

GEOLOGY, PAPER-II

**FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION FOR
RECRUITMENT TO POSTS IN BPS-17 UNDER
THE FEDERAL GOVERNMENT, 2010**

Roll No. _____

GEOLOGY, PAPER-II

TIME ALLOWED:	(PART-I) 30 MINUTES	MAXIMUM MARKS:20
	(PART-II) 2 HOURS & 30 MINUTES	MAXIMUM MARKS:80

- NOTE:** (i) First attempt **PART-I (MCQ)** on separate **Answer Sheet** which shall be taken back after **30 minutes**.
(ii) **Overwriting/cutting of the options/answers will not be given credit.**

PART – I (MCQ)
(COMPULSORY)

- Q.1. Select the best option/answer and fill in the appropriate box on the Answer Sheet. (20)**
- (i) The “safe yield” of groundwater basin is:
 - (a) The total quantity of water that can be withdrawn from it annually
 - (b) The total quantity of water obtained from a basin less the water lost on account of evapotranspiration
 - (c) The amount of water that can be withdrawn from it annually without producing an undesired result
 - (d) None of these
 - (ii) The lower 10 km of the atmosphere where most weather occurs is called:
 - (a) Troposphere (b) Hydrosphere (c) Barosphere (d) Biosphere
 - (iii) When moist air moves and encounters a mountain range, it flows up and down the other side, rain occurs in the zone of cooling air, called:
 - (a) Convective precipitation (b) Cyclonic precipitation
 - (c) Orographic precipitation (d) None of these
 - (iv) Clay is:
 - (a) More porous and more permeable (b) Less porous and less permeable
 - (c) More porous and less permeable (d) Less porous and more permeable
 - (v) In Alkali-Silica Reaction strained quartz is:
 - (a) Non-reactive (b) Most reactive (c) Prevent ASR (d) Imparts high strength
 - (vi) In concrete ASR is exhibited by:
 - (a) Parallel Fractures (b) Oblique fractures
 - (c) Transverse fractures (d) None of these
 - (vii) Greywacke and other phyllosilicates are generally prone to:
 - (a) Alkali Silica Reaction (b) Alkali Carbonate Reaction
 - (c) Alkali Silicate Reaction (d) All of these
 - (viii) An aquifer, not in contact with atmosphere, overlain by aquitards, have inflow or out flow of groundwater through overlying (or underlying) aquitards, is known as:
 - (a) Semi-unconfined aquifer (b) Confined aquifer
 - (c) Unconfined aquifer (d) Semi-confined aquifer
 - (ix) A formation which can transmits water at a very low rate (sandy clay, fractures shales, silts) forms:
 - (a) Aquitard (b) Aquifuge (c) Aquiclude (d) Aquifer
 - (x) Maps having contour lines connecting points of equal depths of precipitation for the aerial distribution of rainfall are called:
 - (a) Contour Maps (b) Isopack Maps (c) Isohyetal Maps (d) Hydrological Maps
 - (xi) Having uniform grain size, choose the correct statement:
 - (a) Cubic packing has higher porosity than rhombohedral packing
 - (b) Rhombohedral packing has higher porosity than cubic packing
 - (c) Both type of packing have same porosities
 - (d) Packing of grains has no effect on porosity
 - (xii) The process of formation of deposits from channels at or near the surface is described as:
 - (a) Syngenetic (b) Epigenetic (c) Paragenetic (d) Pneumatogenetic

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- (xiii) Pegmatites are described as:
 - (a) Massive mineral deposits of sedimentary origin
 - (b) Huge outcrops of fine-grained volcano-plutonic rocks
 - (c) Very coarse-grained igneous or metamorphic rocks
 - (d) Bonanza of gold and silver
- (xiv) Which of the following is an endogenetic deposit?
 - (a) Oxidation and supergene sulphide enrichment
 - (b) Residual concentration deposits
 - (c) Sedimentation deposits
 - (d) Fumarolic deposits
- (xv) The deposits formed at the end of magmatic differentiation are termed as:
 - (a) Orthotectic deposits
 - (b) Metasomatic deposits
 - (c) Hydrothermal deposits
 - (d) Orthomagmatic deposits
- (xvi) In a compaction test, maximum dry density is achieved at a particular moisture content called:
 - (a) Maximum moisture content
 - (b) Optimum moisture content
 - (c) Ultimate moisture content
 - (d) Minimum moisture content
- (xvii) Coal deposits are formed on:
 - (a) Continental slopes
 - (b) Deep Marine
 - (c) Shallow Marine
 - (d) None of these
- (xviii) Uranium in Pakistan is found in:
 - (a) Volcanic Rocks
 - (b) Plutonic Rocks
 - (c) Sedimentary Rocks
 - (d) All of these
- (xix) In stratigraphic trap the chief trap making element is:
 - (a) Lithology
 - (b) Porosity
 - (c) Permeability
 - (d) All of these
- (xx) The Lines of Latitude and Longitude drawn on a globe as:
 - (a) Latitude lines are parallel and Longitude lines meet at the poles
 - (b) Latitude lines are parallel and Longitude lines meet at the equator
 - (c) Longitude lines are parallel and Latitude lines meet at the poles
 - (d) Longitude lines are parallel and Latitude lines meet at the equator

PART – II

NOTE:	<p>(i) PART-II is to be attempted on the separate Answer Book.</p> <p>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL marks.</p> <p>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</p>
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- Q.2.** Describe various modes of slope failures in rocks. **(20)**
- Q.3.** What is meant by alkali-aggregate reaction? Elaborate the concept of Alkali-Silica reaction. **(20)**
- Q.4.** How the geochemical survey is used for the exploration of mineral deposits? **(20)**
- Q.5.** Describe the occurrence and industrial utilization of bentonite deposits of Azad Kashmir. **(20)**
- Q.6.** Discuss salient featured of Tarbela Dam. **(20)**
- Q.7.** What is the role of an Engineering Geologist in the site investigation of a mega project? **(20)**
- Q.8.** Describe the theories regarding the Origin of Petroleum and Primary Migration of Hydrocarbons. **(20)**
