
	Tanta University, Faculty of Science, Department of Botany			
	Final Examination for (First level) Students of Geology			
	COURSE TITLE: General Botany		COURSE CODE: BO 1121	
DATE: 12 JANUARY, 2023	TERM: FIRST	TOTAL ASSESSMET MARKS: 100	TIME ALLOWED: 2HOURS	

Section A (Plant Morphology, 50 Marks)



First question:

A- Write the Scientific term for each of the following:- (20 Marks, 2 each)

1. Is a mature fertilized ovule formed after fertilization with a pollen grain ()
2. Type of the germination where the cotyledons are pushed above the ground ()
3. Roots that develop from any other part other than the radicle ()
4. Type of roots are formed from the lower nodes of the stem near the soil surface as secondary growth root ()
5. Roots arise on the shoots to absorb water vapor from air and not differentiated into primary root or secondary roots ()
6. Stems that not able to grow in erect position without support due to the absence of sufficient mechanical tissues ()
7. Type of buds that are located on sides or above the lateral bud ()
8. The type of stem branching where apical bud modified into permanent organ and the plant complete its growth from the lateral bud ()
9. Stems are located under the ground to perform additional function such as storage ()
10. Pair of appendages that may grow around the leaf base ()

B- Mark each correct statement with (√) and each false one with (×) (10 Marks, 1 each)



- 1- Reticulate venation is a type of venation is restricted to the monocot plant ()
- 2- Cauline is a type of leaves arrangement whereas three or more leaves arise from the same node ()
- 3- Compound leaves are those in which the leaf blade is divided into number of leaflets ()
- 4- Prophylls leaves are the first green leaves in the hypogeal germination ()
- 5- Leaves are provided with veins that help in conduction of food, water and minerals ()
- 6- In case of radical arrangement, the leaves arise from the root ()
- 7- Winter buds are composed of small leaves covered with scaly leaves ()
- 8- Creeping stems are give adventitious roots from nodes near the soil ()
- 9- Root system is negatively geotropic and positively phototropic ()
- 10- Shoot system is positively hydrotropic and negatively phototropic ()

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Second Question

Choose the correct answer to the following questions: - (20 Marks, 2 each)

- 1- **The embryonic axis below the point of attachment of the cotyledon**
a- Epicotyl b- Hypocotyl c- Plumule d- root
- 2- **It is a modified subterranean stem that is usually found underground and divided into nodes and internodes often give adventitious roots and shoots from its nodes**
a- Rhizome b- tubers c- bulbs d- corms
- 3- **It is a weak stem that form tendrils to expose its leaves to the sun**
a- Twining stem b- climbing stem c- running stem d- creeping stem
- 4- **It is a stem which get transformed into a leaf like structure and become flattened and rich with chloroplast**
a- Succulent stem b- spiny stem c- leafy stem d- storage stems
- 5- **The stem that is able to carry its branches, leaves, fruits upwardly according to it has strong mechanical tissues**
a- Prostrate stem b- erect stem c- twining stem d- climbing stem
- 6- **The leaf base, which is broad and surround the dwarf stem**
a- Normal b- short sheathed c- long sheathed d- pulvinus
- 7- **This is the largest, most important, green and dorsiventrally flattened part of the plant**
a- Leaf petiole b- leaf margin c- leaf stipules d- leaf blade
- 8- **Compound pinnate leaflets that are arranged on both lateral sides of the midrib like a feather and terminated with only one leaf**
a- Paripinnate b- imparipinnate c- trifoliolate d- compound palmate
- 9- **The type of leaf blade which is divided into portion having a large terminal lobe and the other lobes decrease gradually towards the base**
a- Lyrate lobed b- pinnately lobed c- palmately lobed d- compound blade
- 10- **Adventitious roots are developing from**
a- Radicle b- seed c- stems d- hypocotyl

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Section B (Plant Anatomy, 50 Marks)

Third Question

A- Write the scientific term in front of the following sentences:- (20 Marks)

- 1- It is composed of Trachids, vessels, parenchyma and fibers (.....)
- 2- They are Living, storage and thin wall tissue (.....)
- 3- It is differentiated into Cytoplasm and nucleus (.....)
- 4- It is a watery, gelatinous, semi-transparent fluid found in eukaryotic and prokaryotic cells (.....)
- 5- The living cell organelle responsible for energy production (.....)
- 6- They are used for the exchange of gases in between the plant and atmosphere (.....)
- 7- Non-living tissue, their cell walls are lignified and have no intercellular spaces (.....)
- 8- It is formed by the condensation of glucose and consist of layers around hilum (.....)
- 9- It is a network extends from the nucleus to the margins of the cell and responsible for transport compounds from one part to the other inside the cell (.....)
- 10- The aqueous solution containing organic and inorganic substances (.....)

B- In a table, Compare between: - (10 Marks)

- 1- Calcium carbonate and calcium oxalate
- 2- Ribosomes and lysosomes

Fourth Question: -

Give short note on :- (20 Marks)

- 1- Types of vascular bundles
- 2- Types of plastids
- 3- The dermal tissue and function of epidermis
- 4- Simple permanent tissues

With my Best Wishes

Dr. Walaa Abd Elmegeid



TANTA UNIVERSITY - FACULTY OF SCIENCE - CHEMISTRY DEPARTMENT

General Chemistry I Final exam for the First-year students (Geology Section)

Course No. : CH1101

Date: 01 January 2023

Time allowed: Two hours

Total marks: 150

هذا الامتحان مكون من جزئين (PART I & PART II) موزعه على ستة صفحات على النحو التالي:

===== (120 marks, 4 marks each)

اختر الإجابة الصحيحة في كل سؤال ثم حدد الإجابات الصحيحة في المرفق

1. Which of the following atomic symbols and names is correct?

- A. Phosphorus, P
B. Cobalt, CO
C. magnesium, Mn
D. iron, Ir

2. When combining the masses 0.0462 kg, 58.432 kg and 7854 kg, the total has significant figures equals:

- A. 3
B. 6
C. 5
D. 4

3. For the relation: 1 atm = 1.01325 x 10⁵ Pa = 760 torr. When the pressure is 91.4 atm, the correct value is:

- A. 6.95 x 10⁵ kPa
B. 9.26x10³ kPa
C. 9.26x10⁷ torr
D. 9.26x10⁵ kPa

4. The temperature of a system is measured to be 75.49F. An equivalent temperature would be,

- A. 59.60C
B. 78.10C
C. 332.7 K
D. 297.3 K

5. The compound copper (II) nitrate would have the formula,

- A. CuNO₃
B. Cu₂NO₃
C. Cu(NO₃)₂
D. Cu₂NO₂

6. All atoms of a given isotope of the same element,

- A. possess the same mass number.
B. possess the same chemical properties
C. have the same atomic number
D. all the above

7. The isotope ⁵²Cr has in its nucleus,

- A. 24 neutrons
B. 28 neutrons
C. 28 protons
D. 52 neutrons

8. An example of an element that can be classified as a metalloid is,

- A. arsenic
B. cobalt
C. sodium
D. sulfur

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تنبه هنا: أسئلة الامتحان موزعة على ستة صفحات. حل الأسئلة داخل كراسة الامتحان ثم نقل الإجابات الصحيحة في المرفق.

9. The simplest formula of the molecule P₄O₁₀ is,

- A. PO
B. P₂O₅
C. P₄O₁₀
D. P₈O₂₀

10. Aqueous solutions of HCl, HNO₃, H₂SO₄, and HClO are all,

- A. acids
B. alkalis
C. binary ionic compounds
D. oxoanions

11. Both ⁸⁵Rb⁺ and ⁸⁵Br⁻ have the same number of,

- A. protons
B. neutrons
C. electrons
D. (protons + neutrons)

12. What is the mass percent of sodium in sodium sulfate, Na₂SO₄?

- A. 16.19 %
B. 19.33 %
C. 28.57 %
D. 32.37 %

13. Given: 2Pb (NO₃)₂(s) → 2PbO(s) + 4NO₂(g) + O₂(g). If 16.8 g of Pb(NO₃)₂ decompose, how many grams of NO₂ are produced? (Pb=207, N=14, O=16)

- A. 2.34
B. 4.67
C. 9.35
D. 33.6

14. Determine the number of molecules of sucrose in 2.00 x 10² grams of sucrose, C₁₂H₂₂O₁₁, (C=12, O=16)

- A. 0.585
B. 6.84 x 10⁴
C. 3.52 x 10²³
D. 1.20 x 10⁶

15. A sample of molecular hydrogen weighing 1.008 g contains the same number of atoms as,

- A. 16.00 g of oxygen gas
B. 12.00 g of Carbon
C. both of the above
D. none of the above

16. Determine the weight in grams of one molecule of iodine, I₂, (I = 127).

- A. 1.66 x 10⁻²⁴
B. 4.22 x 10⁻²²
C. 253.81
D. 2.37 x 10²¹

17. A compound contains by mass 40.0% carbon, 6.71% hydrogen, and 53.3% oxygen. A 0.025 mole sample of this compound weighs 3.75 g. The molecular formula of the compound is

- A. CHO
B. CH₂O
C. C₆H₁₄O₄
D. C₅H₁₀O₅

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تنبه هنا: أسئلة الامتحان موزعة على ستة صفحات. حل الأسئلة داخل كراسة الامتحان ثم نقل الإجابات الصحيحة في المرفق.

18. How many grams of ammonia are produced when 1.50×10^2 g of hydrogen are reacted with 1.50×10^2 g of nitrogen? $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$
- A. 1.82×10^2
 B. 3.00×10^2
 C. 6.00×10^2
 D. 8.50×10^2
19. For a fixed amount of gas at a fixed pressure, changing the temperature from 30°C to 60°C causes:
- A. the gas volume to decrease
 B. the gas volume to double
 C. the gas volume to increase but not to double
 D. the gas volume to decrease to half its original value
20. If a 0.300-L flask at 27°C and 1.00 atm contains 0.975 g of vapor, the formula for the vapor could be,
- A. SO_4
 B. SO_3
 C. SO_2
 D. SO
21. In a mixture of $\text{CH}_4(\text{g})$ and $\text{C}_2\text{H}_6(\text{g})$, the partial pressure of $\text{CH}_4(\text{g})$ is 0.825 atm. If the total pressure of the mixture is 1.400 atm, the mole fraction of $\text{C}_2\text{H}_6(\text{g})$ in the mixture is
- A. 0.371
 B. 0.411
 C. 0.525
 D. 0.589
22. Which of the following is true? Equal volumes of the gases, nitrogen dioxide and hydrogen bromide, under the same temperature and pressure have equal;
- 1-number of atoms.
 2-number of molecules.
 3-average velocity.
- A. 1 only
 B. 2 only
 C. 3 only
 D. 1 and 2 only
23. Real gas molecules differ from ideal gas molecules in that real gas molecules
- A. have larger masses.
 B. have smaller masses.
 C. collide with elastic collisions.
 D. have attractions between molecules.

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تتبعه هلم: أسئلة الإمتحان موزعة على ستة صفحات. حل الأسئلة داخل كراسة الإمتحان ثم اطلب الإجابات الصحيحة في ورقة المرقف.

24. Arrange the following sets of quantum numbers in order of increasing energy. If they have the same energy, place them together.
- a. 4, 2, -1, +1/2
 b. 1, 0, 0, -1/2
 c. 3, 1, 1, -1/2
 d. 2, 0, 0, +1/2
- A. $a > b > c > d$
 B. $a > c > b > d$
 C. $a > c > d > b$
 D. $b > c > d > a$
25. Which of the following represents ionization energy of iodine?
- A. $\text{I}_2(\text{s}) \rightarrow \text{I}_2(\text{s}) + e$
 B. $\text{I}_2(\text{g}) \rightarrow \text{I}_2^+(\text{g}) + e$
 C. $\text{I}(\text{s}) \rightarrow \text{I}^+(\text{s}) + e$
 D. $\text{I}(\text{g}) \rightarrow \text{I}^+(\text{g}) + e$
26. Which of the following set of quantum numbers not allowed;
- A. 1, 0, 0, -1/2
 B. 3, 1, 1, -1/2
 C. 3, 3, -3, +1/2
 D. 4, 3, 3, +1/2
27. All of the following species are isoelectronic with Ar EXCEPT
- A. K^+
 B. Cl^-
 C. Ca^{2+}
 D. Br^-
28. Which of the following electron configuration represents a paramagnetic atom?
- | 1s | 2s | 2p |
|---------------------------|------------------------|--|
| A. $(\uparrow\downarrow)$ | $(\uparrow\downarrow)$ | $(\uparrow)(\uparrow)(\uparrow)$ |
| B. $(\uparrow\downarrow)$ | $(\uparrow\downarrow)$ | $(\uparrow)(\uparrow)(\uparrow)$ |
| C. $(\uparrow\downarrow)$ | $(\uparrow\downarrow)$ | $(\uparrow\downarrow)(\uparrow)(\uparrow)$ |
| D. All of the above | | |
29. The correct order of increasing electronegativity of the five atoms, Ca, Cl, Rb, Br, Ga, is:
- A. $\text{Ca} < \text{Rb} < \text{Ga} < \text{Br} < \text{Cl}$
 B. $\text{Rb} < \text{Ca} < \text{Ga} < \text{Br} < \text{Cl}$
 C. $\text{Cl} < \text{Br} < \text{Ga} < \text{Ca} < \text{Rb}$
 D. $\text{Rb} < \text{Ga} < \text{Ca} < \text{Br} < \text{Cl}$
30. Arrange the following atoms; K, S, Sc, and Cl in order of increasing atomic radius;
- A. $\text{Sc} < \text{K} < \text{Cl} < \text{S}$
 B. $\text{K} < \text{Sc} < \text{S} < \text{Cl}$
 C. $\text{S} < \text{Cl} < \text{K} < \text{Sc}$
 D. $\text{Cl} < \text{S} < \text{Sc} < \text{K}$

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تتبعه هلم: أسئلة الإمتحان موزعة على ستة صفحات. حل الأسئلة داخل كراسة الإمتحان ثم اطلب الإجابات الصحيحة في ورقة المرقف.

PART II: Questions & Problems (30 Marks)

Draw the Lewis structures for the following: (12 Marks, four marks each)

	NO_3^-	SF_6	XeF_4
Lewis structure			

تتيه هلم: أسئلة الإمتحان موزعة على ستة صفحات. حل الأسئلة داخل كراسه الإمتحان ثم ظلل الإجابات الصححة في Bubble Sheet المرقق.

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2- Complete the following table (18 Marks, two marks each)

Lewis structure	$\text{O}=\text{C}=\text{O}$		
Geometry			
Polarity			
Hybridization			

أرق الامنيات بالتوفيق - لجنة الممتحنين

تتيه هلم: أسئلة الإمتحان موزعة على ستة صفحات. حل الأسئلة داخل كراسه الإمتحان ثم ظلل الإجابات الصححة في Bubble Sheet المرقق.


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Periodic Table of the Elements

		Number Symbol Name Mass					
1	1	1 H Hydrogen 1.008	2 He Helium 4.003	18	2		
2	2	3 Li Lithium 6.941	4 Be Beryllium 9.012	13	3		
3	3	11 Na Sodium 22.990	12 Mg Magnesium 24.305	14	4		
4	4	19 K Potassium 39.098	20 Ca Calcium 40.078	15	5		
5	5	37 Rb Rubidium 85.468	38 Sr Strontium 87.62	16	6		
6	6	55 Cs Cesium 132.905	56 Ba Barium 137.328	17	7		
7	7	87 Fr Francium 223.020	88 Ra Radium 226.025	18	8		
		Lanthanide Series 57 La Lanthanum 138.905 58 Ce Cerium 140.116 59 Pr Praseodymium 140.908 60 Nd Neodymium 144.243 61 Pm Promethium 144.913 62 Sm Samarium 150.35 63 Eu Europium 151.964 64 Gd Gadolinium 157.25 65 Tb Terbium 158.925 66 Dy Dysprosium 162.500 67 Ho Holmium 164.930 68 Er Erbium 167.253 69 Tm Thulium 168.934 70 Yb Ytterbium 173.055 71 Lu Lutetium 174.967		Actinide Series 89 Ac Actinium 227.028 90 Th Thorium 232.038 91 Pa Protactinium 231.036 92 U Uranium 238.029 93 Np Neptunium 237.048 94 Pu Plutonium 244.064 95 Am Americium 243.061 96 Cm Curium 247.070 97 Bk Berkelium 247.070 98 Cf Californium 251.080 99 Es Einsteinium 252 100 Fm Fermium 257.095 101 Md Mendelevium 258.1 102 No Nihonium 259.101 103 Lr Lawrencium 260			
		Alkali Metal Alkaline Earth Transition Metal Basic Metal Metalloid Nonmetal Halogen Noble Gas Lanthanide Actinide					
		21 Sc Scandium 44.956	22 Ti Titanium 47.887	23 V Vanadium 50.942	24 Cr Chromium 51.996		
		39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.94		
		71 Hf Hafnium 178.49	72 Ta Tantalum 180.948	73 W Tungsten 183.84	74 Re Rhenium 186.207		
		104 Rf Rutherfordium [261]	105 Db Dubnium [262]	106 Sg Seaborgium [266]	107 Bh Bohrium [264]		
		108 Hs Hassium [265]	109 Mt Meitnerium [270]	110 Ds Darmstadtium [285]	111 Rg Roentgenium [289]		
		112 Cn Copernicium [285]	113 Nh Nihonium [286]	114 Fl Flerovium [289]	115 Mc Moscovium [289]		
		116 Lv Livermorium [293]	117 Ts Tennessine [294]	118 Og Oganesson [294]			
		25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693		
		43 Tc Technetium 98.906	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.906	46 Pd Palladium 106.42		
		75 Re Rhenium 186.207	76 Os Osmium 190.22	77 Ir Iridium 192.22	78 Pt Platinum 195.085		
		101 Db Dubnium [262]	102 Hg Mercury 200.592	103 Tl Thallium 204.383	104 Pb Lead 207.2		
		106 Sg Seaborgium [266]	107 Bh Bohrium [264]	108 Hs Hassium [265]	109 Mt Meitnerium [270]		
		110 Ds Darmstadtium [285]	111 Rg Roentgenium [289]	112 Cn Copernicium [285]	113 Nh Nihonium [286]		
		114 Fl Flerovium [289]	115 Mc Moscovium [289]	116 Lv Livermorium [293]	117 Ts Tennessine [294]		
		118 Og Oganesson [294]					
		31 Al Aluminum 26.982	32 Ge Germanium 72.631	33 As Arsenic 74.922	34 Se Selenium 78.971		
		49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.757	52 Te Tellurium 127.6		
		81 Tl Thallium 204.383	82 Pb Lead 207.2	83 Bi Bismuth 208.980	84 Po Polonium [209]		
		113 Nh Nihonium [286]	114 Fl Flerovium [289]	115 Mc Moscovium [289]	116 Lv Livermorium [293]		
		117 Ts Tennessine [294]	118 Og Oganesson [294]				
		5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999		
		13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.06		
		31 Ga Gallium 69.723	32 Ge Germanium 72.631	33 As Arsenic 74.922	34 Se Selenium 78.971		
		49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.757	52 Te Tellurium 127.6		
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		117 Ts Tennessine [294]	118 Og Oganesson [294]				
		9 F Fluorine 18.998	10 Ne Neon 20.180	17 Cl Chlorine 35.453	18 Ar Argon 39.948		
		35 Br Bromine 79.904	36 Kr Krypton 83.798	53 I Iodine 126.904	54 Xe Xenon 131.29		
		85 At Astatine 208.987	86 Rn Radon 222.018				

Constants

Gas constant, R	0.083 atm L/ mol K
Avogadro's number, N _A	6.02 x 10 ²³

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	EXAMINATION for First level B.Sc Geology Students		
	COURSE TITLE:	Historical Geology	COURSE CODE: GE1103
DATE:	JAN, 2023	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

(Part I): (1 hour)

1- Put ✓ or × marks and correct the wrong ones:- (21 marks)

- 1- The relative age is used for interpret the relation between the sun and the earth
- 2- Arabian-Nubian shield occur in America and related to Alpine Orogeny at 900 Ma
- 3-The absolute age determined by using trilobites.
- 4-The Precambrian Era classified into Paleozoic, Mesozoic and Cenozoic.
- 5- Oceans and continents fixed during geologic time and no change in the surface of earth
- 6- Stony Meteorites is similar to the core of the earth
- 7-The Hadean Era began at 2300 to 1300Ma and occurred in Sinai

Answer the following questions- (29 marks)

- 1-Define the Paleo-Proterozoic Era, age, classification and occurrences in Egypt and the World.
- 2-What is the evidence for the relation between the earth and sun?
- 3-Write on Pan-African orogeny, alpine Orogeny and Varascian orogeny
- 4-Define the Achaean Era, age, classification and occurrences in Egypt and the World
- 5-Write on methods for absolute age determination
- 6-Describe the Hadean Era, the age and occurrences in Egypt and the World.

(Part II): (1 hour)

Choose the correct answer of the following questions: (50 Marks)

- 1) Which of the following correctly describe the term Cenozoic
 - a. Age of mammals
 - b. age of human
 - c. age of new life
 - d. age of the conifers
- 2) Which era in Earth's history is known as the Age of Reptiles
 - a. Paleozoic Era
 - b. Precambrian Era
 - c. Cenozoic Era
 - d. Mesozoic Era
- 3) Which of the following characteristic of the Paleozoic Era
 - a. Mollusca
 - b. Trilobite
 - c. Brachiopods
 - d. Birds
- 4) Which of the following index fossil for the Cambrian Period
 - a. Graptolites
 - b. Archaeocyatha
 - c. Trilobite
 - d. Brachiopods
- 5) Approximately, 90% of the most important events in Earth's history happened in
 - a. Paleozoic
 - b. Cenozoic
 - c. Mesozoic
 - d. Precambrian

انظر خلف الورقة ←

6) In which period the Graptolites were dominant

- a. Cambrian b. Ordovician c. Permian d. Triassic

7) What the bases of boundary delineation between the periods and eras

- a. Absence of organisms b. appearance of organisms c. Absence and appearance of organisms

8) Which period is also known as the age of fish

- a. Permian b. Ordovician c. Devonian d. Triassic

9) Which period is referred as the "age of dinosaurs?"

- a. Triassic b. Cretaceous c. Devonian d. Jurassic

10) The first life forms on planet Earth occur during the Archean are called

- a. eukaryotes b. trilobites c. protists d. prokaryotes

With Good Luck

Prof. Abdelfattah A. Zalat	Prof. Mohamed M. Abu Anbar
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كلية العلوم

قسم الرياضيات

جامعة طنطا

امتحان الطلاب المستجدين - المستوى الاول - شعبة العلوم الطبيعه

كود المقرر: MA1101

اسم المقرر: رياضيات 1

التاريخ: 2023/1/24

يناير 2023

الفصل الدراسي: الاول

الدرجة الكلية للامتحان: 150 درجة

انتبه الامتحان مكون من اربعة اوجه

اجب عن الاسئلة الاتيه:

السؤال الاول: (35 درجة)**(10 درجات)**a. اثبت ان $\cosh^{-1}x = \ln(x + \sqrt{x^2 - 1})$ ومنها او باى طريقة اخرى اثبت ان

$$\frac{d}{dx} \cosh^{-1}x = \frac{1}{\sqrt{x^2 - 1}}$$

(15 درجة)b. اوجد المشتقة الاولى $\frac{dy}{dx}$ للدوال الاتيه:

i) $y = e^{\sec 2x} - \sin^{-1}5x + 2^{(2x-1)} - \cos(\ln 5x)$

ii) $y = (\sinh x)^{\cosh x}$

iii) $\ln xy + y^2 + \cos 6x - \sin^2 x = -2$

(10 درجات)c. اوجد مفكوك ماكلوين للداله $f(x) = \sin x$ **السؤال الثاني: (35 درجة)**a. إذا كانت R معرفة على مجموعة الأعداد الصحيحة Z بحيث $aRb \leftrightarrow a \equiv b \pmod{2}$ فاثبت أن R علاقة تكافؤ؟**(15 درجة)**

ثم أوجد فصول تكافؤها؟ وأوجد التجزئ الناشئ عليها؟

(10 درجة)b. حل الكسر التالي إلى كسور جزئيه $\frac{2x+2}{x^2-x-12}$ **(10 درجة)**c. اثبت باستخدام الاستنتاج الرياضى أن $3 + 8 + 13 + \dots + (5n - 2) = \frac{n}{2}(5n + 1) \forall n \in N$ **السؤال الثالث: أختار الإجابة الصحيحة (يحل هذا السؤال في ورقة التظليل الإلكتروني) (80 درجة)**(1) المدى للداله $f(x) = \ln(x + 7)$ هو ...a. R^+ . b. R^- . c. $]-7, \infty[$. d. R (2) قيمه النهايه $\lim_{x \rightarrow 0} \frac{\tan^{-1} 2x}{\sin^{-1} x}$ تساوى ...

a. e . b. 0 . c. 2 . d. غير معرفه

(3) مجال الداله $f(x) = \cos^{-1} 2x$ هو ...a. $[\frac{-1}{2}, \frac{1}{2}]$. b. $]-\frac{1}{2}, \frac{1}{2}[$. c. $[-1, 1]$. d. $R -]\frac{-1}{2}, \frac{1}{2}[$ (4) مدى الداله $f(x) = \sinh x$ هو ...a. R^- . b. R^+ . c. $R - [-1, 1]$. d. R (5) معادلة المماس للمنحنى $y = \cos x$ عند النقطه $(0, 1)$ هي ...a. $y + x - 1 = 0$. b. $y = 1$. c. $y + 2x = 1$. d. $y - 2x = 1$

(6) قيمة الثابت c الذي يحقق نظرية رول للدالة $f(x) = x^2 - 3x$ في الفترة $[-1, 4]$ هو ...

- a. $\frac{2}{3}$. b. $\frac{3}{4}$. c. $\frac{3}{2}$. d. $\frac{4}{3}$

(7) $\lim_{x \rightarrow \infty} x \sin \frac{3}{x}$ قيمتها تساوى ...

- a. -3 . b. 1 . c. 3 . d. 0

(8) الدالة العكسية للدالة $f(x) = \sqrt{\ln x}$ هي ...

- a. $e^{\frac{x}{2}}$. b. e^{x^2} . c. $\frac{1}{2}e^x$. d. $e^{\sqrt{x}}$

(9) الدالة $y = \sinh x + \cosh x$

- a. مجالها R ومداها R^+ . b. مجالها R^+ ومداها R^+ . c. مجالها R^+ ومداها R . d. مجالها R ومداها R^+

(10) $\lim_{x \rightarrow 0} x^x = \dots$

- a. 0 . b. e . c. غير موجوده . d. 1

(11) أى العبارات الآتية صحيحة ...

- a. أى داله متصله تكون قابله للاشتقاق . b. أى داله قابله للاشتقاق تكون متصله

- c. أى داله غير قابله للاشتقاق تكون غير متصله . d. أى داله غير قابله للاشتقاق تكون متصله

(12) المشتقة النونية للدالة $y = \frac{1}{ax+b}$ حيث a, b ثوابت هي ...

- a. $y^{(n)} = \frac{(-1)^n a^n}{(ax+b)^n}$. b. $y^{(n)} = \frac{(-1)^n a^n}{(ax+b)^{n+1}}$. c. $y^{(n)} = \frac{(-1)^{n+1} a^n}{(ax+b)^{n+1}}$. d. $y^{(n)} = \frac{(-1)^{n+1} a^n}{(ax+b)^{n+1}}$

(13) مشتقة الدالة $\cosh x$ بالنسبة للدالة $\sinh x$ هي ...

- a. $\tanh x$. b. $-\tanh x$. c. $\coth x$. d. $-\coth x$

(14) الدالة تكون ... $\begin{cases} x^2 + 5 & , x > 1 \\ 2x + 4 & , x \leq 1 \end{cases}$

- a. متصله و قابله للاشتقاق عند $x = 1$. b. متصله وغير قابله للاشتقاق عند $x = 1$. c. ليست متصله وليست قابله للاشتقاق عند $x = 1$. d. ليست متصله وقابله للاشتقاق عند $x = 1$

(15) $\frac{d^5}{dx^5} (3x + 4)^5 = \dots$

- a. 5! . b. 5! . 3 . c. 5! . 5³ . d. 5! . 3⁵

(16) أى العبارات الآتية غير صحيحة ...

- a. $\sinh 2x = 2 \sinh x \cosh x$. b. $\cosh^2 x - \sinh^2 x = 1$. c. $\cosh 2x = \cosh^2 x + \sinh^2 x$. d. $\cosh(x + y) = \cosh x \cosh y - \sinh x \sinh y$

(17) الدالة $f(x) = x \ln x$ لها نقطة نهاية صغرى محليه (local minimum) عند ...

- a. (e, e) . b. $(\frac{1}{e}, \frac{1}{e})$. c. $(\frac{1}{e}, -\frac{1}{e})$. d. (e, -e)

(18) إذا كانت الدالة $\frac{\sin 9x}{x} \leq f(x) \leq 9 \cos x$ فإن $\lim_{x \rightarrow 0} f(x)$

- (a) 0 (b) 9 (c) $\frac{1}{9}$ (d) غير موجوده

(19) الدالة $f(x) = x^3 + x^2 - 5x - 5$ داله تزايديه (increasing) فى الفترة ...

- a. $]-\frac{5}{3}, 1[$. b. $]1, \infty[\cup]-\infty, -\frac{5}{3}[$. c. $]1, \infty[$. d. $] -\infty, \frac{-5}{3}[$

(20) نقاط عدم الاتصال للداله $f(x) = \frac{x}{x^5 + 5x^4 - 5x^3 - 25x^2 + 4x + 20}$

- a. $\{-1, 4, 5\}$. b. $\{1, -1, 4, -2, 5\}$. c. $\{1, -1, 2, -2, -5\}$. d. $\{1, -1, 5, -4\}$

(21) إذا كانت A, B, C مجموعات فإن $C - (A \cup B) \equiv \dots$

- a) $(C - A) \cup (C - B)$. b) $(C - A) \cap (C - B)$
 c) $(A \cup B) - C$. d) $(C - A) \cup B$
 إذا كان p, q تقارير فإن $\neg(p \rightarrow q) \equiv \dots$
 a) $\neg p \wedge \neg q$. b) $\neg p \wedge q$. c) $p \wedge \neg q$. d) $p \wedge q$

(23) إذا كان A, B مجموعات فإن $(A - B) \cup (B - A) \equiv \dots$

- a) $(A \cup B) - (B \cap A)$. b) $(B \cup A) - (A - B)$
 c) $(A \cup B) \cap (B - A)$. d) $(A \cup B) \setminus$

(24) إذا كان p, q, r تقارير فإن $(p \vee q \vee r) \wedge \neg p \equiv \dots$

- a) $(p \vee q) \wedge \neg p$. b) $(q \vee r) \wedge \neg p$
 c) $(q \vee r) \wedge p$. d) $(p \vee r) \wedge \neg p$

(25) باعتبار أن R هي مجموعة الأعداد الحقيقية فإن قيمة التقرير $\exists x \in R: x + 2 = x$ هي ...

- a) F . b) T . c) خلاف ذلك . d) لا يمكن تحديده

(26) إذا كانت قيم الصدق ل p, q هي F, T على التوالي فإن التقرير يكون F عندما ...

- a) $p \leftrightarrow p$. b) $p \vee q$. c) $p \rightarrow q$. d) $p \wedge q$

(27) إذا كانت A, B مجموعات فإن $A \Delta B \equiv \dots$

- a) $(A - B) \cap (B - A)$. b) $(A \cap B) - (A \cup B)$
 c) $(A \cap B) \cup (A - B)$. d) $(A \cup B) - (A \cap B)$

(28) إذا كان p, q تقارير فإن $p \vee (p \wedge q) \equiv \dots$

- a) F . b) $\neg p \vee q$. c) p . d) T


(29) إذا كانت A, B مجموعات فإن $A' \cap B \equiv \dots$

- a) $\{x: x \in A \vee x \in B\}$. b) $\{x: x \in A \wedge x \notin B\}$
 c) $\{x: x \notin A \vee x \in B\}$. d) $\{x: x \notin A \wedge x \in B\}$

- (30) إذا كان p, q تقارير فإن $(p \leftrightarrow q) \equiv \dots$
- a) $(p \rightarrow q) \wedge (q \rightarrow p)$
b) $(p \rightarrow q) \vee (q \rightarrow p)$
c) $(p \rightarrow q) \wedge \neg(q \rightarrow p)$
d) $(p \rightarrow q) \vee \neg(q \rightarrow p)$
- (31) نفي هذا التقرير $\exists x \in A : x + 3 \geq 9$ هو ...
- a) $\forall x \in A : x + 3 < 9$
b) $\forall x \in A : x + 3 \leq 9$
c) $\forall x \notin A : x + 3 < 9$
d) $\forall x \in A : x + 3 \neq 9$
- (32) إذا كان p, q تقارير فإن $(p \vee q) \wedge \neg p \equiv \dots$
- a) $\neg p \vee q$
b) $\neg p \wedge q$
c) q
d) p
- (33) إذا كان p, q, r تقارير فإن $[(q \vee r) \wedge \neg p] \vee (\neg q \wedge \neg p) \equiv \dots$
- a) F
b) $\neg p$
c) p
d) T
- (34) إذا كانت A, B, C مجموعات فإن $(A \cap B) \setminus (B \cap C) \equiv \dots$
- a) $A \cap B \cap C$
b) $A \setminus \cap B$
c) $A \setminus \cup B$
d) $A \cup B \cup C$
- (35) عند استخدام البرهان الغير المباشر نثبت أن ...
- a) $\neg q \rightarrow p$
b) $p \rightarrow \neg q$
c) $p \rightarrow q$
d) $\neg q \rightarrow \neg p$
- (36) إذا كانت A, B مجموعات فإن $(A \setminus \cap B \setminus) \setminus \equiv \dots$
- a) $A \cap B$
b) $A \cup B$
c) $A' \cup B'$
d) $A' \cap B'$
- (37) إذا كانت p, q تقريرين فإن $\neg p \rightarrow q \equiv \dots$
- a) $p \rightarrow \neg q$
b) $\neg q \rightarrow \neg p$
c) $\neg q \rightarrow p$
d) $q \rightarrow p$
- (38) إذا كانت A, B, C مجموعات فإن $C \cap (A \setminus \cup B \setminus) \equiv C$ عندما ...
- a) $(A \cup B) = \emptyset$
b) $(A \cap B) = \emptyset$
c) $(A \setminus \cap B \setminus) = \emptyset$
d) $(A \setminus \cup B \setminus) = \emptyset$
- (39) إذا كان A مجموعه $A \Delta A = \dots$
- a) U
b) \emptyset
c) A'
d) A
- (40) إذا كان A, B مجموعات فإن $B - (B - A) \equiv \dots$
- a) $A \cap B$
b) A
c) B
d) $A' - B$

مع اطيب تمنياتنا للجميع بالنجاح و التوفيق

الممتحنون:	د/ أيمن الشرقاوى	د/ نهى الشرقاوى
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	Tanta University, Faculty of Science, Department of Physics		
	Examination for first year students		
Course title	Heat & Properties of Matter (Physics 1)	Course Code: PH1121	
Date	10-01-2023	Total Assessment Marks: 150	Time Allowed: 2 hrs

Answer first and second questions in the answer sheet model (Bubble sheet) (60 Marks)

First Question (Properties of Matter): (30 Marks)

- When a rope is pulled on either side, what is the stress acting on it?
 A) Compressive stress B) Tensile stress C) Normal stress D) Tangential stress
- What is the dimensional formula for the universal gravitational constant.
 A) $[M^{-1}L^3T^{-2}]$ B) $[M^{-1}L^3T^{-1}]$ C) $[M^{-1}L^2T^{-2}]$ D) $[M^{-2}L^3T^{-1}]$
- A particle is initially at the centre and going towards the left. Let T be the time period of the simple harmonic motion (SHM) it is undergoing. What will be its position and velocity at time $3T/4$, if it starts from the centre at $x=0$?
 A) At right extreme, zero velocity B) at centre, maximum speed towards left
 C) at centre, maximum speed towards right D) Mid-way between centre and -A
- If the time period of a simple harmonic motion (SHM) is doubled, then the amplitude of the SHM will become
 A) double B) 4 times C) 8 times D) remains the same
- The viscous force the relative motion between the adjacent layers of a fluid in motion. Which one of the following fits best in the sentence?
 A) opposes B) never affects C) facilitates D) may effect under certain conditions
- If the surface of a liquid is plane, then the angle of contact of the liquid with the walls of the container is
 A) Acute angle B) Obtuse angle C) 90° D) 0°
- the distance covered by a particle undergoing SHM in one-time period is (amplitude = A).
 A) 2A B) 4A C) Zero D) A
- For simple harmonic motion, the magnitude of the acceleration is greatest when the
 A) velocity is maximum B) displacement is maximum C) displacement is zero D) force is zero
- Which of the following is a unit of dynamic viscosity?
 A) $[M^1 L^1 T^{-1}]$. B) $[M^1 L^{-1} T^{-1}]$. C) $[M^1 L^{-2} T^{-2}]$. D) $[M^1 L^{-2} T^{-2}]$.
- Raindrops are spherical in shape because of
 A) Capillary B) Surface Tension C) Downward motion D) Acceleration due to gravity

Second Question (Heat): (30 Marks)

- 11) The molar specific heat constant pressure of an ideal gas is $7R/2$. The ratio of specific heat at constant pressure to that at constant volume is?
A) $9/7$. B) $8/7$. C) $7/5$. D) $5/7$.
- 12) A substance that heats up relatively quickly has a:
A) low specific heat capacity. B) high specific heat capacity.
- 13) The lowest temperature possible in nature is:
A) $-273\text{ }^\circ\text{C}$. B) $0\text{ }^\circ\text{C}$. C) 4 K .
- 14) As you heat a block of aluminium from $0\text{ }^\circ\text{C}$ to $100\text{ }^\circ\text{C}$, its density:
A) Increases. B) Decreases. C) Stays the same.
- 15) A glass jar ($\alpha = 3 \times 10^{-6}\text{ }^\circ\text{C}^{-1}$) has a metal lid ($\alpha = 16 \times 10^{-6}\text{ }^\circ\text{C}^{-1}$) which is stuck. If you heat them by placing them in hot water, the lid will be:
A) Easier to open. B) Harder to open. C) Same.
- 16) Which of the following state of the matter have two specific heats?
A) Solid. B) Gas. C) Liquid. D) None of these.
- 17) When 60 calories of heat are supplied to 15 g of water, the rise in temperature is
A) $75\text{ }^\circ\text{C}$. B) $9000\text{ }^\circ\text{C}$. C) $4\text{ }^\circ\text{C}$. D) $0.5\text{ }^\circ\text{C}$.
- 18) The process of transfer heat by actual migration of particles of the substance is called as
A) Conduction B) Convection C) Radiation D) Heat transfer
- 19) What is the S.I unit of specific heat capacity?
A) $\text{J}^1\text{Kg}^{-1}\text{k}^{-1}$ B) $\text{J}^1\text{Kg}^{-2}\text{k}^{-1}$. C) $\text{J}^{-1}\text{Kg}^{-1}\text{k}^{-1}$ D) $\text{J}^1\text{Kg}^{-1}\text{k}^{-2}$
- 20) The molecule of a monatomic gas only three translational degrees of freedom. Thus, the average energy of a molecule at temperature T is
A) $3K_B T$. B) $(3/4) K_B T$. C) $(1/3) K_B T$. D) $(3/2) K_B T$.

Third Question (Properties of Matter): (45 Marks)



1. Explain the elasticity curve and write the types of deformation in the solid bodies.
2. Proof the Formula for centripetal acceleration and force in circular motion.
3. Explain how to determine the gravitational acceleration using the conical pendulum.

Fourth Question (Heat): (45 Marks)

- a) Explain an electrical method for determination the specific heat of a liquid. (15 Marks)
- b) Discuss in details how to determine the thermal conductivity of a good conductor. (15 Marks)
- c) Explain why the molar specific heats of gases at constant pressure (C_P) are greater than the molar specific heats at constant volume (C_V). (10 Marks)
- d) A liquid takes 5 minutes to cool from $80\text{ }^\circ\text{C}$ to $50\text{ }^\circ\text{C}$. How much time will it take to cool from $60\text{ }^\circ\text{C}$ to $30\text{ }^\circ\text{C}$. The temperature of the surroundings is $20\text{ }^\circ\text{C}$. (5 Marks)

Good Luck

Examiners: *Dr. Mohamed Elsheshtawy, Dr. Mohamed Elnaggar.*

	جامعة طنطا - كلية العلوم		
	إمتحان المستوى الأول - جميع الشعب		
UN1107 رقم المقرر	الثقافة البيئية	عنوان المقرر	زمن الإختبار: ساعتان
5 يناير 2023	الفصل الأول	درجة الإختبار: ٥٠ درجة	

أجب عن "أربعة أسئلة فقط" على ان تكون إجابة كل سؤال فى صفحة مستقلة

السؤال الأول : عرف أربعة فقط من المصطلحات الآتية (١٢.٥ درجة)
الكارثة البيئية - تلوث التربة - التصحر - الخلل البيئي
النظام البيئي - التنمية المستدامة - الموارد الطبيعية

السؤال الثانى: أجب عن "ثلاثة فقط" مما يأتى (١٢.٥ درجة)

- ١ - ما هى مصادر تلوث الهواء.
- ٢ - أكتب عن انواع الفيضانات وأسباب حدوثها.
- ٣ - أذكر فقط الأسباب التى تؤدى الى التصحر.
- ٤ - أكتب عن انواع الكوارث البيئية وأقسامها.

السؤال الثالث: أجب عن "اثنين فقط" مما يأتى: (١٢.٥ درجة)

- ١- أذكر فقط ما تقوم به الحكومات فى المحافظة على التنوع الحيوى.
- ٢ - أكتب عن المراحل الأساسية لإدارة الكارثة البيئية.
- ٣ - وضح دور الجامعة فى خدمة المجتمع وحل المشكلات البيئية .

السؤال الرابع: أكتب فى "ثلاثة فقط" من الآتى: (١٢.٥ درجة)

- ١ - وضح المكونات الرئيسية للنظام البيئي.
- ٢- أهميته و فوائده التنوع الحيوى.
- ٣- أذكر الأسس التى تتبع فى إدارة الموارد البيئية الطبيعية.
- ٤ - دور وسائل الإعلام فى توطيد وزيادة الوعي البيئي لدى المواطنين.

السؤال الخامس: أشرح "ثلاثة فقط" من الآتى: (١٢.٥ درجة)

- ١ - مصادر تلوث التربة.
- ٢- خصائص الموارد الطبيعية واقسامها.
- ٣ - عوامل انقراض الكائنات الحية وقله التنوع الحيوى .
- ٤- وضح كيفية حدوث الزلازل و العوامل البشرية التى تؤدى إليها.

السؤال السادس: أجب عن "ثلاثة فقط" مما يأتى (١٢.٥ درجة)

- ١ - وضح الأنظمة التى يمكن إستخدامها للسيطرة على تلوث الهواء.
- ٢ - ما هى الآثار التى تسببها الضوضاء وكيفية التحكم فيها؟ .
- ٣- ما هى المهارات المكتسبة من دراسة مقرر الثقافة البيئية؟.
- ٤- أذكر اهم المشاكل التى تواجه الانسان فى البيئة وحلها بعد بمثابة ضرورة حتمية لحياه افضل ؟

أد/ محمود عشاوى أد/ عبد النعيم الأسيوطى أد/ طلعت ميز أد/ الرفاعى قناوى أد/ أحمد شرف الدين