine and sketch the total current,





b) Calculate the effective the effective value of the voltage function

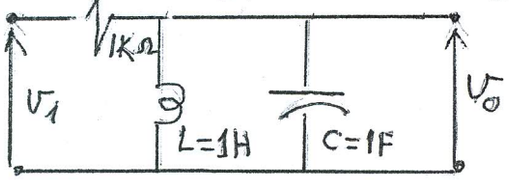
V=50+141.4 sin wt+35.5sine3wt. [20]

2) Draw the Laplace transformed circuit for the given Filter in frequency domain, then find,

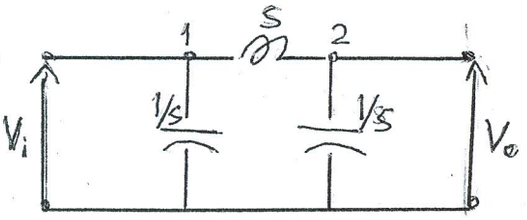
a) The function $H(s)=\frac{Vo(s)}{Vi(s)}$

b) The type of that filter

c) The filter parameters. [20]

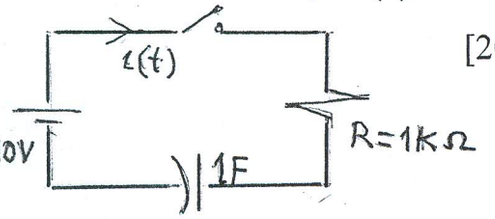


3-a) For the given transformed circuit, find [Y], and [Z] parameters



b) Consider the circuit shown, when the switch is closed at t=0, Vc(0)=0V.

Solve for I(S), then get i(t) and draw it. [20]



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Best wishes Dr Aziza Atta