

**B.Sc. 4th Semester (Honours) Examination, 2019**

**GEOLOGY**

**(Metamorphic Petrology)**

**Paper : 401/C-T8**

**Course ID : 42011**

**Time: 1 Hours 15 Minutes**

**Full Marks: 25**

*The figures in the right hand side margin indicate full marks.  
Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions of the following: 1×5=5
    - (a) Name one mineral which marks the beginning of metamorphism.
    - (b) What is the effect of fluid over-pressure on rocks?
    - (c) What is phyllonite?
    - (d) Name one characteristic mineral of eclogite.
    - (e) What do A, C and F stand for in the ACF diagram?
    - (f) Define S-C foliation in metamorphic rock.
    - (g) Define entropy (S) of a metamorphic system.
    - (h) Write the Gibbs Helmholtz equation.
  
  2. Answer *any two* questions of the following: 5×2=10
    - (a) Briefly describe the role of temperature in metamorphism.
    - (b) Compare between Barrovian-type and Buchan-type of metamorphism.
    - (c) Write a brief note on the importance of bulk rock composition in metamorphic petrology.
    - (d) Write evidences in support of thermodynamic equilibrium in a metamorphic rock.
  
  3. Answer *any one* question of the following: 10×1=10
    - (a) Write a classification scheme of facies showing P-T ranges in a diagram.
    - (b) State the mineralogical and textural changes that take place during progressive metamorphism of mafic rock from greenschist facies to granulite facies conditions.
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**B.Sc. 4th Semester (Honours) Practical Examination, 2019**

**GEOLOGY**

**(Metamorphic Petrology Lab.)**

**Paper : 401/C-P8**

**Course ID : 42021**

**Time: 2 Hours**

**Full Marks: 15**

*The figures in the right hand side margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Identify the minerals in the given hand specimen of metamorphic rock. Describe the physical properties of the minerals and name the rock. 3+2+1=6
  2. Identify the minerals in the given thin section of metamorphic rock. Describe the optical properties of the minerals, texture and name the rock. 2+2+1+1=6
  3. Laboratory Notebook 3
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**B.Sc. 4th Semester (Honours) Examination, 2019**

**GEOLOGY**

**(Principles of Stratigraphy and Precambrian Stratigraphy of India)**

**Paper : 402/C-T9**

**Course ID : 42012**

**Time: 2 Hours**

**Full Marks: 25**

*The figures in the right hand side margin indicate full marks.  
Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions of the following: 1×5=5
    - (a) Name the smallest lithostratigraphic unit.
    - (b) Name the fundamental tool used in biostratigraphy.
    - (c) Which stratigraphic province of India contains Kolar gold field?
    - (d) What do you mean by the term 'craton'?
    - (e) What are the major rock types of the Eastern Ghats Mobile Belt?
    - (f) Name the major thrust belt associated with the Singhbhum Craton.
    - (g) What is the basic statement of "concept of Uniformitarianism"?
    - (h) Name the diamond bearing stratigraphic horizon within the Cuddapah basin.
  
  2. Answer *any two* questions of the following: 2×5=10
    - (a) Write short note on Malani suite of igneous rocks.
    - (b) Write the generalized stratigraphic succession of the Dharwar Carton.
    - (c) Briefly describe the mineralization associated with the Sausar Group.
    - (d) Write the stratigraphic succession of the Delhi Super Group.
  
  3. Answer *any one* question of the following: 10×1=10
    - (a) Write a generalized stratigraphic succession of the Singhbhum Craton. Briefly discuss about the mineralization associated with the Singhbhum Shear Zone. 5+5=10
    - (b) Briefly discuss the stratigraphy and sedimentary environment of the Vindhyan Supergroup.
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**B.Sc. 4th Semester (Honours) Practical Examination, 2019**

**GEOLOGY**

**(Principles of Stratigraphy and Precambrian Stratigraphy of India Lab.)**

**Paper : 402/C-P9**

**Course ID : 42022**

**Time: 2 Hours**

**Full Marks: 15**

*The figures in the right hand side margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

*The questions are of equal value.*

1. Identify the paleogeographic zones in the given map. (Map No. SEM IV-1) 5
  2. Briefly describe the pattern of tectonic trends of the lineaments / belts shown in the given map. (Map No. SEM IV-2) 5
  3. Laboratory Notebook 5
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**B.Sc. 4th Semester (Honours) Examination, 2019**

**GEOLOGY**

**(Phanerozoic Stratigraphy of India)**

**Paper : 403/C-T10**

**Course ID : 42013**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the right hand side margin indicate full marks.  
Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions of the following: 1×5=5
    - (a) Which area of Extra-peninsular India contains the Haimanta System of Cambrian age?
    - (b) Name the stratigraphic unit, within which the “golden oolites” (Jurassic) are found.
    - (c) What is the age of Muth quartzite?
    - (d) Which basin of India produces hydrocarbon from the Tipam Sandstone?
    - (e) What is the age of Talchir Formation?
    - (f) Which stratigraphic succession of India commonly contains fossils of primates?
    - (g) Name two areas from where marine sediments are reported to occur within the rocks of Gondwana age.
    - (h) What is the age of the Cretaceous-Tertiary boundary?
  
  2. Answer *any two* questions of the following: 2×5=10
    - (a) Write down the Cretaceous stratigraphic succession of Couvery basin.
    - (b) Briefly discuss about the Triassic succession of Spiti.
    - (c) Write a short note on the Decan Trap.
    - (d) Furnish the generalized stratigraphy of the Bengal basin.
  
  3. Answer *any one* question of the following: 10×1=10
    - (a) Briefly describe the two-fold classification of the Gondwana rocks proposed by Oldham, Cotter and Fox.
    - (b) Briefly describe the Cenozoic Siwalik succession with special emphasis on lithology and vertebrate fossil records.
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**B.Sc. 4th Semester (Honours) Practical Examination, 2019**

**GEOLOGY**

**(Phanerozoic Stratigraphy of India Lab.)**

**Paper : 403/C-P10**

**Course ID : 42023**

**Time: 2 Hours**

**Full Marks: 15**

*The figures in the right hand side margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Identify the outcrops shown in the given map. Write a brief note on the pattern of their distribution. 6+4=10
  2. Laboratory Notebook 5
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