

GEOLOGY
Paper—II

Time Allowed : Three Hours

Maximum Marks : 200

QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions :

There are EIGHT questions in all out of which FIVE are to be attempted.

Question Nos. 1 and 5 are compulsory. Out of the remaining SIX questions, THREE are to be attempted selecting at least ONE question from each of the two Sections A and B.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Answers must be written in ENGLISH only.

Neat sketches may be drawn, wherever required.

SECTION—A

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| Q. 1 Answer the following :— | 10×4=40 |
| Q. 1(a) Describe various types of twinning in minerals. Comment upon causes of twinning. | 10 |
| Q. 1(b) Based on mineralogy, distinguish basic and ultrabasic rocks. | 10 |
| Q. 1(c) Describe facies and grades of metamorphism. | 10 |
| Q. 1(d) Distinguish between arkose and greywackes and comment upon environment of their formation. | 10 |
| Q. 2(a) What is the fundamental unit of silicate structure ? Discuss and classify different types of silicate structures. | 20 |
| Q. 2(b) Distinguish between uniaxial and biaxial minerals. | 20 |
| Q. 3(a) Using reaction principle, discuss about crystallization of basaltic magma. | 20 |
| Q. 3(b) Distinguish perthites and antiperthites and conditions of their formation. | 10 |
| Q. 3(c) What is eutectic crystallization ? | 10 |

- Q. 4(a) How are sedimentary structures useful to establish the dynamics of deposition of sediments ? 20
- Q. 4(b) What do you understand by sphericity and roundness of sedimentary rocks ? 10
- Q. 4(c) Describe the matrix and cement of sedimentary rocks. 10

SECTION—B

- Q. 5 Answer the following :— 8×5=40
- Q. 5(a) Significance of gossan. 8
- Q. 5(b) Podiform and stratiform chromite deposits. 8
- Q. 5(c) Use of pathfinder elements in mineral exploration. 8
- Q. 5(d) Radioactive waste disposal. 8
- Q. 5(e) Coordination number and cite mineral examples. 8
- Q. 6(a) Enumerate the controls of ore localization. 20
- Q. 6(b) Discuss the mechanism for the formation of placer deposits and add a note on their provenance. 10
- Q. 6(c) Describe geological setting and oil potential of Bombay High. 10
- Q. 7(a) How are soil geochemical prospecting methods useful in the detection of secondary dispersion pattern of copper deposits ? 20
- Q. 7(b) Describe the electrical well-logging as applied to the prospecting of ore deposits. 10
- Q. 7(c) Discuss the role of floatation reagents in mineral beneficiation. 10
- Q. 8(a) Discuss geochemical classification of elements. Comment upon the role of trace elements in magmatic crystallization. 20
- Q. 8(b) What are the earthquake parameters and causes of earthquake ? 10
- Q. 8(c) Explain the impact of mining on groundwater quality. 10