FEDERAL PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATION FOR
RECRUITMENT TO POSTS IN BPS-17 UNDER
THE FEDERAL GOVERNMENT, 2009

GEOLOGY, PAPER-II

S.No.	
R.No.	

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) Diamonds are stronger than graphite because they have:
(a) Van der Waals bonds (b) covalent bonds
(c) ionic bonds (d) metallic bonds

(ii) Bauxite, the principal ore of aluminum is actually which type of soil:
(a) pedalfer (b) pedocal (c) caliche (d) laterite

(iii) The term "groundwater recharge" refers to:
(a) the supply of groundwater that remains stored in the ground for long periods of time
(b) the infiltration and addition of water into the groundwater aquifer
(c) absorption of water by the soil
(d) how fast the groundwater is flowing

(iv) Which of the following aquifers are most at risk to contamination?
(a) deep, confined aquifers
(b) aquifers in igneous rocks
(c) shallow, unconfined aquifers recharged by rivers that drain agricultural or industrial areas
(d) All of these

(v) Doubling of the greenhouse gases in the atmosphere is predicted to cause:
(a) change in rainfall patterns
(b) increase in average global temperature of 1.2 *C
(c) northward movement of optimal growing zones
(d) All of these

(vi) Platinum and chromium deposits are typically associated with:
(a) pegmatites (b) hydrothermal deposits
(c) black smokers (d) igneous mafic layered intrusions

(vii) With increasing metamorphism, a shale will go through which of the following textural changes:
(a) phyllite, gneiss, schist, slate (b) schist, slate, gneiss, phyllite
(c) slate, phyllite, gneiss, schist (d) slate, phyllite, schist, gneiss

(viii) Most petroleum is generated from source rocks deposited:
(a) in oxic to dysoxic (b) dysoxic-to-suboxic
(c) suboxic-to-anoxic (d) dysoxic-to-oxic environments

(ix) The main driving force behind secondary migration in absence of hydrodynamics is:
(a) buoyancy (b) capillarity (c) surface tension

(x) Mendeleer proposed that, metallic carbides deep within the Earth reacted at high temperature with H_2O, to form hydrocarbons:
(a) methane (b) ethane (c) acetylene (d) benzene

(xi) Good hydrocarbon source rocks are usually:
(a) Coarse grained (b) fine grained (c) medium grained

(xii) Oil and Gas Development Corporation was established in:
(a) 1956 (b) 1965 (c) 1961 (d) 1971

(xiii) First discovery of oil Field was made at Khaur in Potwar Basin in:
(a) 1885 (b) 1951 (c) 1915 (d) 1947

(xiv) The zone of leaching in a soil is also called the:
(a) A-horizon (b) B-horizon (c) C-horizon (d) O-horizon

(xv) To be an aquifer, a rock unit must have::
(a) both permeability and porosity (b) neither permeability nor porosity
(c) permeability, but not porosity (d) porosity, but not permeability

(xvi) Which formation is most objective as reservoir rock in Potowar region?
(a) Khewra sand stone (b) Datta sand stone
(b) Pab sand stone (d) Sakesar Lime stone

(xvii) Geologists use the equation called Darcy's Law to calculate:
(a) the depth to the water table (b) the discharge through an aquifer
(c) the water pressure in an aquifer (d) the porosity of an aquifer

(xviii) Kalabagh Dam was proposed to built on:
(a) Swat River (b) Kabul River (c) Indus River (d) Nilam River

(xix) Chromite ore mines are located in:
(a) Axial folded Belt (b) Sulaiman Ranges (c) Trans Indus Ranges
(d) Kharan Ranges (e) None of these

(xx) Most of the Oil and Gas Fields of Indus Basin discovered in:
(a) Punjab Platform Area (b) Thar Platform Area (c) Sargodha High
(d) Kohat-Potwar Basin (e) None of these

PART – II

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)** Extra attempt of any question or any part of the attempted question will not be considered.

Q.2. Describe the characteristics of reservoir rocks and enlist producing reservoir rocks of Indus Basin. **(20)**

Q.3. Describe the Trap mechanism and classify the kinds of traps according to Allen Allen. **(20)**

Q.4. Describe the Seismic method of Exploration and briefly discuss the mechanism of seismograph and geophones. **(20)**

Q.5. Discuss with reference to geographical distribution, economic value and occurrences of Non-Metallic Minerals of Pakistan. **(20)**

Q.6. Discuss the characteristics features of Building Material and enlist all those factors consider for construction of a Dam. **(20)**

Q.7. Discuss the future prospect of coal mining in Pakistan with reference to Sindh region especially. **(20)**

Q.8. Define/describe briefly the following terms: **(20)**

(i)	Photosynthesis	(ii)	Bitumen Shale	**(1 each)**
(iii)	Hematite Ore	(iv)	Seal Rock	
(v)	Career Bed	(vi)	Buoyant Force	
(vii)	Buckle Fold Trap	(viii)	Directional Drilling	
(ix)	Fuel Minerals	(x)	Drilling Mud	
(xi)	Oil Fields of Kohat	(xii)	Stable Slopes	
(xiii)	Remote sensing	(xiv)	Water Logging	
(xv)	Aquifer Well	(xvi)	Expulsion of soil	
(xvii)	Vuggy Porosity	(xviii)	Exinite Matter	
(xix)	Gas Chromatography	(xx)	Gravity Method of Exploration	

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