



UNIVERSITY OF GHANA

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DEPARTMENT OF TEACHER EDUCATION

SCHOOL OF EDUCATION AND LEADERSHIP

COLLEGES OF EDUCATION

END OF SEMESTER ONE EXAMINATIONS FOR LEVEL 200, 2022/2023

B.ED. PROGRAMME;

COURSE CODE: TJS 221

COURSE TITLE: BIOPHYSICAL ENVIRONMENTAL SYSTEMS

Instruction: Answer all questions in Section A and any three questions in Section B.

Time: 2 hours

SECTION A

[25 Marks, One (1) Mark for Each Question]

Answer all the questions in this section in the answer booklet.

1. How would you describe the physical disintegration and chemical decomposition of rocks in *situ*?

- A. Mass movement
- B. Denudation
- C. Erosion
- D. Weathering

2. When rainwater combines with atmospheric carbon dioxide it forms weak carbonic acid, attacks and dissolves limestone rocks. Which of the following chemical weathering process best describes the above statement?

- A. Carbonation
- B. Hydrolisis
- C. Oxidation
- D. Solution

3. All the following are part of the water cycle except

- A. Evaporation
- B. Convection
- C. Precipitation
- D. Recollection.

4. When compressional force causes rocks in geosyncline to fold causing *the limb on one side of the fold to be steeper than the other side*, it results in _____.
- A. Simple fold
 - B. Asymmetrical fold
 - C. Over fold
 - D. Overthrust fold
5. How would you describe the geological process which results in cracks, fractures and expansion of the underlying rocks due to erosion?
- A. Thermal pressure
 - B. Freeze-thaw
 - C. Release pressure
 - D. Abrasion
6. Which of the following does not form part of the cycle of erosion according to the concept of W. M. Davis?
- A. Mature Stage
 - B. Early Stage
 - C. Old Stage
 - D. Youthful Stage
7. Rock weathering undergoes several processes. Which of the following is the final product of rock weathering?
- A. Deposition of rock particles
 - B. Removal of weathered materials
 - C. Formation of soils
 - D. Transportation of mineral matter
8. "Commons expansion of rocks due to water absorption causes the rocks to disintegration". In your view, which chemical weathering process is this?
- A. Hydration
 - B. Oxidation
 - C. Carbonation
 - D. Hydrolysis
9. The cross-sectional view of soil in a vertical arrangement from the leaf litter to the parent material roughly in horizontal layers describes _____.
- A. horizons.
 - B. Soil profile
 - C. Soil Catenae
 - D. Chernozems

10. Apart from one, all the following promote the growth of world's vegetation which include forests, grasslands, scrubs and deserts.
- A. Climate
 - B. Time
 - C. Topography
 - D. Soil infertility

11. The accumulation of salt crystals in rocks causes rocks to disintegrate. Where is this process prevalent in the world?
- A. Wet and low-temperature rainforest.
 - B. Wet and high-temperature rainforest.
 - C. Drier and low-temperature deserts.
 - D. Drier and high-temperature deserts.

12. The art and science of obtaining information about the earth by study from afar is known as?
- A. Map making
 - B. Geographic Information Systems
 - C. Global Positioning Systems
 - D. Remote sensing

13. The mesosphere is separated from the forth layer of the atmosphere by a transitional zone called _____
- A. Mesopause
 - B. Stratopause
 - C. Thermopause
 - D. Tropopause

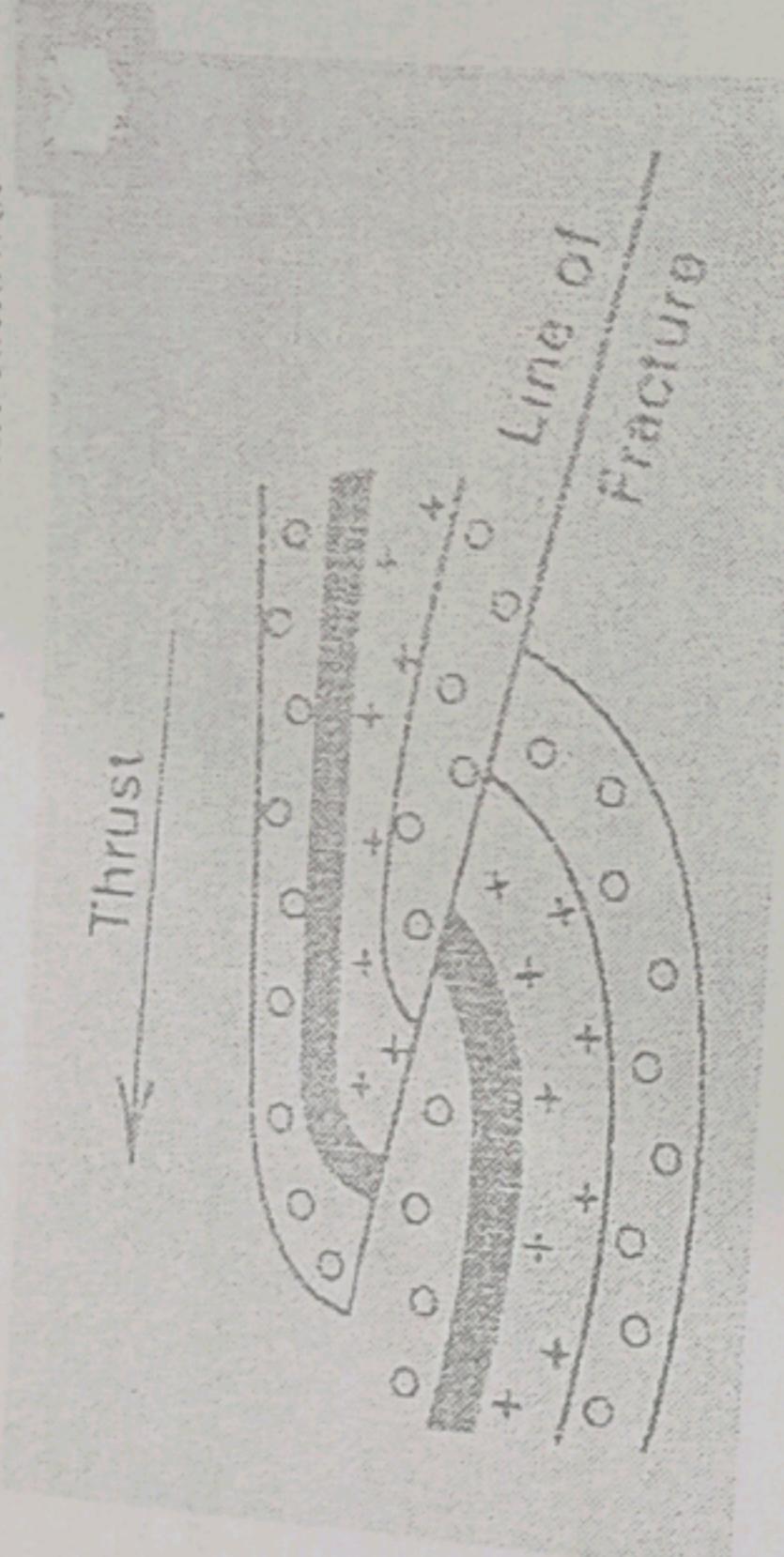
14. The consists of all water bodies including the ocean or saline waters and freshwater bodies such as rivers, lakes and streams.
- A. Biosphere
 - B. Hydrosphere
 - C. Mesosphere
 - D. Thermosphere

15. The most recognized Arab Geographer of the Middle Age is called
- A. Al-Idrisi
 - B. Al-Masudi
 - C. Al-Muqaddasi
 - D. Ibn-Batuta

16. What in your opinion is the most significant evidence about the occurrence of faulting?
- A. The presence of a fault line
 - B. Displacement along a fault line
 - C. The presence of rift valley
 - D. The presence of tension or compressional force

17. All the following are external factors that influence mass wasting processes EXCEPT
- Activities of water
 - Climatic influence
 - Earthquakes
 - Weathering

Use the diagram below to answer the question that follows:



18. Which type of folding is represented in the diagram above?
- Simple fold
 - Asymmetrical fold
 - Over fold
 - Overthrust fold

19. The reason for keeping thermometer inside a Stevenson's screen is to prevent
- birds from making their nests in the screen of the thermometer
 - direct sunshine from affecting readings on the thermometer
 - lighting from damaging the inner and outer part of the thermometer
 - thieves from damaging and stealing the thermometer
20. The dark colour of the uppermost part of the soil that is formed as a result of the deposition and decay of plant leaves, roots, and animal dungs is called _____
- humus
 - mineral
 - rock
 - water
21. "As magma forces its way upwards, it accumulates along a bedding plain to push the overlying layer of rock upwards but cools slowly resulting in a mushroom shape". Which intrusive landform is being described?
- Iacolith
 - Sill
 - Dyke
 - Batholith

22. The wrinkling or bending of the earth's crust which occurs along lines of weakness is known as

- A. Denudation
- B. Faulting
- C. Folding
- D. Weathering

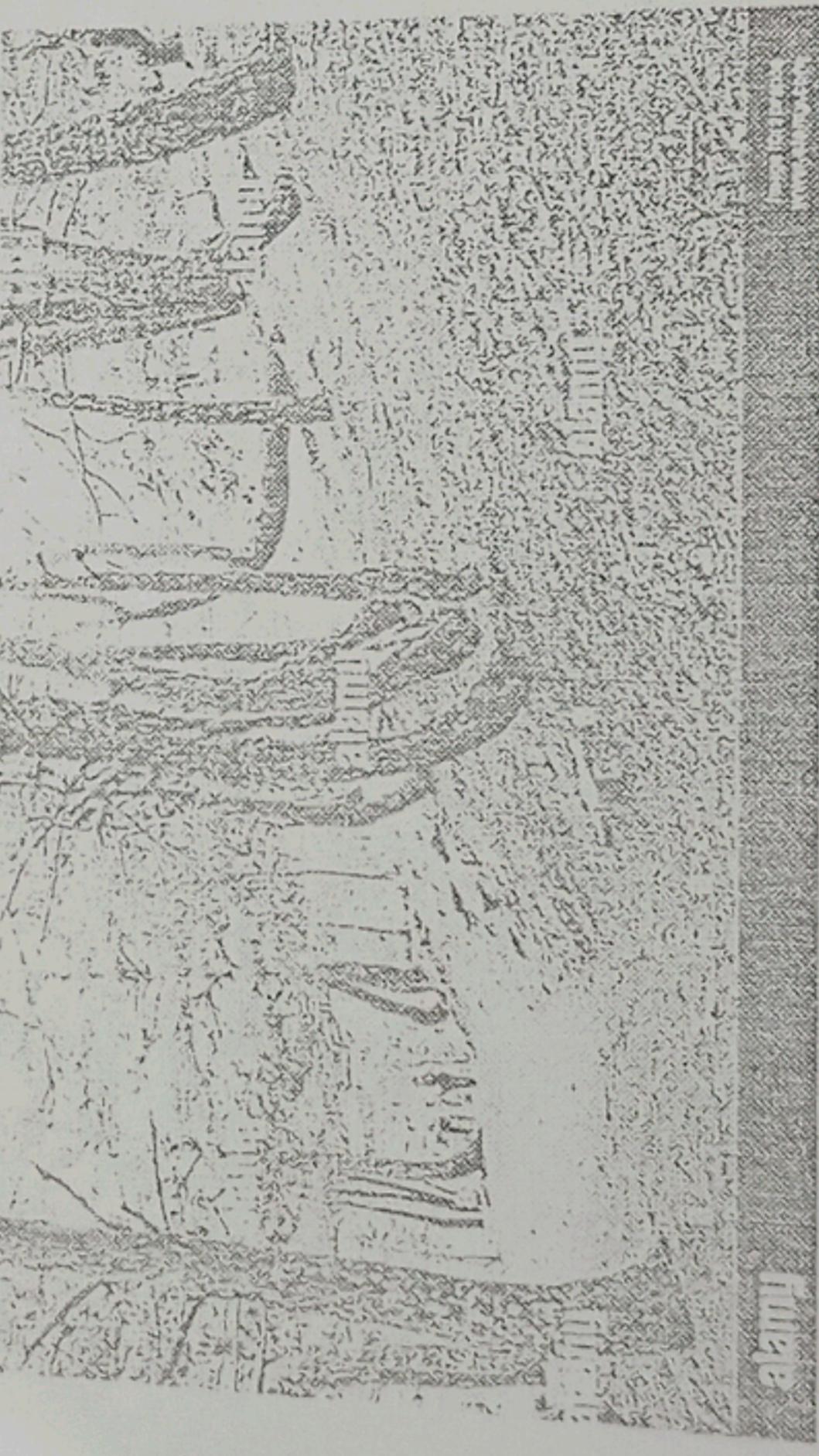
23. Over a cliff where there are highly jointed rocks, frost action or freeze-thaw events may cause pieces of rock to break from the main joint blocks and hence fall to the ground. Which of the following types of mass wasting has been described above?

- A. Mudflow
- B. Rock fall
- C. Rockslide
- D. Slump

24. The shaking and vibration of the Earth's crust due to the movement of the Earth's plates is referred to as _____

- A. Earthquake
- B. Faulting
- C. Folding
- D. Volcanicity

Use the diagram below to answer the question that follows.



25. Which type of mass movement is represented in the diagram above?

- A. Mudflow
- B. Soil creep
- C. Landslides
- D. Rockfall

SECTION B**[75 Marks]** Each Question is twenty-five (25) Marks!

Answer any three questions in this section.

Answer three questions from this Section. All questions carry equal marks

1. (a) Explain the term weathering of rocks. {4mks}
- (b) Distinguish between mechanical weathering and chemical weathering. {5mks}
- (c) Discuss four processes involved in chemical weathering. {6marks}

2. (a) Explain the term soil profile. {4marks}

- (b) Discuss three components of the soil.
- (c) Discuss three factors that influence soil formation and distribution {12mks}

3. a. List two (2) conditions which favour landslides. {4 marks}

- b. Explain three (3) factors that promote mass movement. {9marks}

- c. State three (3) characteristics of rift valley. {3 marks}

- d. Using examples from Africa, describe the formation of block mountain. {9 marks}

4. a. State two (2) characteristics each of the following landforms

- i. Shield Volcano {4 marks}
- ii. Ash and cinder cone {4 marks}
- iii. Phacolith {4 marks}

- b. Using appropriate diagrams, describe the formation of the following landforms:

- i. Laccolith {4 marks}
- ii. Dyke {4 marks}

- c. Describe one (1) major cause of devastating earthquake in the world. {5 marks}

5. a. Draw internal structure of the earth and indicate the following:

- i. Crust (lithosphere) {2 marks}
- ii. Mantle (mesosphere) {2 marks}
- iii. Core (barysphere) {2 marks}

b. Describe each of the following outer structures of the earth.

- i. Lithosphere |4 marks|
- ii. Hydrosphere |4 marks|
- iii. Atmosphere |4 marks|
- iv. Biosphere |4 marks|

c. List the instruments for measuring the following elements of weather:

- i. Wind speed |1 mark|
- ii. Humidity |1 mark|
- iii. Atmospheric pressure |1 mark|