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14PHDGE001

**Ph.D./M.Sc. (Engg.) by Research Degree Examination, April 2018**  
**Applied Engineering Geology and Advanced Geo-**  
**Informatics**

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. What is a mineral? Distinguish between rock forming and ore minerals. (08 Marks)  
b. Write the physical properties, chemical composition and use of any FOUR of the following minerals :  
i) quartz ii) calcite iii) corundum iv) magnetite v) orthoclase feldspar vi) barite. (12 Marks)
- 2 a. Write a brief note on origin of igneous rocks. (06 Marks)  
b. Write the classification of sedimentary rocks on the basis of their grain size of sediments. (06 Marks)  
c. What is metamorphism? Add a brief note on thermal metamorphism. (04 Marks)  
d. Write the characters of good building stones. (04 Marks)
- 3 a. Define weathering and describe different types of weathering. (08 Marks)  
b. Describe the different methods of soil conservation. (06 Marks)  
c. Write a note on geological work of River's. (06 Marks)
- 4 a. What is a fold? With a neat sketch mention the parts of the fold. (08 Marks)  
b. What is a fault? How do you identify the faults in the field? (08 Marks)  
c. Add a note on angular unconformity. (04 Marks)
- 5 a. Define 'remote sensing' and it is classified based on platforms. (07 Marks)  
b. Write a note on atmospheric effects on spectral response patterns. (07 Marks)  
c. Discuss the different steps involved in map preparation from Aerial photographs. (06 Marks)
- 6 a. What are multispectral scanners and how these are useful in remote sensing? (07 Marks)  
b. Explain digital image enhancement and how it is useful in remote sensing. (07 Marks)  
c. Discuss the role of remote sensing in land use and land cover analysis. (06 Marks)
- 7 a. What is GIS? Explain its components and fundamental operations. (08 Marks)  
b. Describe how GIS is integrated with remote sensing. (08 Marks)  
c. Explain briefly :  
i) edge enhancement filtering technique  
ii) image registration. (04 Marks)
- 8 a. What is GIS? Explain its fundamental components and applications. (08 Marks)  
b. What is image classification? Discuss briefly about supervised and unsupervised classification. (08 Marks)  
c. Explain briefly the role of image rectification in image processing. (04 Marks)

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