



FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION FOR
RECRUITMENT TO POSTS IN BS-17
UNDER THE FEDERAL GOVERNMENT, 2015

Roll Number

GEOLOGY, PAPER-I

TIME ALLOWED: THREE HOURS PART-I(MCQS): MAXIMUM 30 MINUTES	PART-I (MCQS) PART-II	MAXIMUM MARKS = 20 MAXIMUM MARKS = 80
NOTE: (i) Part-II is to be attempted on the separate Answer Book. (ii) Attempt ONLY FOUR questions from PART-II. ALL questions carry EQUAL marks. (iii) All the parts (if any) of each Question must be attempted at one place instead of at different places. (iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper. (v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed. (vi) Extra attempt of any question or any part of the attempted question will not be considered.		

PART-II

- Q. No. 2.** Discuss compositional variations between the end members and describe substitutions of the major cations in the feldspars, pyroxenes and olivines. **(20)**
- Q. No. 3.** Discuss the Primary clastic structures in sedimentary rocks. **(20)**
- Q. No. 4.** Explain the relationship between magma chemistry and the production of pyroclastic material and discuss the classification of pyroclastic rocks. **(20)**
- Q. No. 5.** What processes cause the origination of flood plains and how do they contribute to the development of floodplains? Also compare and contrast the Depositional and Erosional Terraces. **(20)**
- Q. No. 6.** Describe the nature of contacts in the stratigraphic record. Also discuss the types of grain size trends associated with transgression and regression. **(20)**
- Q. No. 7.** Discuss the Barrovian type metamorphism with the example from Indian plate margin in Kaghan valley. **(20)**
- Q. No. 8.** Write notes on any **TWO** of the following: **(10 each) (20)**
- (a) Fauna of Permean Sequence of Salt Range
- (b) Ditrigonal Scalenohedral Class or Calcite type.
- (c) Sites of magma generation on the basis of tectonic setting



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GEOLOGY, PAPER-II

TIME ALLOWED: THREE HOURS	PART-I (MCQS)	MAXIMUM MARKS = 20
PART-I(MCQS): MAXIMUM 30 MINUTES	PART-II	MAXIMUM MARKS = 80
NOTE: (i) Part-II is to be attempted on the separate Answer Book.		
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PART-II

- Q. No. 2.** Compare the geological conditions responsible for the formation of coal, oil, and natural gas. **(20)**
- Q. No. 3.** Discuss the Geological factors in hydro power projects. **(20)**
- Q. No. 4.** Discuss the Uranium mineralization in Siwalik fluvial depositional system of Pakistan. **(20)**
- Q. No. 5.** Give a detailed account of the types of landslides, the causative factors and the methods to prevent landslides. **(20)**
- Q. No. 6.** Discuss the various laboratory and field tests carried out to determine the engineering properties of rocks. **(20)**
- Q. No. 7.** Discuss the lithostratigraphic units of Salt range regarding the raw materials for cement industry. **(20)**
- Q. No. 8.** Write notes on any **TWO** of the following **(10 each) (20)**
- (a) Path finders in geochemical exploration
- (b) Evaporite mineral deposits
- (c) C14 dating



FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION-2016
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GEOLOGY

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PART-I(MCQS): MAXIMUM 30 MINUTES	PART-II	MAXIMUM MARKS = 80
NOTE: (i) Part-II is to be attempted on the separate Answer Book.		
(ii) Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks.		
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(iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.		
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PART-II
SECTION-I

- Q. No. 2.** Weathering is a natural process to break down the rocks and the minerals. This process involves a set of physical, chemical, and biological processes. Explain different types of physical and chemical weathering, and describe the role of water in chemical weathering process. **(20)**
- Q. No. 3.** Global society is heavily dependent on minerals and metals. Earth is the source of all these resources. All minerals are grouped into silicate and non-silicate minerals, and further are divided into seven major classes according to their economic use. For example, class Sulfides has mineral Galena whose chemical formula is PbF, and is a source of LEAD. Make a Table of four columns; 1st column should carry the title 'Minerals Class', 2nd column 'the Names of Minerals of the classes', 3rd column is Chemical formulae of minerals of 2nd column, 4th column the economic use of minerals of column-2. Mention 10 minerals in that Table, giving their class (1st column), mineral name (2nd column), chemical composition (3rd column), and economic use (4th column). **(20)**
- Q. No. 4.** Mountain Belts are made of several mountain ranges, usually with related histories. There are some familiar mountain ranges of the world, mention simply their names and localities. However, discuss in detail the tectonic frame work of Himalayas. **(20)**
- Q. No. 5.** Earth scientists are aware of the fact that metamorphism and plate tectonics are intimately linked and are responsible for the development of different metamorphic facies. Explain with diagram(s) the type of plate tectonic boundary and formation of the related facies. **(20)**

SECTION-II

- Q. No. 6.** Pakistan has plenty mineral resources. Massive sulfide bodies are also found in different places. Electromagnetic geophysical methods is considered most suitable for the exploration of such high electrical conductivity bodies buried under surface. Discuss in detail the electromagnetic method, the controlling factors for increasing depth penetration and its other applications. **(20)**
- Q. No. 7.** Earthquakes are produced by fracturing the rocks in the subsurface. How it happens? How tsunamis are produced? What characteristics make the earthquakes dangerous, **(20)**



**FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION-2017
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GEOLOGY

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NOTE: (i) Part-II is to be attempted on the separate Answer Book. (ii) Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks. (iii) All the parts (if any) of each Question must be attempted at one place instead of at different places. (iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper. (v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed. (vi) Extra attempt of any question or any part of the attempted question will not be considered.		

PART-II
SECTION-I

- Q. No. 2.** Describe structure of neso silicates. Also draw its sketch. Narrate physical and optical properties of olivine group of minerals. **(20)**
- Q. No. 3.** Describe development of different types of metamorphic facies during subduction process. With the help of temperature-pressure diagram, elaborate regimes of metamorphic facies. **(20)**
- Q. No. 4.** What categories of information we depict from the fossils found in sedimentary strata? Give examples. Describe some of common processes of fossilization. **(20)**
- Q. No. 5.** Outline important events of Indian Plate drift and subsequent tectonics from Mesozoic onwards in Pakistan region. Draw sketches. **(20)**

SECTION-II

- Q. No. 6.** Enlist methods of surface and near surface prospecting methods of oil and gas. Describe implementation details of any two methods, leading to successful discovery of hydrocarbon in a region. **(20)**
- Q. No. 7.** Discuss the geological conditions that normally trigger land sliding in northern Pakistan. Describe some of the measures to mitigate its effects. **(20)**
- Q. No. 8.** Write notes on any **TWO** of the following: **(10 each) (20)**
- a. Polarizing microscope
 - b. Paleobotany
 - c. Geothermal energy



**FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION-2018
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Roll Number

GEOLOGY

TIME ALLOWED: THREE HOURS PART-I(MCQS): MAXIMUM 30 MINUTES	PART-I (MCQS) PART-II	MAXIMUM MARKS = 20 MAXIMUM MARKS = 80
NOTE: (i) Part-II is to be attempted on the separate Answer Book. (ii) Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks. (iii) All the parts (if any) of each Question must be attempted at one place instead of at different places. (iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper. (v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed. (vi) Extra attempt of any question or any part of the attempted question will not be considered.		

PART-II
SECTION-I

- Q. No. 2.** (a) Briefly describe internal structure and composition of the earth. (10)
(b) What do you know about Isostasy and Isostatic Adjustment? Explain. (10)
- Q. No. 3.** (a) Describe various modes of fossilization. (15)
(b) Briefly describe various lithostratigraphic units. (5)
- Q. No. 4.** (a) Describe various sedimentary structures of the clastic rocks. Also write down their importance in the field. (10)
(b) Describe various types of volcanic material and their characteristic features. (10)
- Q. No. 5.** (a) Write down the genetic classification of faults. Also relate principal stresses with all those faults. (10)
(b) Briefly describe the various types of plate boundaries and the associated earth features along them. (10)

SECTION-II

- Q. No. 6.** Briefly describe various types of gravity anomalies and their corrections. (20)
- Q. No. 7.** (a) What do you know about the trapping mechanism of hydrocarbons? Explain. Also describe various types of traps. (15)
(b) What do you know about bright spot technique? Explain. (5)
- Q. No. 8.** Write short notes on any **TWO** of the followings:- (10 each) (20)
(a) Stratigraphic Sequence.
(b) Copper deposits of Pakistan.
(c) Earthquakes (Elastic Rebound theory and Locating Epicenter)



FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION-2019
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Roll Number

GEOLOGY

TIME ALLOWED: THREE HOURS	PART-I (MCQS)	MAXIMUM MARKS = 20
PART-I(MCQS): MAXIMUM 30 MINUTES	PART-II	MAXIMUM MARKS = 80
NOTE: (i) Part-II is to be attempted on the separate Answer Book.		
(ii) Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks.		
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(iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.		
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PART – II
SECTION – I

- Q. No. 2.** What characteristics a sedimentary strata should contain to be designated as a “Formation”? How the formation is divided into sub-units? Describe the characters of Salt Range Formation. **(20)**
- Q. No. 3.** Elaborate the Plagioclase Series of Feldspar group of rock forming minerals. Describe the physical and optical characteristics of the series. **(20)**
- Q. No. 4.** What is Pull-apart basin? Describe the characteristics of transform movement between two continental blocks. Where you find similar features in Pakistan? **(20)**
- Q. No. 5.** What are Pegmatites? Discuss the texture and mineralogical composition of pegmatites. What precious minerals are associated with acidic pegmatites? **(20)**

SECTION-II

- Q. No. 6.** What methods of geophysical exploration are used for metallic ore deposits? What instruments are used for acquisition and interpretation of data? **(20)**
- Q. No. 7.** Differentiate between volcanic and fissure eruptions. Describe types of materials exhaled by volcanoes. How these materials are hazardous to men and environment? **(20)**
- Q. No. 8.** Write short notes on any TWO of the following: **(10 each) (20)**
- (a)** Source sediments of petroleum.
 - (b)** Site investigation for highway construction.
 - (c)** Site investigation for tunnel construction.



FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION-2020
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Roll Number

GEOLOGY

TIME ALLOWED: THREE HOURS	PART-I (MCQS) MAXIMUM MARKS = 20
PART-I(MCQS): MAXIMUM 30 MINUTES	PART-II MAXIMUM MARKS = 80
NOTE: (i) Part-II is to be attempted on the separate Answer Book.	
(ii) Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks.	
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(iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.	
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PART – II
SECTION – I

- Q. No. 2.** Differentiate between weathering, erosion and transportation. Elaborate the various agents and types of weathering. (20)
- Q. No. 3.** What are lithostratigraphic and chronostratigraphic unit? Discuss the various laws of stratigraphy. (20)
- Q. No. 4.** Explain isomorphism and polymorphism through examples. Give a detailed account of classification of silicate minerals. (20)
- Q. No. 5.** Differentiate between lineation and foliation. Discuss various structural controls on the mechanical properties of materials. (20)

SECTION-II

- Q. No. 6.** Differentiate between eustatic and relative sea level curve. Discuss the relationship between eustacy, accommodation space and sedimentation. (20)
- Q. No. 7.** Differentiate between hydrocarbon source and reservoir rocks. Elaborate the various trapping mechanisms of hydrocarbons. (20)
- Q. No. 8.** Write short notes on any TWO of the following: (10 each) (20)
- (a)** Coal rank and coal series.
 - (b)** Geological controls on the selection of mega dam sites.
 - (c)** Occurrences of Radioactive deposits in Pakistan.



FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION-2023
FOR RECRUITMENT TO POSTS IN BS-17
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Roll Number

GEOLOGY

TIME ALLOWED: THREE HOURS
PART-I(MCQS): MAXIMUM 30MINUTES

PART-I (MCQS) MAXIMUM MARKS = 20
PART-II MAXIMUM MARKS = 80

- NOTE: (i) Part-II is to be attempted on the separate Answer Book.**
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PART-II
SECTION-I

- Q. No. 2.** Discuss the history and component of geological time scale. **(20)**
- Q. No. 3.** Discuss the trilobites and their significance in Paleozoic stratigraphy. **(20)**
- Q. No. 4.** Write a comprehensive note on IUGS classification of volcanic rocks. **(20)**
- Q. No. 5.** How salt can be identified in the field? Discuss the stratigraphic, physiographic, and geometric criteria. **(20)**

SECTION-II

- Q. No. 6.** Discuss in detail the mostly applied geophysical techniques in mineral exploration. **(20)**
- Q. No. 7.** Explain the primary and secondary migration of Hydrocarbons. **(20)**
- Q. No. 8.** What are mostly conducted modes of subsurface investigations at dam sites? Discuss comprehensively with figures where required. **(20)**
