

Bachelor of Metallurgical Engg. Examination, 2017
2nd Year, 1st Semester, Supplementary

GEOLOGY AND MINERALS BENEFICATION

Time: Three Hours

Full Marks: 100
 (50 marks for each part)

Part-I

Answer Question No.1 and any **THREE** from the rest

1. a) Mention the type of feldspar that is recorded in each of the following rocks: **5**
 Granite, Diorite, Pegmatite, Basalt
- b) Describe textural characters of Conglomerate, Gniess and Phyllite. **5**
- c) How do you distinguish between Igneous, sedimentary and metamorphic rocks? **10**
2. Write a short notes on (**any two**): **2X5 =10**
 - a. Exogenous cycle
 - b. Batholith
 - c. Classification of igneous rocks in relation to mineralogy
 - d. Geochemical cycle
3. a) " The Earth's layered structure is represented by i) Crust, ii) Mantle, iii) Core" Is this statement true? If so why there is variation in density of one layer from the other? **10**
- b) How sand and silt are differentiated?
4. a) Is continental crust thinner than oceanic crust ? What is the bulk composition of oceanic crust? **5**
- b) Write a short note on Nebular hypotheses. **5**
5. Why streak rather than colour of a mineral is considered as a diagnostic property? What is lustre? On which factors does the lustre of a mineral depend? **10**
6. Define mineral. Is pearl a mineral? Arrange the following minerals in order of decreasing hardness-Apatite, Diamond, Fluorite and Gypsum. **10**

[Turn over

EX/MET/GEO/T/212/2017(s)

B. MET. ENGG. 2nd yr. 1st Semester, Supplementary Examination-2017

Sub: Geology and Minerals Beneficiation

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Use a separate answer-script for each part.

Part-II

Q. No. 1 and any two questions from the rest.

Q. 1: Fill in the blank 10

- i) Comminution means.....
- ii) The product of grinding isthan that of crushing.
- iii) The gangue material discarded after ore-dressing operation is also called
- iv). Particles are called to be equal settling if.....
- v). The reduction ratio is smaller in the case of crushers
- vi). The sizing of the particles may be achieved
- vii). Copper sulphate is used asin flotation process.
- viii) Grizzle is used for
- ix) is used as fluid medium in classification technique.
- x) Xanthate is used as in flotation process.

Q. 2. 10x2

- (a). Describe the functional diagram of a Jaw crusher
- (b). Evaluate the terminal velocity of a fine particle.

Q. 3 10x2

- (a). Explain the mechanism of a tabling
- (b). Describe the different types of screens

Q.4 10x2

Short notes:

- (a). Gyratory Crusher
- (b). Froth-flotation cell