UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B. Tech (Mining Engg)   Semester –III

Subject (Course): Mining Geology   **Max. Marks: 100**
Course Code   : MIEG 201   **Duration : 3 Hrs**
No. of page/s: 02

Instructions:

 a. Answers should carry the equations and diagrams, wherever necessary
 b. Section A is compulsory
 c. In Section B, first 3 are compulsory & attempt any 1 fromQ-5
 d. In section C, all questions are compulsory

Section: A   **20 Marks**

Each question carries 02 marks   (2*10=20 Marks)

1.   a) What is a straight ore
 b) What is category S stands for in UN classification?
 c) What is the significance of levees in coal formation?
 d) Peat----- Anthracite, is known as rank/ grade of coal & why?
 e) Name the process by which sulphide & oxide magma will be separated & elaborate the same.
 f) Grab sampling & Bulk sampling, which is superior & why?
 g) Can any mineral be exploited below its cut-off grade, if yes/ no, then mention why?
 i) Does carbonization is related to coal maturity, if yes, how?
 j) Why safety benches are essential in mining?
 k) Why reconnaissance permit is required for mining operations?

Section: B   **(4*10= 40 Marks)**

2. What are Pillar shafts? Deduce suitable formulas for their dimension.

3. In right order explain the components of MCR rule

4.   Justify the existence of NEMP & outline the sections of Mine Act, 1952, broadly.

5. Summarize the three stages in generation of crude oil.

   OR

   Elaborate the Indian standard of reserve classification

Section: C   **(2*20=40 Marks)**

6. What physico-chemical alteration stands for? What is its implication on coal quality?

7. What is the industrial application of Sampling? Summarize the scientific methods to prepare samples for sampling

OR

   List out those five most important parameters based upon which mining method is decided

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    e.   Answers must carry the supporting material such as equations and diagrams, wherever necessary

    f.   Section-A is compulsory

    g.   In Section B, first 3 questions are compulsory &attempt any one from Q-5

    h.   Section C is compulsory

Section A   20Marks.

    1.

    i)   Can placer deposit is of residual origin?

    ii)   Speculative vs Hypothetical reserve?

    iii)   Pb, Zn deposits contribute significantly towards AMD, justify?

    iv)   Alternate shoveling vs fractional shoveling

Section B   40 Marks

  2. a) Nilson's hypothesis is a precursor to decide the mining method, if true, justify (05 marks)

      b) Justify the role of subsiding basin & other parameters for deposition of coal (05 marks)

3. What is sampling & Why Channel sampling is considered as the most scientific one? (10 marks)

4. Each question carries 01 mark

   a) Amphibole is an example of ------------------- type of silicate structure
   b) The pathway moves parallel to vein is termed as -------------------
   c) Uranium is an essential/ strategic/ abrasive mineral?
   d) Separation of sulphide & oxide magma comes under segregation/ liquid immiscibility?
   e) Max. time period for PL is ------------------
   f) The last kerogen get converted to -------------- during metagenesis
   g) Metamorphism of coal will give rise to diamond (T/F, if no, then what will be the product)
   h) The mineral used to treat AMD is --------------?
   i) Vitrinite is superior to Liptinite in terms of -----------

5. Outline the parameters of opencast mining method with neat sketch (10 Marks)
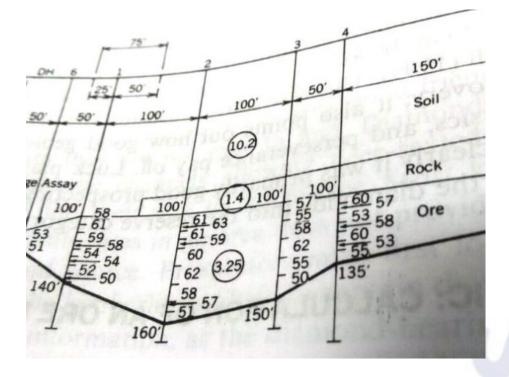
   Or

   The given layout is the cross-section plan of a mine to find out the average grade of the deposit. Find out the **average grade of the deposit considering the first 03 boreholes.**
   Assumption 1: In the left side of borehole 1, there is nothing rather a free face.

   Assumption 2: All the depth readings are taken at an interval of 10 mtrs.

Section C   **40 Marks**
Each question carries 20 Marks

6. A) What NMP stands for? Outline the key highlights with recent amendments. Suggest few amendments which you feel can curb the illegal mining activities (20 marks)

7. What are the essential constituents of MCR rule? Elaborate them in sequential manner.