# 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			& 30 MINU	TES		MAXIMUM MARKS: 20 MAXIMUM MARKS: 80			
	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 (d)	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	Mainly by dip-slip faulting with minor subduction								
(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:						
<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 of Vaxial 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 Vaxial Fold Belt is the dividing feature between two basins.</li> <li>(a) Indus and Central Indus</li> <li>(d) Indus and Balochistan</li> <li>(e) None of Vaxial Fold Belt is the dividing feature between two basins.</li> <li>(a) Indus and Central Indus</li> <li>(d) Indus and Balochistan</li> <li>(e) None of Vaxial Fold Belt</li> <li>(f) Southern and Central Indus</li> <li>(g) Ine of flow</li> <li>(h) Direction of flow</li> <li>(c) Line of flow</li> <li>(c) Line of flow</li> <li>(d) Gradient of flow</li> <li>(e) All of flow</li> <li>(f) 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 of Vaxia Zaluech Nala is situated in:</li> <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 of Vaxia Bits is comprised of:</li> <li>(a) Smeetite 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 Oxia Tube of a doubly plunging syncline is:</li> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None Oxia Tube on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL markf</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> </li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological featu</li></ul></li></ul>		<b>(a)</b>	Metamorphic	rocks			<b>(b)</b>	Sediment	ary roc	eks				
<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 of (siv) 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>(d) Gradient of flow</li> <li>(e) All of I (xvi) Floating invertebrates are known as:</li> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None of (xvi) Zaluch Nala is situated in:</li> <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 of (xvi) Expression of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None (xix) Blue Schist is comprised of:</li> <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 of (xx) The hinge line of a doubly plunging syncline is:</li> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None of (xx) The hinge line of a any question or any part of the attempted question will not be considered.</li> </ul> PART-II is to be attempted on separate Answer Book. <ul> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL markt (iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda. Q.4. Describe the morphological and structural characteri		(c)	Plutonic rock	S	(d) Volcanic rocks				(e)	All c	of these			
<ul> <li>(c) Mid-Oceanic Ridge</li> <li>(d) 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>(d) Gradient of flow</li> <li>(e) All of the (xv) Floating invertebrates are known as:</li> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None of (xvi) Floating invertebrates are known as:</li> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None of (xvi) Floating invertebrates are known as:</li> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None of (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 (xvi) Expression of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Statre</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of (xi) Blue Schist is comprised of:</li> <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 of None</li></ul>	(xiii)	Islar	nd Arc is a line	ear or ar	cuatc chain	of volc	anic i	slands at:						
<ul> <li>(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>(d) Gradient of flow</li> <li>(e) All of the context of th</li></ul>		<b>(a)</b>	Transform Pl	ate Bou	ndary		<b>(b)</b>	Converge	ent Plat	e Bour	ndary			
<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 of Xxvi 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>(xvi) Floating invertebrates are known as: <ul> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) All of flox</li> </ul> </li> <li>(xvi) Zaluch 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 of Xiriy Zaluch Nala is situated in:</li> <li>(a) Eastern Salt Range</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of Xiriy Blue Schist is comprised of:</li> <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 <b>EART-II</b></li> </ul> </li> <li>NOTE: (i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark (iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda. Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types. Q.4. Describe the morphological and structural characteristics of Salt Range. Discuss its importance in geology of Pakistan. Give the libological characteristics of Salt Range. Formation. Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?<		(c)	Mid-Oceanic	-			( <b>d</b> )	Divergent Plate Boundary			(e)	Non	e of these	
<ul> <li>(c) Southern and Central Indus</li> <li>(d) Indus and Balochistan</li> <li>(e) None of (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 the (xvi) Floating invertebrates are known as:</li> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None of (xvi) Zaluch Nala is situated in:</li> <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 of (xvi) Zaluch Nala is situated in:</li> <li>(a) Eastern Salt Range</li> <li>(d) Central Salt Range</li> <li>(e) None of (xvi) 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 (xix) Blue Schist is comprised of:</li> <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 Oxono</li> </ul> Note: <ul> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None Oxono</li> </ul> Note: <ul> <li>(i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Extra attempt of any questions from PART-II. All questions carry EQUAL mark (iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda. Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types. Q.4. Describe the morphological and structural characteristics of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of S</li></ul>	(xiv)													
<ul> <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 the velocity of flow</li> <li>(f) Floating invertebrates are known as:</li> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) None of velocity of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of velocity of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of velocity of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of velocity of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of velocity of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of velocity of the and Quartz</li> <li>(e) Epidote and Albite</li> <li>(f) Marble and Quartzite</li> <li>(g) None of Velocity plunging syncline is:</li> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None of Velocity PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> </li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Sli</li></ul>		(a)	-				<b>(b)</b>	Lower and Upper Indus						
<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 the experimentation of the experimentation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an exploration of the experimentation of the experimentation.</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li> </ul>		(c)	) Southern and Central Indus				( <b>d</b> )	Indus and Balochistan				(e)	Non	e of these
<ul> <li>(c) Line of flow</li> <li>(d) Gradient of flow</li> <li>(e) All of f</li> <li>(xvi) Floating invertebrates are known as: <ul> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) No</li> </ul> </li> <li>(xvii) Zaluch 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 of Xviii) 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 of Xviii) Expression of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of Xviii) Blue Schist is comprised of:</li> <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 of Xviii (a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None <u>PART-II</u></li> </ul> </li> <li>NOTE: <ul> <li>(i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL marki</li> <li>(iii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL marki</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> </li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> </ul> </li> <li>Q.4. Describe the morphological and structural characteristics of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, def</li></ul>	(xv)	Curr	Current ripples are used to indicate:											
<ul> <li>(xvi) Floating invertebrates are known as: <ul> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) No</li> </ul> </li> <li>(xvii) Zaluch 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 of Control Salt Range</li> <li>(f) Central Salt Range</li> <li>(g) Nome of Control Salt Range</li> <li>(h) Western Salt Range</li> <li>(h) Central Salt Range</li> <li>(h) Central Salt Range</li> <li>(h) Nome of Control Salt Range</li> <li>(h) Central Salt Range</li> <li>(h) Nome of Control Salt Range</li> <li>(h) Central Salt Range</li> <li>(h) Nome of Control Salt Range</li> <li>(h) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) Nome of Control Salt Range</li> <li>(f) Salt Range</li> <li>(g) Range</li> <li>(h) Glaucophane, Lawsonite and Quartz</li> <li>(h) Sectilinear</li> <li>(h) Glaucophane, Lawsonite and Quartz</li> <li>(h) None of Control Salt Range</li> <li>(h) Vertical</li> <li>(h) None of Control Salt Range</li> </ul> </li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark (iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characteristics of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics o</li>	,	(a)	••					Direction of flow						
<ul> <li>(a) Benthos</li> <li>(b) Nektons</li> <li>(c) Zooplanktons</li> <li>(d) Phytoplanktons</li> <li>(e) Notical State Sta</li></ul>		(c)	Line of flow				( <b>d</b> )	Gradient	of flow	V		(e)	All (	of these
<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:									
<ul> <li>(xvii) Zaluch 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 of Xviii) Expression of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of Xviii) Expression of the septum on the wall surface of Ammonoids is known as:</li> <li>(a) Growth lines</li> <li>(b) Suture</li> <li>(c) Ribs</li> <li>(d) Umbilicus</li> <li>(e) None of Xviii) Blue Schist is comprised of:</li> <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 of Xviii (e) Part-II is to be attempted is:</li> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None of Part-II</li> </ul> NOTE:(i) PART-II is to be attempted on separate Answer Book. <ul> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL marks</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda. Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types. Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation. Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located? Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li></ul>			-			(c)	Zoo	planktons	( <b>d</b> )	Phyto	planktons	(	1 (s	None of the
<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			±			
<ul> <li>(c) Surghar Range</li> <li>(d) Central Salt Range</li> <li>(e) None of Xviii) 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</li> </ul> </li> <li>(xix) 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</li> </ul> </li> <li>(xx) The hinge line of a doubly plunging syncline is: <ul> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None</li> </ul> </li> <li>NOTE: <ul> <li>(i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> </li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> </ul> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li>		(a)	Eastern Salt I	Range			<b>(b)</b>	Western S	Salt Ra	inge				
<ul> <li>kviii) 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</li> </ul> </li> <li>(xix) 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</li> </ul> </li> <li>(xx) The hinge line of a doubly plunging syncline is: <ul> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None</li> </ul> </li> <li>(xx) The hinge line of a doubly plunging syncline is: <ul> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None</li> </ul> </li> <li>(ii) PART-II is to be attempted on separate Answer Book. <ul> <li>(iii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> </li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> </ul> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li>		(c)	-					-					e of these	
<ul> <li>(a) Growth lines (b) Suture (c) Ribs (d) Umbilicus (e) None (xix) Blue Schist is comprised of:</li> <li>(a) Smectite and Quartz (b) Glaucophane, Lawsonite and Quartz (c) Epidote and Albite (d) Marble and Quartzite (e) None (xx) The hinge line of a doubly plunging syncline is:</li> <li>(a) Curvilinear (b) Rectilinear (c) Horizontal (d) Vertical (e) None PART-II</li> </ul> NOTE: (i) PART-II is to be attempted on separate Answer Book. <ul> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark (iii) Extra attempt of any question or any part of the attempted question will not be considered. Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda. Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types. Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation. Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located? Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li></ul>	cviii)	Exp	0		on the wall s	urface	. ,			-				
<ul> <li>(xix) 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</li> </ul> </li> <li>(xx) The hinge line of a doubly plunging syncline is: <ul> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None</li> </ul> </li> <li><b>PART-II</b> NOTE:(i) PART-II is to be attempted on separate Answer Book. <ul> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> </li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li> </ul>		-		-							bilicus	(e)	Nc	one of these
<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</li> <li>(xx) The hinge line of a doubly plunging syncline is:</li> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None</li> </ul> PART-II NOTE:(i) PART-II is to be attempted on separate Answer Book. <ul> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered. Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda. Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types. Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation. Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located? Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li></ul>	(xix)	Blue	Schist is com	prised of	of:									
<ul> <li>(c) Epidote and Albite</li> <li>(d) Marble and Quartzite</li> <li>(e) None</li> <li>(xx) The hinge line of a doubly plunging syncline is:</li> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None</li> <li><u>PART-II</u></li> </ul> NOTE:(i) PART-II is to be attempted on separate Answer Book. <ul> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda. Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types. Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation. Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located? Q.6. How rock-forming minerals are classified on the basis of silicate structure?				-		<b>b)</b> G	laucor	ohane, Law	sonite	and Qı	ıartz			
<ul> <li>(xx) The hinge line of a doubly plunging syncline is: <ul> <li>(a) Curvilinear</li> <li>(b) Rectilinear</li> <li>(c) Horizontal</li> <li>(d) Vertical</li> <li>(e) None <u>PART-II</u></li> </ul> </li> <li>NOTE: <ul> <li>(i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark (iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> </ul> </li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li> </ul>		(c)		-	`	-	-					(e)	Nc	one of these
<ul> <li>(a) Curvilinear (b) Rectilinear (c) Horizontal (d) Vertical (e) None <u>PART-II</u></li> <li>NOTE:(i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark (iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li> </ul>	(xx)	The	1		`	-								
<ul> <li><u>PART-II</u></li> <li>NOTE:(i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark (iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li> </ul>			-	•				Horizonta	al	( <b>d</b> )	Vertical	(e)	Nc	one of these
<ul> <li>NOTE:(i) PART-II is to be attempted on separate Answer Book.</li> <li>(ii) Attempt ONLY FOUR questions from PART-II. All questions carry EQUAL mark</li> <li>(iii) Extra attempt of any question or any part of the attempted question will not be considered.</li> <li>Q.2. Define fossil, discuss various modes of fossilizations. Describe main morphological features of c Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li> </ul>								PT-II				(-)		
<ul> <li>Trilobita of Phylum Arthropoda.</li> <li>Q.3. What are faults, how they are recognized in field? Give the classification of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the epicentre of an earthquake is located?</li> <li>Q.6. How rock-forming minerals are classified on the basis of silicate structure?</li> </ul>	NOT	(ii	) Attempt i) Extra at	: ONLY tempt o	FOUR que	stions	from	PART-II.	All qu					rks.
<ul> <li>of faults based on Slip types.</li> <li>Q.4. Describe the morphological and structural characters of Salt Range. Discuss its importance in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li> <li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the 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.2.					of foss	silizati	ions. Descr	ibe ma	in mor	phologica	l featu	res of	f class ( <b>20</b> )
<ul><li>in geology of Pakistan. Give the lithological characteristics of Salt Range Formation.</li><li>Q.5. In the context of earthquake, define epicentre and focus. Using P and S waves how the 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.3.									(20)				
<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.										(20)			
•	Q.5.									(20)				
Give example of each class. Write down the physical properties of mica group.	Q.6.		How rock-forming minerals are classified on the basis of silicate structure? Give example of each class. Write down the physical properties of mica group.								(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)