

# FEDERAL PUBLIC SERVICE COMMISSION



## COMPETITIVE EXAMINATION FOR RECRUITMENT TO POSTS IN BS-17 UNDER THE FEDERAL GOVERNMENT, 2011

### GEOLOGY, PAPER-II

<b>TIME ALLOWED:</b>	<b>(PART-I MCQs)</b>	<b>30 MINUTES</b>	<b>MAXIMUM MARKS: 20</b>
<b>THREE HOURS</b>	<b>(PART-II)</b>	<b>2 HOURS &amp; 30 MINUTES</b>	<b>MAXIMUM MARKS: 80</b>
<b>NOTE: (i) First attempt PART-I (MCQs) on separate Answer Sheet which shall be taken back after 30 minutes.</b>			
<b>(ii) Overwriting/cutting of the options/answers will not be given credit.</b>			

#### (PART-I MCQs) (COMPULSORY)

- Q.1.** Select the best option/answer and fill in the **appropriate box** on the **Answer Sheet**. (1 x 20=20)
- (i) The quality of coal of Thar coal deposits is:  
(a) Anthracitic (b) Bituminous (c) Lignitic (d) Sub-bituminous (e) All of these
- (ii) Liptinite type of maceral group, after maturation is capable to generate:  
(a) Condensate (b) Oil (c) Gas (d) Coal (e) None of these
- (iii) Dolomite deposits of Jhampir (Sindh) occur in:  
(a) Laki Formation (b) Nari Formation  
(c) Dungan Formation (d) Kirthar Formation (e) All of these
- (iv) The heavy minerals, Zircon, Rutile and Apatite are found in:  
(a) Sand and Sandstone (b) Chalk and Limestone  
(c) Kaolinite and Claystone (d) Chlorite and Claystone (e) None of these
- (v) During geological mapping the following can be used as base map:  
(a) Toposheet (b) Aerial Photograph  
(c) Satellite Image (d) Habitation map (e) All of these
- (vi) Hemimorphite, Franklinite and Smithsonite are ores of:  
(a) Cu (b) Ti (c) Cr (d) Zn (e) None of these
- (vii) Following is a very well proven reservoir rock in Lower Indus Basin:  
(a) Gaj Formation (b) Nari Formation (c) Goru Formation  
(d) Parh Limestone (e) None of these
- (viii) F. H. Lahee and R. R. Compton are the authors of the famous books on the subject:  
(a) Geomorphology (b) Field Geology  
(c) Structural Geology (d) Engineering Geology (e) None of these
- (ix) Khas Kheli oil field in lower Sindh was discovered in:  
(a) 1991 (b) 1981 (c) 1971 (d) 1961 (e) None of these
- (x) Warsak dam is built on:  
(a) Kabul River (b) Kurram River (c) Gomal River (d) Swat River (e) None of these
- (xi) Alpine-type Chromite deposits occur at:  
(a) Chagai (b) Kohistan (c) Raskoh (d) Muslimbagh (e) All of these
- (xii) Which of the following prospecting method is most suitable for locating Asbestos, Pyrrhotite and Manganese?  
(a) Air-born magnetic survey (b) Ground magnetic survey  
(c) Seismic method (d) Electrical Resistivity method (e) All of these

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- (xiii) To obtain information about magnetic minerals from Stereogram/Stereopair following instrument is:
- (a) Stereometer (b) Magnetometer (c) Resistivitymeter  
(d) Seismometer (e) None of these
- (xiv) Following rocks are not suitable as construction materials due to ASR and ACR hazards respectively:
- (a) Granite and Diorite (b) Dolomite and Calcite  
(c) Andesite and Dolomite (d) Basalt and Gabbro (e) None of these
- (xv) Presence of Pegmatite is especially an indicator of possible occurrence of:
- (a) Base-metals (b) Radioactive minerals  
(c) Magnetic minerals (d) Non-metals (e) All of these
- (xvi) For exploration and determination of underground water quality most suitable method is:
- (a) Seismic (b) Magnetic (c) Geochemical (d) Resistivity (e) None of these
- (xvii) If a map shows distribution of rocks and other geological materials (features also) of different ages over the Earth's surface or below, it is known as:
- (a) Topographic Map (b) Geological Map  
(c) Physiographic Map (d) Mine-Survey Map (e) None of these
- (xviii) A map which shows the surface contours on an imaginary surface to which water would rise in a drilled well is termed as:
- (a) Piezometric Contour Map (b) Groundwater Contour Map  
(c) Water Table Contour Map (d) Sonometric Contour Map (e) All of these
- (xix) Following is the term describes the Iron-Oxide rich zone which lies above a Sulphide bearing ore deposit:
- (a) Greisen (b) Genesis (c) Gossan (d) Gneiss (e) None of these
- (xx) Oil seepages in the Sulaiman Range are from the rocks of the following ages:
- (a) Triassic and Jurassic (b) Jurassic and Cretaceous  
(c) Cretaceous and Paleocene (d) Paleocene and Eocene (e) All of these

## PART-II

- NOTE:**(i) **PART-II** is to be attempted on separate Answer Book.  
(ii) **Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL marks.**  
(iii) **Extra attempt of any question or any part of the attempted question will not be considered.**

- Q.2.** Name various geochemical prospecting methods for minerals. Describe any one of them in detail with examples. (20)
- Q.3.** What geological considerations are essential before selecting a site for and during construction of a tunnel? Discuss in detail. (20)
- Q.4.** Elaborate Hydrologic Cycle. How the water-flow budget of an hydrologic basin is calculated? (20)
- Q.5.** What are Kimberlites? Discuss their distribution in space and time, geological setting and petrography. (20)
- Q.6.** (a) Give the criteria for lithological interpretation on an aerial photograph. (10)  
(b) Briefly discuss the merits and demerits of Aerial Photography and Satellite Remote Sensing over each other. (10)
- Q.7.** Write about the tectonic setting and metallogenic province of RecoDiK Copper – Gold Belt of Balochistan. Discuss the genesis and petrography of the deposit. (20)
- Q.8.** Give the occurrence of coal deposits in the Kirthar Province of Lower Indus Basin. Describe their stratigraphic association, coal varieties and reserves. (20)

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