

diagrams, wherever necessary :

- (a) The conditions necessary for the formation of hydrothermal ore formation.
- (b) Morphology and style of ore mineralization.

[This question paper contains 8 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5711

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Name of the Paper : Economic Geology

Name of the Course : B.Sc. (Hons.) Geology,
NEP-UGCF – DSC-13

Semester : V

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Question number 1 is compulsory.

1. Attempt the followings : (4+1+2+1+3+1+4+2)

(a) Match the mineral deposit type with the corresponding mineral most likely to be associated with it in the following table.

Mineral Deposit Type	Mineral
1. Porphyry deposit	a. Nickeliferous silicate
2. Supergene Enrichment	b. Chalcocite
3. Lateritic Deposit	c. Molybdenite
4. Placer Deposit	d. Ilmenite

(b) Sulphide solubility in silicate magma is _____ dependent.

(c) The primary ore mineral occurring in Malanjkhand deposit is _____ and additionally _____ makes the deposit economically viable to a great extent.

(d) Which one of the following statements regarding the Supergene enrichment process is not correct?

suitable illustrations.

(i) Galena

(ii) Pyrrhotite

(iii) Chalcopyrite

(iv) Psilomelane

7. Describe the following in brief with neat labelled diagrams, wherever necessary :

(a) Pathfinder elements associated with magmatic deposits of chromite and Cu-Ni sulphides formed through immiscible magmatic processes.

(b) Mineralogy, distribution and occurrences of iron deposits in India.

8. Describe the following in brief with neat labelled

(b) Supergene Enrichment.

4. What are black smokers, and where are they found? What kind of economic deposit is associated with them? Describe with the help of suitable diagrams.

5. Answer the following with neat labelled diagrams, wherever necessary :

(a) What factors control the formation of placer deposits? Explain with illustrations. Give two Indian examples.

(b) Write a brief note on the aqueous transport and deposition of uranium.

6. Give a systematic description of the physical and optical properties of the following minerals with

(i) Pyrite breaks down to produce insoluble Fe-hydroxide and sulphuric acid in the oxidation zone

(ii) The soluble metals in the upper part of a sulphide orebody are generally leached down to the water table

(iii) Supergene environment occurs below the water table

(iv) The nature of hypogene mineralization has no bearing on supergene enrichment mineralization.

(e) Group the following minerals as per their expected petrologic association, i.e., Ultramafic (UM), Mafic (M) or Felsic (F):

(i) Cassiterite

(ii) Pentlandite

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(iii) PGE

(iv) Uraninite

(v) Chromite

(vi) Monazite

(f) In surficial environment, due to microbiological processes, Au and PGE differ in terms of their _____.

(g) Match the mineral deposit with the corresponding location in the following table.

Mineral Deposit	Location
1. Diamond	a. Amarkantak, Madhya Pradesh
2. Baryte	b. Mangampeta, Andhra Pradesh
3. Bauxite	c. Chalk Hills, Tamil Nadu
4. Magnesite	d. Majhgawan, Madhya Pradesh

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(h) World's largest deposit of PGE is found in the layered igneous intrusion at _____ in _____.

2. Briefly discuss the following (Illustrate your answers) :

(a) Alteration zones in a porphyry copper deposit.

(b) Genesis of sulphide deposits from submarine exhalations.

3. Briefly discuss the following (illustrate your answers) :

(a) Discuss the various forms of syngenetic and epigenetic ore deposits.

P.T.O.