



PROGRAM : NATIONAL DIPLOMA
ENGINEERING METALLURGY

SUBJECT : METALLURGY I

CODE : MET 111 (GEOLOGY)

DATE : SSA EXAMINATION
26 JULY 2016

DURATION : (SESSION 1) 08:00 - 11:00

WEIGHT : 40 : 60

TOTAL MARKS : 66

EXAMINER : MR H BROWN

Sanso Number

MODERATOR : DR S D DU PLESSIS

File Number

NUMBER OF PAGES : 8 PAGES

INSTRUCTIONS : ANSWER ALL QUESTIONS.

ALL WORK SHALL BE HANDED IN

ALL UJ EXAMINATION REGULATIONS APPLY.

REQUIREMENTS : 1 POCKET CALCULATOR
NO CORRECTION FLUID SHALL BE USED
ONE (1) EXAM ANSWER SCRIPTS PER STUDENT

METALLURGY 1 MET 111

GEOLOGY MODULE

QUESTIONS FOR JULY 2016 SUPP

1. Basalt and gabbro
 - a. have the same minerals
 - b. formed from magma with the same temperature
 - c. formed from magma with the same silica content
 - d. all of the above
 - e. none of the above

2. The two important criteria used for igneous rock classification are
 - a. texture and temperature
 - b. mineral composition and temperature
 - c. temperature and viscosity
 - d. texture and mineral composition

3. The difference in texture between plutonic and volcanic rocks is caused by
 - a. different mineralogy
 - b. different rates of cooling and crystallisation
 - c. different amounts of water in the magma
 - d. different chemical compositions
 - e. none of the above

4. Which of the following is part of Bowen's Continuous Series?
 - a. pyroxene
 - b. biotite
 - c. amphibole
 - d. plagioclase

5. The major difference between intrusive and extrusive igneous rocks is
 - a. where they solidify
 - b. their chemical composition
 - c. the type of minerals they contain

6. Which two rocks contains the largest dominant grain size?
- quartz sandstone and arkose
 - mudstone and siltstone
 - shale and claystone
 - breccia and conglomerate
7. Clastic sediment is which of the following?
- the residue of particles that remain after rocks disintegrate only in water
 - the residue of particles that remain after rocks weather
 - oxidised particles found in several types of rocks
8. Which one of the following is not a way to name clastic sedimentary rocks?
- grain size
 - colour
 - sorting
 - rounding
9. What is the main classification term used for chemical sedimentary rocks?
- composition
 - temperature
 - size
 - texture
 - grain size
10. Sedimentary rocks are products of the of the rocks that are subsequently..... at the Earth's surface by,,
- eruption, younger, dwindling, glaciers, wind, water
 - lava, igneous, older, rain, snow, wind
 - weathering, older, deposited, water, wind and glaciers
11. What is the difference between composition and texture of a rock?
- composition is what the rock is made of, texture is the sizes of the crystals in the rock
 - composition is the hardness of the rock, texture is the colour
 - composition is the shape of the rock, texture is the look of it

12. Shale differs from mudstone in that
- a. shale has larger grains than mudstone
 - b. shale is layered and fissile whereas mudstone is massive
 - c. shale has smaller grains than mudstone
 - d. there is no difference between shale and mudstone
13. Most of the heat for contact metamorphism is supplied by
- a. frictional heating along a fault
 - b. high concentrations of radioactive elements
 - c. deep burial within the crust
 - d. a nearby igneous pluton
 - e. heat trapped by cap rock
14. Through metamorphic activity
- a. sandstone can change to marble
 - b. granite can change to clay
 - c. slate can change to shale
 - d. granite can change to gneiss
 - e. limestone can change to quartzite
15. Which statement best describes what happens during the metamorphism of limestone
- a. changes under extreme temperature and the removal of impurities
 - b. extreme pressure causes a decrease in grain size
 - c. the addition of new ions produces a chemically-altered rock
 - d. larger crystals are formed to produce marble
 - e. foliation occurs to produce a gneiss
16. The agents of metamorphism are
- a. uplifting and folding
 - b. foliation and deposition
 - c. contact and regional deformation
 - d. heat, pressure and chemically active fluids
 - e. slaty and platy cleavage

17. Which of the following lists is in correct order going from lower to higher grade metamorphism?
- a. mica schist, slate, phyllite
 - b. mica schist, phyllite, slate
 - c. slate, phyllite, mica schist
 - d. slate, mica schist, phyllite
 - e. phyllite, slate, mica schist
 - f. none are in the correct order
18. This metamorphic rock is composed of alternating bands of light and dark silicate minerals
- a. phyllite
 - b. mica schist
 - c. quartzite
 - d. gneiss
 - e. marble
19. Which of the following changes may result during metamorphism?
- a. certain minerals may recrystallise
 - b. crystals may grow larger
 - c. the rock becomes more compact
 - d. all of the above
 - e. a and c only
20. Igneous rocks which have potassium felspar and quartz as their primary constituents are said to have a(n).....composition
- a. clastic
 - b. granitic
 - c. basaltic
 - d. porphyritic
 - e. mafic
21.are the spherical or elongated openings seen in many volcanic rocks left by escaping gas bubbles as magma solidifies
- a. vesicles
 - b. phenocrysts
 - c. inclusions
 - d. clasts
 - e. none of the above

22. The most abundant mineral in the earth's crust is
- a. haematite
 - b. calcite
 - c. feldspar
 - d. quartz
 - e. clay
 - f. impossible to determine because the crust is too thick
23. Which of the following solid substances is not a mineral?
- a. halite
 - b. orthoclase
 - c. volcanic glass
 - d. gypsum
 - e. all are minerals
24. Igneous rocks are classified on the basis of
- a. their silica content
 - b. the abundance of different minerals
 - c. grain size or texture
 - d. none of the above
 - e. all of the above
 - f. both a and c
25. Which of the following are ferromagnesian silicates?
- a. olivine and felspar
 - b. olivine and pyroxene
 - c. quartz and hornblende
 - d. none of the above
 - e. all of the above
26. Which does not belong to the definition of a mineral?
- a. definite crystal structure
 - b. definite or limited chemical composition
 - c. inorganic compound in solid state
 - d. definite cleavage
 - e. natural occurrence

27. Which of the following is not an example of a mineral group?
- a. oxides
 - b. cations
 - c. carbonates
 - d. sulphides
 - e. all of the above are examples of mineral groups
28. Quartz is a chemical compound of
- a. lead and sulphur
 - b. oxygen and aluminium
 - c. silicate and oxygen
 - d. iron and silicon
 - e. none of the above
29. When a substance is made of atoms that are arranged in a fixed, orderly and repeating pattern, it is said to be
- a. amorphous
 - b. glassy
 - c. crystalline
 - d. liquid
 - e. solid
 - f. none of the above
30. Which of the following is not a rock-forming mineral?
- a. orthoclase
 - b. galena
 - c. quartz
 - d. olivine
 - e. all are rock forming minerals
31. Which of the following represents the most abundant group of sedimentary rocks?
- a. limestones and dolomites
 - b. mudstones and shales
 - c. sandstones and conglomerates
 - d. cherts and limestones

32. Chert is a hard, very compact sedimentary rock composed almost entirely of very fine-grained
- a. dolostone
 - b. quartz
 - c. feldspar
 - d. carbon
 - e. iron oxide
 - f. chertoxide
33. By definition a sediment as opposed to a sedimentary rock is
- a. always deposited in marine waters
 - b. unconsolidated
 - c. lithified
 - d. never organic
 - e. always deposited in streams and rivers

TOTAL = 66