ANSWER KEY

SECOND YEAR HIGHER SECONDARY EXAMINATION March 2022 1/6

PART-~~II~~/III

SUBJECT: GEOLOGY

CODE NO: ~~SY529~~ SAY 729 VERSION: S

60 SCORES 2 HOURS

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
		PART I		
A.		Answer any FIVE questions from 1 to 9. Each carries one score. (5x1 score = 5)		
1.		gabbro	Any 5. 5x1 score = 5	
2.		rounding		
3.		magnetite		
4.		chalcopyrite		
5.		anthracite		
6.		epicenter		
7.		quartz sand		
8.		seismogram		
9.		0 m/s.		
B.		Answer ALL questions from 10 to 13 Each carries one score. (4x1 score = 4)		
10.		the circum pacific belt, the mediterranean and trans-asiatic himalayan belt. (any one)	4x1 score = 4	
11		syngenetic deposit		
12		seismologists		
13		shallow focus earthquakes.		

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Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
		PART II		
		A. Answer any TWO questions from 14 to 17. Each carries 2 score (2×2 score = 4)		
14		sandstone : sand sized 1/16 – 2 mm shale : clay sized < 1/256 mm	1+1	2
15		- as insulator - as a filler in rubber goods, paints - as lubricants (any 2).	1+1	2
16		ore - a body of material from which one or more valuable metals can be extracted economically. gangue - the worthless non metallic minerals which occur in close associations with ore minerals.	1+1	2
17		carbon, hydrogen (hydrocarbon)	1+1	2
		B Answer any TWO questions from 18 to 20. Each carries 2 score (2×2 score = 4)		
18		- beds above and below the surface of unconformity or plane of discontinuity are parallel. - the lower set of sedimentary layers are not tilted.	1+1	2
19		- if we look at processes that occur today, we can infer that the same processes operated in the past.		2
20		- over exploitation of groundwater, - reduction in recharge of the aquifer, - rise in sea level. (any two)	1+1	2

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Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
		PART III		
A		Answer any THREE questions from 21 to 24. Each carries 3 Score (3×3 Score = 9)		
21.		- chemicals and fertilizers. - septic systems - uncontrolled hazardous waste - storage tanks and landfills. - atmospheric contaminants. (any 3)	1+1+1	= 3
22		- changes in ice patterns - rise in Sea level - global climatic changes (any 3) - changes in ecosystems	1+1+1	3
23		- groundwater table drops - aggravates saltwater intrusion - threat to bridges, river banks - destruction of aquatic and riparian habitat. (any 3)	1+1+1	3
24	i)	amount of energy released by the quake		
	ii)	how much and what kind of damage the quake has caused.		
	iii)	process that occurs when the mechanical property of some water-saturated ~~un~~consolidated sediments turn from solid to liquid, during shaking caused by earthquakes.	1+1+1	3
B		Answer any TWO questions from 25 to 27 Each carries 3 Score (2×3 Score = 6)		
25		- contact metamorphism - burial metamorphism - dynamic metamorphism - Regional metamorphism - metasomatism (any three)	1+1+1	3

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26		- deposition of many valuable minerals dissolved in water through the process of evaporation. - evaporites are derived from bodies of sea water, inland lakes. - eg: halite and gypsum deposits.	1+1+1	3
27.	(a)	Source rock - rock where the organic matter is converted into oil by burial and post-depositional changes.		
	(b)	Reservoir rock - porous and permeable rock to store and transmit the petroleums.		
	(c)	oil trap - a cap rock which hold the oil in the reservoir rock or prevent its migration.	1+1+1	3
		PART IV		
A		Answer any THREE questions from 28 to 31. Each carries 4 score (3x4 score = 12)		
28		- formed by the transformation of preexisting rocks in response to changing environmental conditions - derived from any type of pre-existing rocks that have been altered. - factors controlling metamorphism are temperature, pressure and chemical action of fluids. - original rock is termed protolith		4
29		- steps involved in the formation of coal (a) accumulation of plant materials (b) transformation of source material - during burial, rising pressure expels the water from the vegetable matter, chemical reactions release most of the hydrogen and oxygen and the proportion of carbon increases.		

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		- the process of conversion of peat to coal is known as coalification		4
30	(i)	- developmental scenario in which no damage is done to the ecosystem. - the development that meets the needs of the present generation and conserves it for the future generation.	(2)	
	(ii)	- recycling : the method of collecting and processing of used items so that they can be made into new products. - substitution : replacement of a very scarce mineral with a more abundant one.	(2)	4
31		- lava flows - hot molten rocky material - pyroclastics - solid rock fragments of varying sizes ejected from volcanoes - ash flows - turbulent mixtures of hot gases and pyroclastic material - toxic gases HCl, H_2S, HF, CO_2 - secondary effects associated with volcanic activity include mudflows, debris avalanches and debris flows, flooding, tsunami, volcanic earthquakes, atmospheric effects and famine. 1+1+1+1		4.
B		Answer any ONE question from 32 and 33 (1×4 score = 4)		
32		- diagram of fold - 1 score - proper labelling 1+1+1 = 3 score		4
33	i)	relative dating tells scientists if a rock layer is older or younger than another. - doesn't give numerical ages. absolute dating : involves specifying the actual number of years that have passed since an event occurred. - uses radiometric dating. 1+1		2

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	ii)	index fossils : fossils typically found only in a particular rock unit and are found in many places world wide, useful in identifying time-rock units and in correlation. trace fossils : markings in the sediment made by the activities of organisms; include trails, burrows, borings, foot prints and tracks. (1+1 = 2)	4	
		PART V		
A		Answer any TWO questions from 34 to 36. Each carries six score (2 x 6 score = 12)		
34		– proper diagram with labelling — 4 – explanation — 2 = Rock cycle shows how the Earth's rocks are changed again and again. it represents the processes of continuous changes that connect the three major groups of rocks.	6	
35		– channel modifications – retention ponds – levees, dikes, flood walls. – construction of flood gates – flood plain zoning – flood plain building codes. – engineering approach and regulatory approach (any six points)	6	
36		– retaining walls – proper landuse practices – forestation of degraded upper slopes – total avoidance of settlement in risk zones – rock bolts – construction of buttress (any six points)	6	