


| Name:  |   |  |              |             |              |              |            |               |               |  |  |
|--|---|--|--------------|-------------|--------------|--------------|------------|---------------|---------------|--|--|
| Enrolment No:  |   |  |              |             |              |              |            |               |               |  |  |
| <b>UPES</b><br><b>End Semester Examination, May 2024</b>   |   |  |              |             |              |              |            |               |               |  |  |
| <b>Course: Rocks and Minerals</b><br><b>Program: B.Sc ( Physics By Research)</b><br><b>Course Code: PEGS 1004</b>  |   | <b>Semester: II</b><br><b>Time : 03 hrs.</b><br><b>Max. Marks: 100</b>             |              |             |              |              |            |               |               |  |  |
| <ul style="list-style-type: none"> <li>• <b>Instructions: Instructions: <u>All Questions are compulsory.</u></b></li> <li>• <b><u>You have internal choice only for Question No. 9 and 10</u></b></li> </ul> |   |  |              |             |              |              |            |               |               |  |  |
| <b>SECTION A</b><br><b>(5Qx4M=20Marks)</b>   |   |  |              |             |              |              |            |               |               |  |  |
| S. No.   |   | Marks  | CO           |             |              |              |            |               |               |  |  |
| Q. 1   | Define streak of mineral.   | [4]  | CO1          |             |              |              |            |               |               |  |  |
| Q.2  | Distinguish between Isomorphism and Polymorphism of a mineral   | [4]  | CO1          |             |              |              |            |               |               |  |  |
| Q.3  | Match the following Mineral habits with corresponding minerals:   | [4]  | CO1          |             |              |              |            |               |               |  |  |
|  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">1. Acicular</td> <td>1.Chalcedony</td> </tr> <tr> <td>2. Foliated</td> <td>2. Natrolite</td> </tr> <tr> <td>3. Pisolitic</td> <td>3. Bauxite</td> </tr> <tr> <td>4. Botryoidal</td> <td>4. Muscovite,</td> </tr> </table> | 1. Acicular  | 1.Chalcedony | 2. Foliated | 2. Natrolite | 3. Pisolitic | 3. Bauxite | 4. Botryoidal | 4. Muscovite, |  |  |
| 1. Acicular  | 1.Chalcedony  |  |              |             |              |              |            |               |               |  |  |
| 2. Foliated  | 2. Natrolite  |  |              |             |              |              |            |               |               |  |  |
| 3. Pisolitic   | 3. Bauxite  |  |              |             |              |              |            |               |               |  |  |
| 4. Botryoidal  | 4. Muscovite,   |  |              |             |              |              |            |               |               |  |  |
| Q.4  | Consider the crystal face which has the Weiss symbol as: $-1a, \infty b, 1/2c$ .<br>Convert it into the Index System of Miller.   | [4]  | CO2          |             |              |              |            |               |               |  |  |
| Q.5  | Explain Palimpsest texture.   | [4]  | CO3          |             |              |              |            |               |               |  |  |
| <b>SECTION B</b><br><b>(4Qx10M= 40 Marks)</b>  |   |  |              |             |              |              |            |               |               |  |  |
| Q.6  | Discuss Monoclinic, Hexagonal, Trigonal and Triclinic crystal systems with examples. Supplement your answer with suitable figures.  | [10]   | CO2          |             |              |              |            |               |               |  |  |
| Q.7  | Explain the classification of sedimentary rocks on the basis of the size of the constituent grains.   | [10]   | CO3          |             |              |              |            |               |               |  |  |

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|--|--|--------|-----|
| Q.8  | Explain in detail Moh's scale of hardness.   | [10]   | CO2 |
| Q.9  | <p>Illustrate in detail the process of metamorphism.</p> <p style="text-align: center;"><b>OR,</b></p> <p>Explain the classification of igneous rocks on the basis of its depth of formation.</p>  | [10]   | CO3 |
| <p><b>SECTION-C</b><br/><b>(2Qx20M=40 Marks)</b></p> |  |        |     |
| Q.10   | <p>Explain in detail the structures of metamorphic rocks. Supplement your answer with neat figures.</p> <p style="text-align: center;"><b>OR,</b></p> <p>Illustrate in detail the structures of sedimentary rocks. Supplement your answer with neat figures.</p> | [20]   | CO3 |
| Q.11   | <p>(a) Compare ordinary light and polarized light.</p> <p>(b) Explain the following optical properties of minerals with examples:</p> <p>(i) Pleochroism (ii) Relief and (iii) Refractive Index</p>  | [5+15] | CO4 |