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|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY | | | |
| | EXAMINATION FOR LEVEL 3 STUDENTS (GEOLOGY & CHEMISTRY/ GEOLOGY SECTION) | | | |
| | COURSE TITLE: | Structural geology (1) | | COURSE CODE: GE 3101 |
| DATE: | JAN. 15, 2023 | TERM: FIRST | TOTAL MARKS: 100 | TIME ALLOWED: 2 HOURS |

I- Complete the following: - **(20 pts)**

- 1- A fold with the hinge line is not horizontal is called:
- 2- In oblique-slip faults, the net slip is equal to
- 3- A fold that closes sideways (right or left) is called:
- 4- An oval folded structure with the oldest strata in the core is termed:
.....
- 5- The trend of north Sinai fold belt is:
- 6- A fold in which both limbs dip in the same direction:
- 7- A reverse fault has more and lesser..... than the thrust.
- 8- Folds are considered to be close if they display interlimb angles ranging from:
- 9- Young rocks surrounded old in the rule of:
- 10- If sigma-1 and sigma-2 is horizontal, we expect to have fault.

II- Compare with **drawing** between the following: **(20 pts)**

- a- Horst and graben
- b- Normal fault and reverse fault
- c- Volume strain and shear strain.
- d- Angular unconformity and disconformity

III- Write with **drawing** on the following: **(30 pts)**

- a- Fault-propagation folding (FPF) and Fault-bend Folding (FBF)
- b- Ramsey classification of folds.

VI- Match **TEN** words only from column (A) with column (B): (30 pts)

Column (A)

Column (B)

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| 1- Detachment fold | - Recumbent fold |
| 2- Plunge | - Unconformity criteria |
| 3- Planar structure | - Law of superposition |
| 4- Horizontal displacement | - North Sinai fold belts |
| 5- Limbs | - Deformation |
| 6- Isoclinal | - Fault Criteria |
| 7- Thrust fault | - Strike-slip fault |
| 8- Syrian Arc System | - No ramp |
| 9- Basal conglomerate | - Fault plane |
| 10-Slickenlines | - Parallel limbs |
| | - Fold hinge line |
| | - Low angle reverse fault |
| | - Two sides of a fold |

Good Luck!

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| Examiners | Prof. Mohamed Atef Noweir | Prof. Mohamed Abdel Wahed |
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TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR JENOIR (THIRD YEAR) STUDENTS OF CHEMISTRY AND GEOLOGY SECTION

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|---------------|---------------------------|-------------|-----------------------------|
| COURSE TITLE: | Metamorphic Petrology (2) | | COURSE CODE: GE3105 |
| DATE: | JANUARY, 2023 | TERM: FRIST | TOTAL ASSESSMENT MARKS: 100 |
| | | | TIME ALLOWED: 2 HOURS |

Answer the following questions, illustrating your answers with diagrams if it possible:

1-Discriminate between:

- a- Metamorphic processes and limits of metamorphism -----(10 marks)
- b- Characteristic minerals of lowgrade and high grade metamorphism----- (10 marks)
- c- Textures of contact metamorphism----- (10 marks)
- d- Metamorphic facies of regional metamorphism -----(10 marks)
- f- Classification of metamorphic rocks based on textures----- (12 marks)
- g. Mineralogical changes of basalt during regional metamorphism at different grades
----- (12 marks)

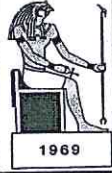
2-Write on the metamorphic reactions: devolatilization reactions (redox reactions), ion exchange, and polymorphic reaction and give examples for each reaction ----- (20 marks)

3- Show difference between ACF diagram and AKF diagram with examples and drawing----- (16 marks)

Best wishes

Examiners:

Prof. Gaafar El Bahariya Dr. Ismail Thabet

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|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY | | |
| | EXAMINATION FOR JUNIORS (THIRD YEAR) STUDENTS OF GEOPHYSICS | | |
| | COURSE TITLE: | FIELD GEOLOGY AND FIELD STUDIES | COURSE CODE: GE 3111 |
| DATE: | 1 JAN, 2023 | TERM: FIRST | TOTAL ASSESSMENT MARKS: 100 |
| | | | TIME ALLOWED: 2 HOURS |

Answer the following questions, illustrating with drawing when it possible

I- Write BRIEFLY on the following:-





(30 marks)

- a- The three segments of the GPS system. (10 marks)
b- The main types of geological maps, their scales and uses. (10 marks)
c- Compare between the mapping by following contacts and in poorly exposed regions. (10 marks)

II- Geophysics can play an important role in providing very useful information for any mapping programme. EXPLAIN how passive geophysical techniques can help in geological mapping. (20 marks).

III- Choose the CORRECT answer

(الإجابة في نموذج التصحيح الإلكتروني) (50 marks)

- 1- are ridges of sediment that form in response to wind blowing along a layer of sediment. They are form perpendicular to the wind direction
(A) Bedding and lamination (B) Ripples (C) Cross-stratification (D) Convolute bedding
- 2- Type of metamorphism occurs due to heating, with or without burial, of rocks that lie close to a magma intrusion.
(A) Cataclastic (B) Burial (C) Contact (D) Regional
- 3- The main features of igneous rock samples that should be noted in the field are:
(A) Colour, texture, grain size and fabric (B) Mineralogy and chemical composition
(C) degree of homogeneity and rock shape (D) Lateral relationships
- 4- Which one out of these is a plutonic igneous rocks? .
(A) Gypsum (B) Gneiss (C) Basalt (D) Gabbro
- 5-refers to the size, shape and arrangement of grains or other constituents within the igneous rocks
(A) Crystallization (B) Texture (C) Mineralogy (D) Fabric
- 6- is a metamorphic rock composed of recrystallized carbonate minerals, most commonly calcite or dolomite and is typically not foliated.
(A) Quartzite (B) Hornfels (C) Marble (D) Serpentinite
- 7- Stratification that is locally at some angle to the overall stratification as a consequence of changes in the geometry of the depositional surface during deposition:
(A) Graded bedding (B) Cross bedding (C) Flaser bedding (D) Lenticular bedding
- 8- Symbol for marl (A)  (B)  (C)  (D) 
- 9- A mass of igneous intrusion, typically concave upward, associated with a structural basin, with contacts that are parallel to the bedding of the enclosing rocks:
(A) Lopolith (B) Laccolith (C) Phacolith (D) Pluton

- 10- mode of foliation that occurs in certain metamorphic rocks as a consequence of the parallel alignment of platy and lath-shaped mineral constituents.
 (A) Gneissosity (B) Cleavage (C) Schistosity (D) Compositional layering
- 11- Description of hardness for sediment grains that difficult to separate with a pen-knife and difficult to separate with hammer.
 (A) Friable (B) Very hard (C) Hard (D) Extremely hard
- 12- Example of sedimentary rocks that are characterized by anomalously high concentrations of iron compared with all other sediments. Whereas an iron-cemented or red- bed type of sediment can contain as much as 10% iron
 (A) Rudaceous Rocks (B) Ferruginous Rocks (C) Siliceous Rocks (D) Salt Rocks
- 13-is an extremely coarse-grained igneous rock (most crystals >5 cm) formed when magma cools very slowly at depth.
 (A) Andesite (B) Migmatite (C) Pegmatite (D) Granodiorite
- 14- All changes (physical & chemical) that occur to sediment following deposition, including compaction, cementation, and dissolution.
 (A) Erosion (B) Lithification (C) Deposition (D) Diagenesis
- 15- is the most silica-rich of volcanic rocks. It is generally glassy or fine-grained (aphanitic) in texture, but may be porphyritic, containing larger mineral crystals (phenocrysts) in an otherwise fine-grained groundmass.
 (A) Andesite (B) Rhyolite (C) Diorite (D) Basalt
- 16- Sedimentary rocks consisting chiefly of material of sand grade. Loose materials are sands; when consolidated they form sandstones, grits, arkoses, graywackes,
 (A) Carbonate Rocks (B) Arenaceous Rocks (C) Siliceous Rocks (D) Biochemical Rocks
- 17-.....is a composite rock found in medium and high-grade metamorphic environments. It consists of two, or more constituents often layered repetitively; one layer was formerly paleosome. reconstituted subsequently by partial melting.
 (A) Migmatite (B) Pegmatite (C) Gneiss (D) Granite
- 18- named lithologic subdivision of a formation
 (A) Group (B) Member (C) Bed (D) Flow
- 19- Igneous rocks have <50% silica, by weight, and contain dark-colored minerals that are abundant in iron, magnesium and calcium (e.g. dunite)
 (A) Felsic (B) Mafic (C) Intermediate (D) Ultramafic
- 20- Field description of foliation in metamorphic rocks should include description of:
 (A) Porphyroblastic texture (B) Granoblastic texture
 (C) Compositional layering, cleavage and gneissosity (D) Porphyroclastic texture

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| EXAMINERS | Prof. Mohamed Abd El-Wahed | Prof. Samir Z. Kamh |
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☺*Good Luck*☺