المستوى الثانى - جيوفيزياء - موجات (ف ٢٢٩)

Mansoura University	Second Tern
Faculty of Science	Second Year: goephys.
Physics Department	Date : jan 2012
Subject : Physics	Time Allowed: 2 hours
Course(s): code 229 : Waves	Full Mark: 70 Mark

Answer the following questions

[1]	a-	Prove that the velocity of wave propagates in strings depends on the tension and the mass/unitlength.	[12] Mark
	b-	A car moves towards a person with velocity U find the the apparent frequencies of its whistle before and after the car passes the person.	[11] Mark
[2]	a-	Prove that the propagation of waves in gases depends on the pressure and the density.	[12] Mark
	b-	Find the apparent frequency at a detector for a source of waves moves with velocity U away from the detector.	[12] Mark
[3]	a-	Find the resultant of the superposition of two waves have the same amplitude, frequency and differ in phase .	[12] Mark
	b-	Prove that the reflectance coefficient of two connected wires depends on the mass/ unit length	[11] Mark

Examiner

1- Prof. Dr. Mahrous Shaker

المستوى الثانى - فيزياء - كلية العلوم - جامعة المنصورة

Mansoura University Faculty of Science Physics Department	بسم الله الرحمن الرحيم Final Exam in Physics (Jan. –2012) ثانية جيوفيزياء 228	Time Allowed :2 hours Subject : PHYSICS (تيار متردد ودوائر كهربية)

Answer the following questions

1- a) Find $\mathbf{Y_{eq.}}$ and $\mathbf{Z_{eq}}$ for the given two branch parallel circuit.

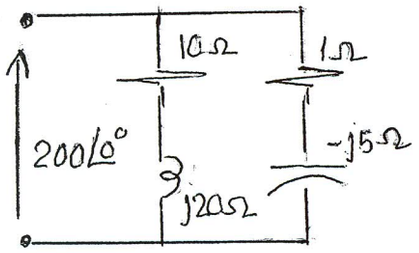
b) draw:

1- the parallel equivalent circuit

2- the series equivalent circuit

c) Construct the current Phasor diagram

d) Sketch the V- I phasor diagram



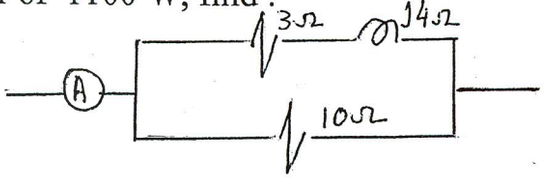
2- a) Derive an expression for the complex power, define its components.

b) The circuit of figure has a total power of 1100 W, find :

1- the reading on the Ammeter

2- the power in each resistor

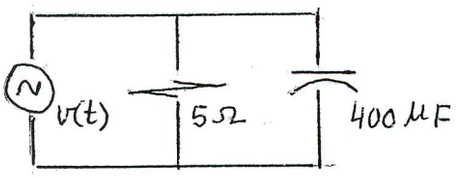
3- draw the power triangle

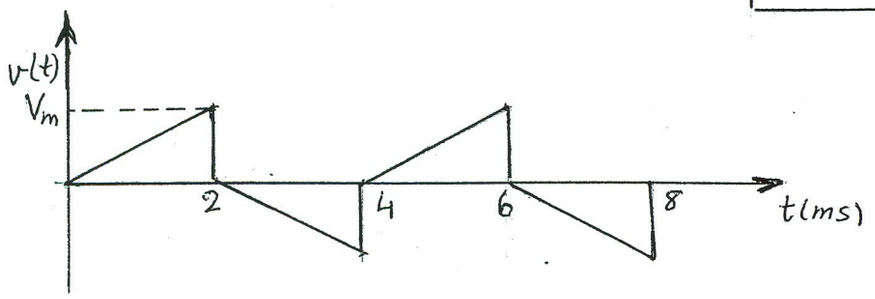


3- The voltage waveform shown in figure (has V_{rms} =28.87 volts) and is applied to the circuit shown in figure

a) Sketch the total current waveform

b) Find its average value.





Best wishes DR . Aziza Atta

Mansoura University Faculty of Science Physics Department		**First Term Exam.** Date: **1-1-2012** Time allowed : **2 hours** Full Mark: **80 Mark**
Subject: **Physics**		Course: **221 ف Physical Optics**

Answer the Following Questions

[1]a- Demonstrate an explanatory diagram of the optical arrangement of Young's experiment on interference. Drive the theory of interference for this experiment. **[10 Marks]**

b- Explain how you can determine the thickness of a thin sheet of transparent material using Fresnel's biprism. **[8 Marks]**

c- Good fringes were observed with Michelson interferometer with monochromatic light, when the movable mirror is shifted 0.015 mm, a shift of 50 fringes is observed. What is the wavelength of light used. **[8 Marks]**

[2] a- Discus Fraunhofer diffraction using a rectangular slit. Drive an expression for the intensity distribution of the observed diffraction pattern. **[15 Marks]**

b- A parallel beam of monochromatic light is allowed to be incident normally on a plane spectra grating having 6000 lines/cm and a second order spectral line is observed to be deviated through 30^{o} Calculated the wavelength of the spectral line. **[12 Marks]**

[3]a- Explain with the necessary theory of interference in thin films due to reflected light. **[9 Marks]**

b- How can you obtain polarized light by refraction? **[9 Marks]**

c- In a Jamin's refractometer, two evacuated tubes each of length 20 cm are placed in the two beams. A gas at a known temperature and pressure is slowly and 100 fringes cross the centre of the field of view. Calculate the refractive index of the gas. (where the used source have wavelength $\lambda = 5460\ A^{o}$). **[9 Marks]**

Good Luck

Examiners: Prof. Dr. Taha Sakkar, Prof. Dr. Eman seisa , Prof. Dr. Mohamed Kabeel

الفصل الثاني - جيوفيزياء - جف ٢٠١ مقدمة في الجيوفيزياء

Mansoura University
Faculty of Science
Geology Department
Date: 13/1/2012

First Term Exam (Jan 2012)
Second level (Geophysics)
Subject: Gphy 201
Course: Introduction to Geophysics
Time: 2 hours Full Mark: 60

Answer the following questions **marks**

1- A) Deduce the resistivity equation of electric current flow in a half-space (10)

B) How do well logs provide useful information? (8)

2- A) Complete:

Seismic methods can be applied in……,……,…… Factors that decrease the resistivity of a rock are ……,……,……,…… Gravity method is mainly depending on……While magnetic method is depending on…… Electromagnetic method is mainly depending on …… (10)

2-B) Select the correct answer: (9)

Gravity method is considered to be (passive- active- both passive and active) method.

- The angle at which the incidence P-ray is bent to where it is just below and along the boundary is called (critical angle- refracted angle- reflected angle).
- Clays and silts typically exhibit (higher conductivity- lower conductivity- the same conductivity) when compared with pure sands and gravels.

3- Discuss the following:

A) The basic principle of frequency domain electromagnetic method (8)

B) Maxwell and constitutive equations (8)

C) Define forward and inverse problems ? (7)

لجنة الإمتحان والتصحيح*:

أ.د. محمد رفعت شريف أ.د. إبراهيم كرات أ. د. حمدي صيصة د.عادل كامل*

Mansoura University
Faculty of Science
Geology Department
Date: 1/1/2012

First Term Exam (Jan 2012)
Second level (Geophysics and Geology)
Subject: Geo-204
Course: Structural Geology
Time: 2 hours Full Mark: 60

Answer the following questions:

NOTE: Draw well-represented figures wherever needed to support your answer

1- Write briefly on: (5 marks for each)

a) The differences between the normal, reverse, strike-slip, diagonal and thrust faults.
b) The drag and roll-over faults.
c) The pull-apart basins and give an example from Egypt.
d) The style of structures for a hanging-wall that is cut by planar and listric faults. (5 marks)

2- Comment on each of the following: (5 marks for each)

a) Contractional and extensional strike-slip duplexes
b) The shear array in a strike-slip shear zones and show an example from Egypt.
c) Symmetrical and asymmetrical rifts.
d) The upright, overturned and inclined folds

3- Show the differences between: (2 marks for each)

a) Anticline and syncline
b) Plunging anticline and syncline folds.
c) Hinge line and fold axis.
d) Graben and half graben on planar and listric faults.
e) Transform and transcurrent faults.
f) Klippe and tectonic windows.
g) The sole and growth faults.
h) listric and planar faults
i) Synthetic and antithetic faults rifts.
j) True and apparent dips.

Best Regards

لجنة الإمتحان والتصحيح*:

ع

المستوى الثاني - جيولوجيا (ج ٢٠٣) علم الصخور

Mansoura University
Faculty of Science
Geology Department

Date: 20 Jan., 2012

Final Exam (January 2012)
Second Level (Geology Program)
Subject: G-203 (Petrology)
Total Marks: 60 Time: 2 hours

Answer the following questions:

Question ONE: Complete the following: **(15 marks)**

1- .... deals with sharpness of edges and corners of a clastic fragment.

2- .... is the spatial arrangement of the fragment elements.

3- Sediments are analyzed mechanically by .... and .... methods.

4- .... means physical and chemical changes that happend to sediments after buried.

5- Fine sediments have .... porosity than .... sediments.

6- Processes by which sediment particles laid down in beds called ....

7-..............is the property of a rock which allows fluid to pass through it.

8- Sediments with mud matrix, poor sorting and angular grains are described as.............

9-..........is a measure of the relation between the 3 dimensions of an object.

10-..........is the percentage of pore spaces to the total volume of the rock.

11- Detrital minerals include ....,.........,..........,............

12- Chemical minerals include..........,..........,..........,..........

13-Structures of sedimentary include............,............,.............,...............

14-............. are accessory minerals in the parent rock surviving destruction.

15- .... deals with the manner of arrangement of the grains.

Question TWO: Give a suitable name for these rocks: **(15 marks)**

1- Indurated rock composed of rounded large fragments of volcanic origin.

2- Lithified non-laminated clays containing angular and rounded rock fragments polished and striated.

3- Formed due to movement that occurs along fault surface.

4- Immature deposits, vary in composition and consist of several kinds of metastable rock fragments.

5- Sandstone with feldspar grains exceed 25%.

6- Sandstone with matrix more than 75%.

7- Sandstone with matrix less than 15%.

8- Non-laminated rock whose particles have size less than 1/16 mm.

9- Semi friable mixtures of clay materials and lime carbonate.

10- A rock composed mainly of 95%or more quartz

11- Pure organic mud rock rich with bitumen and kerogen..

12- Biochemical deposits formed by constructive activity of organisms.

13- Evaporitic carbonate, impure soils formed in situ in semiarid region.

14- Unconsolidated porous silt of special character, buff in color and highly calcareous.

15- Limestones formed by evaporation of spring and river waters.

-- ***P.O.T***

***Question THREE:* Complete the following:**

- Dunite is an ...(1)... rock, composed mainly of ...(2)... mineral, and its metamorphism is yielded ...(3)... rock.
- Volcanic rocks are characterized by ...(4)..., ...(5)... and ...(6).... textures.
- Fine-grained foliated rock is define as ...(7)... rock, while medium-grained foliated rock is defined as ...(8)...
- Metamorphic agents of orogenic metamorphism include ...(9)..., ...(10)... and ...(11)...
- Quartizite is a metamorphic equivalent of ...(12)..., while marble is a metamorphic equivalent of ...(13)...
- Plutonic equivalent of basalt is ...(14)..., which are composed of ...(15)... and ...(16)...minerals.
- According to mode of occurrence, batholiths are ...(17)..., lava flows are ...(18)..., while sills are ...(19)...
- Quartz is essential mineral in ...(20)... igneous rock, while Ca-rich plagioclase is only formed the ...(21)...rock.
- The early-formed mafic igneous mineral is .....(22)..., while the latest-formed mineral is ....(23)....
- Obsidian characterizes by ...(24)...texture, while texture of granite is ...(25)..., pegmatite is ...(26)... and gneisse is ...(27)....
- The magma is composed of ...(28)..., ...(29)..., and ...(30)... phases.

Question Four: ***(15 Marks)***

a) Choose the correct answer from the following: ***(6 Marks)***

1- The main agent of contact metamorphism is (T - P - P&T – P,T & active fluids).

2- Low-grade metamorphism of shale is (amphibolite – gneiss – marble – slate).

3- Andesite is the volcanic equivalent of (diorite – gabbro – granite – granodiorite).

4- Crystallization of volatile-rich magma gives (rhyolite - dacite – pegmatite - anorthosite).

5- Calcite-rich metamorphic rock is generated from (shale – granite – basalt – limestone)

6- Pumice is (felsic – mafic – ultramafic – intermediate) igneous rock.

b- Describe the mineral composition, texture, mode of generation, color of the following rocks: ***(6 Marks)***

1- Diorite 2- Pyroxenite 3- Basalt

c- Compare between the characters of igneous and metamorphic rocks? ***(3 Marks)***

---------- With our best wishes

Examiners: Prof. Dr. Amin Geith Prof. Dr. Mahrous Abu El-Enen

المستوى الثانى - جيولوجيا - بصريات المعادن والصخور المكونة للصخور ج٢٠٢
جيوفيزيا

Mansoura University
Faculty of Science
Geology Department

Final Theoritical Exam
1st Term 2011/2012

Date: 22 / 01 / 2011
Time Allowed: Two Hours
Full Mark: 60 Marks

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

الورقة الامتحانية :-- ج ٢٠٢ المقرر:-- بصريات المعادن والمعادن المكونة للصخور

Optical Mineralogy + Rock-Forming Minerals

Answer Three Questions from the Followings:- (20 Marks each question - 5 Marks each part)

1- Draw the followings :--
   - A- Sheet silicate structures.
   - B- Behaviour of light in the microscope.
   - C- Double and chain silicate structures.
   - D- Nicol prism.

2- Compare between the following pairs :--
   - A- Gypsum plate and quartz wedge.
   - B- Colours of 1st and 2nd orders.
   - C- Micas and Feldspars.
   - D- double refraction and twinkling.

3- Describe in detail the followings :--
   - A- Pleochroism.
   - B- Relief.
   - C- Controlling factors on refractive index.
   - D- Amphiboles and pyroxenes.

4- Write short notes on the followings :--
   - A- Factors affecting interference colours.
   - B- Extinction.
   - C- Ring silicate structures.
   - D- Optic axis.

GOOD LUCK & BEST WISHES

لجنة التصحيح :- أ.د. عمر حجاب – د. شعبان مشعل*