# FEDERAL PUBLIC SERVICE COMMISSION



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

Roll Number

## **GEOLOGY, PAPER-I**

TIME ALLOWEI	D: (PART-I MCQs)	<b>30 MINU</b>	FES		MAXIM		IARKS: 20
THREE HOURS	(PART-II)		& 30 MINU	TES			<b>ARKS: 80</b>
	t attempt PART-I (MC	Qs) on separa	te Answer Sh	eet which	shall be take	en bacl	k after 30
minu (iii) Orus		ant: anglange		ha airran a			
(ii) Ove	rwriting/cutting of the	options/answ	vers will not	be given c	crean.		
	<u>(PAR</u>	T-I MCQs) (	COMPULSC	DRY)			
Q.1. Select the be	est option/answer and fi	ll in the <b>appro</b>	o <b>priate box</b> o	on the Ans	wer Sheet.	(1	l x 20=20)
(i) Following are	the members of plagioc	clase family:					
(a) Albite, C	ligoclase, Andesine	<b>(b)</b>	Andesine, La	abradorite,	, Bytownite		
(c) Oligoclas	se, Andesine, Labradori	te ( <b>d</b> )	Labradorite,	Bytownite	e, Anorthite	(e)	All of these
(ii) Chaman Trans	sform Zone is characteri	ized:					
(a) Mainly b	y strike-slip faulting wi	th minor subd	uction				
(b) Mainly b	y dip-slip faulting with	minor subduc	tion				
(c) Mainly b	y subduction with mino	r strike-slip fa	ulting				
(d) Mainly b	y obduction with minor	strike-slip fau	ulting			(e)	None of these
(iii) A blocky and	fragmented form of lava	a occurring in	flows with fis	ssured and	l angular surf	faces i	s known as:
(a) Ad lava	( <b>b</b> ) Ac lava	( <b>c</b> )	Ab lava	( <b>d</b> )	Aa lava	(e)	None of these
(iv) The following	formations are known	respectively as	s Upper, Mide	dle and Lo	ower Product	us Lin	nestone:
(a) Amb, Wa	argal and Chiddru	<b>(b)</b>	Chiddru, Wa	rgal and A	Amb		
(c) Wargal,	Amb and Chiddru	( <b>d</b> )	Amb, Chiddr	ru and Wa	rgal	(e)	None of these
(v) The following	mineral shows two sets	s rhombic clea	vage:				
(a) Hornbler	nde (b) Grunerite	( <b>c</b> )	Tremolite	( <b>d</b> )	Actinolite	(e)	All of these
(vi) Physical weat	hering process in which	sheets of rock	x are fractured	and deta	ched from an	outcr	op is termed as
(a) Degenera	ation ( <b>b</b> ) Transpirat	ion (c)	Exfoliation	( <b>d</b> ) De	eformation	(e)	None of these
(vii) Mohorovicic l	Discontinuity is the bound	ndary betweer	1:				
(a) Crust and	l Lithosphere	<b>(b)</b>	Sima and Sia	ıl			
(c) Crust and	l Mantle	( <b>d</b> )	Crust and As	thenosphe	ere	(e)	None of these
(viii) Type of foliati	on associated with very	fine grained	pelitic rocks r	netamorpl	hosed to low	grade	is known as:
(a) Phyllitic	Structure	<b>(b)</b>	Gneissic Stru	icture			
(c) Schistose	e Structure	( <b>d</b> )	Slaty Cleava	ge		(e)	None of these
(ix) Which of the	following statements is	true?					
(a) Apatite is	s harder than Fluorite	<b>(b)</b>	Quartz is har	der than C	Calcite		
(c) Corundu	m is harder than Quartz	( <b>d</b> )	Diamond is h	harder that	n all minerals	s (e)	) All of these
(x) Among follow	ving which are classed a	s chronostrati	graphic units:				
· · ·	od, Epoch		Group, Form		mber		
	Series, Stage		Palaeozoic, C			(e) ]	None of these
-	following group of rock						
	te, Syenite, Rhyolite		Granite, Dior		odiorite		
(c) Trachyte	, Andesite, Dacite	( <b>d</b> )	Gabbro, Nori	ite, Doleri	te (e	e) No	one of these

#### **GEOLOGY, PAPER-I**

<ul> <li>(xiii) Island Arc is a linear or arcuate chain of volcanic islands at: <ul> <li>(a) Transform Plate Boundary</li> <li>(b) Convergent Plate Boundary</li> <li>(c) Mid-Oceanic Ridge</li> <li>(d) Divergent Plate Boundary</li> <li>(e) None c</li> </ul> </li> <li>(xiv) Axial Fold Belt is the dividing feature between two basins. <ul> <li>(a) Indus and Kakar Khurasan</li> <li>(b) Lower and Upper Indus</li> <li>(c) Southern and Central Indus</li> <li>(d) Indus and Balochistan</li> <li>(e) None c</li> </ul> </li> <li>(xv) Current ripples are used to indicate: <ul> <li>(a) Velocity of flow</li> <li>(b) Direction of flow</li> <li>(c) Line of flow</li> <li>(d) Gradient of flow</li> <li>(e) All of flox</li> </ul> </li> <li>(ii) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None c</li> <li>(xvii) Floating invertebrates are known as: <ul> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None c</li> </ul> </li> <li>(xviii) Zalucch Nala is situated in: <ul> <li>(a) Eastern Salt Range</li> <li>(b) Western Salt Range</li> <li>(c) Surghar Range</li> <li>(d) Central Salt Range</li> <li>(e) None c</li> </ul> </li> <li>(xiii) Expression of the septum on the wall surface of Ammonoids is known as: <ul> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None c</li> </ul> </li> <li>(xiii) Blue Schist is comprised of: <ul> <li>(a) Smectite and Quartz</li> <li>(b) Glaucophane, Lawsonite and Quartz</li> <li>(c) Epidote and Albite</li> <li>(d) Marble and Quartzite</li> <li>(e) None C</li> </ul> </li> <li>(xiii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL markfilii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical features of c Trilobita of Phylum Arthropoda.</li> <li>(b) Attempt ONLY FOUR questions from</li>	UL		$\mathcal{O}$	/1\-1										
(c) Plutonic rocks       (d) Volcanic rocks       (e) All of 1         (xiii) Island Are is a linear or arcuate chain of volcanic islands at: <ul> <li>(a) Transform Plate Boundary</li> <li>(b) Convergent Plate Boundary</li> <li>(c) Mid-Oceanic Ridge</li> <li>(d) Divergent Plate Boundary</li> <li>(e) Mid-Oceanic Ridge</li> <li>(f) Divergent Plate Boundary</li> <li>(e) None of (xiv) Axial Fold Belt is the dividing feature between two basins.</li> <li>(a) Indus and Kakar Khurasan</li> <li>(b) Lower and Upper Indus</li> <li>(c) Southern and Central Indus</li> <li>(d) Indus and Balochistan</li> <li>(e) None of (xv) Current ripples are used to indicate:</li> <li>(a) Velocity of flow</li> <li>(b) Direction of flow</li> <li>(c) Line of flow</li> <li>(c) All of 1</li> <li>(xvi) Floating invertebrates are known as:</li> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Central Salt Range</li> <li>(e) None of (xvii) Zaluch Nala is situated in:</li> <li>(a) Eastern Salt Range</li> <li>(d) Central Salt Range</li> <li>(e) None of (xvii) Zaluch Nala is situated in:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of (xii) Blue Schist is comprised of:</li> <li>(a) Growth lines</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None of (xii) Blue Schist is comprised of:</li> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li></ul>	(xii)	Anti	stress and stre	ss mine	rals are discu	ussed i	n the	context of:						
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<ul> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) Notical State Sta</li></ul>	(xvi)	Floa	ting invertebra	ates are	known as:									
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<ul> <li>(c) Surghar Range</li> <li>(d) Central Salt Range</li> <li>(e) None of Stripping Stripp</li></ul>	(xvii)	Zalu	ch Nala is situ	ated in:				L			±			
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<ul><li>epicentre of an earthquake is located?</li><li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li></ul>	Q.4.								U		-		e	(20)
•	Q.5.						re and	l focus. Usi	ing P a	nd S w	aves how	the		(20)
Give example of each class. Write down the physical properties of mica group.	Q.6.			-										(20)

Q.7. With examples, discuss the geological parameters which control the landforms of an area. Describe the landforms resulted by sedimentation through ice and meltwater. (20)

# Q.8.Write notes on the following:<br/>(a)(b)Diagenesis(c)Dolomitization(d)Metasomatism

\*\*\*\*\*\*\*

(5+5+5+5=20)

# FEDERAL PUBLIC SERVICE COMMISSION



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

Roll Number

## **GEOLOGY, PAPER-II**

					30 MIN					MARKS: 20
	кее н ГЕ: (i)		Ň	/		RS & 30 MINU rate Answer S				MARKS: 80
	<b>IL</b> . (I)	minute	-		<b>Q</b> 5) on sepa					ex unter 50
(ii) Overwriting/cutting of the options/answers will not be given credit.										
(PART-I MCQs) (COMPULSORY)										
Q.1.	Sel	ect the best	option/a	nswer and fil	l in the <b>app</b>	propriate box	on the A	nswer Sheet.		(1 x 20=20)
(i)	The q	uality of co	al of Th	ar coal depos	its is:					
	(a)	Anthraciti	c (b)	Bituminous	(c)	Lignitic	( <b>d</b> ) 5	Sub-bituminou	is (e	e) All of these
(ii)	Liptir	ite type of	maceral	group, after 1	naturation i	is capable to ge	enerate:			
	(a)	Condensat	e (b)	Oil	(c)	Gas	( <b>d</b> )	Coal	(e)	None of these
(iii)	Dolor	nite deposit	ts of Jha	mpir (Sindh)	occur in:					
	<b>(a)</b>	Laki Form	ation		<b>(b</b> )	Nari Formati	on			
	( <b>c</b> )	Dungan Fo	ormation	L	( <b>d</b> )	Kirthar Form	nation		(6	e) All of these
(iv)	The h	eavy miner	als, Zirc	on, Rutile and	d Apatite ar	e found in:				
	(a)	Sand and S	Sandston	e	<b>(b</b> )	Chalk and Li	mestone			
	(c)	Kaolinite a	and Clay	stone	( <b>d</b> )	Chlorite and	Claystor	ne	<b>(e)</b>	None of these
(v)	Durin	g geologica	al mappi	ng the follow	ing can be	used as base m	ap:			
	(a)	Toposheet			<b>(b</b> )	Aerial Photo	graph			
	( <b>c</b> )	Satellite In	nage		( <b>d</b> )	Habitation m	ap (e)	All of these	e	
(vi)	Hemi	morphite, F	Franklini	te and Smiths	sonite are of	res of:				
	(a)	Cu	<b>(b)</b>	Ti	(c)	Cr	( <b>d</b> )	Zn	<b>(e)</b>	None of these
(vii)	Follo	wing is a ve	ry well	proven reserv	oir rock in	Lower Indus E	Basin:			
	(a)	Gaj Forma	tion	( <b>b</b> ) Nari Fo	ormation	(c) Goru Fo	rmation			
	( <b>d</b> )	Parh Lime	stone		(e)	None of thes	e			
(viii)	F. H.	Lahee and	R. R. Co	mpton are the	e authors of	the famous bo	ooks on t	he subject:		
	(a)	Geomorph	ology		<b>(b)</b>	Field Geolog	У			
	(c)	Stuctural C	Geology		( <b>d</b> )	Engineering	Geology		(e)	None of these
(ix)	Khas	Kheli oil fi	eld in lo	wer Sindh wa	s discovere	ed in:				
	(a)	1991	<b>(b)</b>	1981	(c)	1971	( <b>d</b> )	1961	(e)	None of these
(x)	Warsa	ak dam is b	uilt on:							
	(a)	Kabul Riv	er (b)	Kurram Riv	ver (c)	Gomal River	· (d)	Swat River	<b>(e)</b>	None of these
(xi)	Alpin			posits occur a						
. /	(a)	Chagai	-	Kohistan	(c)	Raskoh	( <b>d</b> )	Muslimbagh	(e)	All of these
(xii)		-	. ,			ost suitable for		e	• • •	e and
	(a)	Air-born n	nagnetic	survey	<b>(b</b> )	Ground mag	netic sur	vey		
	(c)	Seismic m	ethod		( <b>d</b> )	Electrical Re	sistivity	method	(e)	All of these

#### **GEOLOGY, PAPER-II**

(xiii)	To ob	tain informatio	n abo	ut magnetic	miner	als fro	om Stereogram/St	ereopa	ir following	instr	ument is used:
	(a)	Stereometer	<b>(b</b> )	Magneton	neter	(c)	Resistivitymeter				
	( <b>d</b> )	Seismometer	<b>(e)</b>	None of the	nese						
(xiv)	Follow	wing rocks are	not su	itable as con	nstruct	tion m	aterials due to AS	SR and	ACR hazard	ls res	pectively:
	(a)	Granite and D	iorite		(b)	Do	lomite and Calcit	e			
	(c)	Andesite and I	Dolon	nite	( <b>d</b> )	Ba	salt and Gabbro	<b>(e)</b>	None of the	ese	
(xv)	(xv) Presence of Pegmatite is especially an indicator of possible occurrence of:										
	<b>(a)</b>	Base-metals				(	<b>b</b> ) Radioactive	minera	ıls		
	( <b>c</b> )	Magnetic min	erals			(	d) Non-metals			(e)	All of these
(xvi)	For ex	ploration and o	detern	nination of u	nderg	round	water quality mo	ost suita	able method i	is:	
	<b>(a)</b>	Seismic	<b>(b)</b>	Magnetic		(c)	Geochemical	( <b>d</b> )	Resistivity	(e)	None of these
(xvii)	If a m	ap shows distri	butio	n of rocks ar	nd oth	er geo	logical materials	(featur	es also) of di	ffere	ent ages over the
	Earth'	s surface or be	low, i	t is known a	s:						
	(a)	Topographic N	Мар			<b>(b</b> )	Geological Map				
	(c)	Physiographic	Map			( <b>d</b> )	Mine-Survey M	ap	(e	e) 1	None of these
(xviii)	-	which shows ned as:	the su	irface conto	urs on	an im	aginary surface to	o whic	h water woul	d rise	e in a drilled well
	(a)	Piezometric C	ontou	r Map		<b>(b</b> )	Groundwater Co	ontour	Map		
	(c)	Water Table C	Contou	ır Map		( <b>d</b> )	Sonometric Con	tour M	lap (e	e) A	All of these
(xix)	Follow	ving is the tern	n desc	ribes the Iro	n-Oxi	de ric	n zone which lies	above	a Sulphide b	earir	ng ore deposit:
	(a)	Greisen	<b>(b)</b>	Genesis		(c)	Gossan	( <b>d</b> )	Gneiss	(e)	None of these
( <b>xx</b> )	Oil se	epages in the S	ulaim	an Range ar	e fron	n the r	ocks of the follow	ving ag	ges:		
	<b>(a)</b>	Triassic and Ju	urassio	c		<b>(b</b> )	Jurassic and Cretaceous				
	(c)	Cretaceous an	d Pale	eocene		( <b>d</b> )	Paleocene and E	Eocene	(e	e) A	All of these

## PART-II

NOTE:(i)	PART-II is to be attempted on separate Answer Book.
( <b>ii</b> )	Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL marks.
( <b>iii</b> )	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 (20) with examples.

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 (10) Sensing over each other.
- **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 (20) their stratigraphic association, coal varieties and reserves.

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