SECOND YEAR HIGHER SECONDARY EXAMINATION MARCH 2018

SUBJECT: GEOLOGY CODE. NO: 9022

Section: I

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
		(Any best 8 answers from Qn. 1 - 10)		
1		Heat, Pressure, chemically active fluids. (Any two points)	1 1	2
2		Source rock, Reservoir rock, Oil trap, Migration, accumulation (Any two points)	1 1	2
3		Ductile deformation → Permanent change in shape or volume of the material without rupture (fracture) Brittle deformation → As the applied force increases the material undergoes no further change and it suddenly breaks.	1 1	2
4		Sand stone → Sedimentary rock, Entirely made up of sand sized Quartz grains, soft and porous rock. Quartzite → Metamorphic rock, Formed by metamorphism of sand stone, Hard rock, free from pores, smooth fracture. (Any one point each)	1 1	2
5	a	Ore / Tenor / Grade	1	
	b	Gangue	1	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
6		Seismograph, Seismogram	1+1	2
7		Vulnerability → The extent to which a community, structure, services or geographic area is likely to be damaged or disrupted by the impact of a particular hazard, on account of their nature, construction and proximity to hazardous terrain or a disaster prone area.	2	2
8		'Principle of Uniformitarianism' 1. Any relevant explanation of the Principle. 1 OR Explanation in two points 2		2 2
9		Hydrosphere → a) Water pollution b) Acid mine drainage c) Lowering of Ground water table Lithosphere → a) Deforestation b) Land degradation and Land pollution c) Land Subsidence d) Land slide e) Accumulation of Quarry waste. (Any two points)	2	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
10		Provide warning on eruption, Evacuation prior to eruption, Designing roofs with steep slopes, wearing respirators / wet clothes over the mouth and nose, clear tephra from roofs, Preparation of volcanic hazard maps, (Any two points)	2	2
Section II		(Any best 8 answers from Qn - 11 - 20)		
11		Labelled neat diagram of a fold.	1	3
		Explanation of any two parts (Axial plane, Fold axis, Limbs, Hinge)	2	
12		Igneous rock → Granite, Dunite	1	3
		Sedimentary → Lime stone, Laterite	1	
		Metamorphic → Quartzite, charnockite	1	
13		magmatic Processes →		3
		a) magmatic segregation	$\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$	
		b) magmatic dissemination		
		c) Pegmatite deposits	$1\frac{1}{2}$	
		Explanation of any one type.		

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
14		Primary effect → Occur as a result of the process itself.	1	3
		Secondary effect → Occur because primary effect has caused them. Eg:- Fire, Power failure etc.	1	
		Tertiary effect → Long term effect due to Primary effect Eg:- Loss of habitat, diseases, etc.	1	
15		P-waves → compressional waves/ Push pull / Longitudinal/ similar to sound waves/ Fastest waves / can pass through all medium.	1½	3
		S-waves → shear waves/ transverse waves/ speed less than P-waves/ Pass through solid medium only.	1½	
		OR If drawn figure any of P&S waves.	1+1	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
16		Replacement of a scarce mineral with a more abundant one.	1½	3
		Eg:- Replacement of copper by Aluminium	1½	
		OR		
		Any relevant explanation	3	3
17		Principle of superposition	1	3
		Relevant explanation	2	
18		A B C Fold – Compression – Symmetrical Fault – Tension/ Shear – Normal Joints – Shear/ Tension – Mud cracks (Any two column match) A → B, A → C, or B → C		3
19		(i) Establishing geological time.	1	3
		(ii) Identification of chrono-stratigraphic units.	1	
		(iii) Correlation of rock sequences	1	
		(Any three relevant points)		

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
20		organic matter mixed with mud – burial under layers of sediments – influence of pressure & temperature – Kerogene forms and found in oil shales – with time and more heat & pressure liquid and geseous hydrocarbons forms – migrates into reservoir rocks – accumulates under traps. (Any relevant explanation)	3	3
Section-		III (Any best 5 answers from Qn. 21 – 27)		
21.		Land slide → The down slope movement of large scale earth materials due to gravity.	1	4
		It accounts for considerable loss of life, damages to human settlement, agricultural fields, forest lands etc.		
		causes: Heavy rainfall, Removal of vegetation, Slope modifications etc.	1	
		Mitigation → Proper land use practice, Afforestation, proper drainage facility etc.	2	
		OR		
		Any four relevant points	4	4

Q.No	Sub Qu.	Answer key	Score	Total
22		a) Chemical sedimentary deposit b) Evaporite deposit c) Biochemical sedimentary deposit d) Residual and placer deposit	1 + 1 + 1 + 1	4
		OR Explanation of any two deposits	4	4
		OR (Any relevant points on sedimentary process as there is typographical error in English version of question)		
23		Earthquake → Shaking of the Earth by sudden release of energy from rocks under tectonic stress.	1	
		Causes: a) Tectonic cause b) Non tectonic cause (Any one)	1	4
		Effects: a) Modification of geological features b) Damages to structure c) Ground rupture d) Tsunami e) Fire f) Flooding etc. (Any two points)	2	
		OR Any four relevant points on Earthquakes	4	4

Q.No	Sub Qun.	Answer key	Score	Total
24		Angular unconformity / Non conformity	1	4
		Relevant explanation of any one type of above unconformity	3	
		Angular unconformity → It is a contact that seperates a younger gently dipping or horizontal rock unit and an older set of underlying rocks that are tilted or deformed.		
		Non conformity → Younger sedimentary rocks seperated by older igneous intrusive rocks or metamorphic rocks.		
25.		Definition of rank or Grade of coal. → Type of coal according to variation in amounts of Carbon, oxygen, Nitrogen, water and Volatile matter.	1	4
		Relevant explanation of types of coal such as Peat, Lignite, Bituminous coal and Anthracite.	3	
		OR		
		Any four relevant points about coal	4	4

Q.No	Sub Divi.	Answer key	Score	Total
26		Human causes of pollution → chemical fertilizers, Pesticides, Septic tank system, Land fills, Atmospheric contaminants, waste dumping etc. (Any 2 points)	2	4
		Dangers of contaminated Ground water → a) Diseases like hepatitis, dysentry, cholera etc.	2	
		b) Damage to liver, kidney etc.		
		c) Harmful to wild life		
		d) Poisoning by toxins (Any 2 points)		
		OR		
		(Any relevant 4 points on Ground water pollution)	4	4
27		(i) Felsic / Acidic	1	4
		(ii) Intermediate	1	
		(iii) Mafic / basic	1	
		(iv) Ultra mafic / Ultra basic	1	
		OR		
		Explanation of any 2 types	4	4
		OR		
		Any other relevant classification of Igneous rocks. (4 points)	4	4

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