

ANSWER KEY

SAYIMP  
SECOND YEAR HIGHER SECONDARY EXAMINATION June 2023

PART-III/III

SUBJECT: GEOLOGY

CODE NO: S-2229

VERSION: 1

60 SCORES

2 HOURS

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
1		Gypsum	1	1
2		Anthracite	1	1
3		Brunton compass	1	1
4		Seismology	1	1
5		Risk	1	1
6		<u>SECTION - II</u>		
		Ore - Body of material (minerals) from which one or more valuable metals can be extracted economically	1	2
		Gangue - The worthless nonmetallic minerals which occur in close association with ore minerals	1	
7	a	Coalification	1	2
	b	Anthracite	1	
8		<u>Normal fault</u> - A fault which the hanging wall appears to have moved down ward relative to the foot wall	1	2
		<u>Reverse fault</u> - A fault in which the hanging wall moved up-ward relative to the foot wall	1	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
9		<p>Anticline - convex upward fold with a core of older rocks</p> <p>Syncline - convex downward fold with a core of younger rocks</p>	1 1	2
10		<p>Principle of superposition - In an undeformed horizontal sequence of sedimentary rocks the oldest bed are on the bottom with successively younger layers on top of these and the youngest one will be on the top</p>	2	2
11		<p>The movement of saline water into a fresh-water aquifer or surface reservoir is known as saltwater intrusion</p>	2	2
12		<p>Relative dating - placing rocks and events in their proper sequence of formation</p> <p>Absolute dating - specifying the actual number of years that have passed since an event occurred</p>	1 1	2
13	a	<p><u>Hazard</u> - a situation that poses a level of threat to life, health, property or services, socio-economic disruption or environmental damage</p> <p><u>Disaster</u> - wide spread material, economic, social, or environmental losses which exceed the ability of the affected community to cope using its own resources</p>	1 1	2
14		<p>Uses of mica - used as insulator in electrical and electronic industries</p> <p>- used as a filler in rubber goods and paints, used as lubricants</p>	2	2
15		<p>Permineralization - Filling pores in bone or shell by the deposition minerals from circulating solution</p>	2	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
SECTION - III				
16	a) b) c)	Recumbent fold Isoclinal fold Overturned fold	1 1 1	3
17		Graded bedding - a kind of stratification in which the rock layers has a progressive change in particle size from top to bottom i.e. the coarse grains at the bottom and fine grains at the top  Cross bedding - a type of stratification in which the layers within a bed are inclined at an angle to the upper and lower surface of the bed	1 1/2  1/2	3
18	a) b) c)	a) Source Rock - The sedimentary rock in which oil is originally formed or organic matter is converted into oil b) Reservoir Rock - The rock in which oil occurs at present. - It is porous and permeable to store and transmit petroleum c) Cap rock/Oil Trap - Set of conditions which hold the petroleum in the reservoir rock or prevent its migration	1  1	3
19		Sand mining environmental problems - lowers the stream bottom - erosion of river banks - threat to bridges, river banks - enlargement of river mouth - deepening of river channels - lowers the ground water table - saltwater intrusion	3	3
20	Emphases:	Landslides effect mitigation methods - * <del>site</del> cover the steep slopes with concrete or wire mesh * Rock bolts in highly fractured rock. * Insert drainage pipes into the slope * graded or terraced the over steepened slopes * Construct buttress	3	3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score																																				
21		Classification of igneous rocks based on Composition Felsic — Silica percentage is greater than 63 Intermediate — Silica percentage ranges between 52-63 Mafic — Silica percentage ranges between 45-52 Ultramafic — Silica percentage is less than 45	3																																					
22	a) b) c)	Seismogram Focus S-wave	1 1 1	3																																				
23		<p style="text-align: center;"><u>SECTION - IV</u></p> <p style="text-align: center;">Match the following</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">A</td> <td style="width: 33%; text-align: center;">B</td> <td style="width: 33%; text-align: center;">C</td> <td></td> </tr> <tr> <td>Excel glass Industry</td> <td>Alapuzha</td> <td>Quartz sand</td> <td>1</td> </tr> <tr> <td>Malabar Cement Ltd</td> <td>Wakyar</td> <td>Limestone</td> <td>1</td> </tr> <tr> <td></td> <td>Dakkad</td> <td></td> <td></td> </tr> <tr> <td>Kundara Ceramic Ltd</td> <td>Kundara</td> <td>Clays</td> <td>1</td> </tr> <tr> <td></td> <td>Kollam</td> <td></td> <td></td> </tr> <tr> <td>Indian Rare Earth Ltd</td> <td>Chavara</td> <td>Monazite</td> <td>1</td> </tr> <tr> <td></td> <td>Kollam</td> <td>Ilmenite</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Rutile</td> <td></td> </tr> </table>	A	B	C		Excel glass Industry	Alapuzha	Quartz sand	1	Malabar Cement Ltd	Wakyar	Limestone	1		Dakkad			Kundara Ceramic Ltd	Kundara	Clays	1		Kollam			Indian Rare Earth Ltd	Chavara	Monazite	1		Kollam	Ilmenite				Rutile		1 1 1 1	4
A	B	C																																						
Excel glass Industry	Alapuzha	Quartz sand	1																																					
Malabar Cement Ltd	Wakyar	Limestone	1																																					
	Dakkad																																							
Kundara Ceramic Ltd	Kundara	Clays	1																																					
	Kollam																																							
Indian Rare Earth Ltd	Chavara	Monazite	1																																					
	Kollam	Ilmenite																																						
		Rutile																																						
24		Peat — formed from the accumulation of vegetable matter such as mosses and bog plants — consists less altered vegetable matter — fixed carbon content is very less Lignite — commonly known as brown coal — contains carbon below 70% — moisture content and volatile matter is less than that of peat. Bituminous coal — commonly known as cooking coal																																						

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
		<p>hard, brittle, little or no vegetable matter black in colour, carbon content is 80%</p> <p>Anthracite - Highest rank of coal hardest            - black or brownish in colour            - submetallic lustre, conchoidal fracture, black streak.            - burns with little flame and virtually no smoke.            - High carbon content (93.50%)            - High calorific value</p>	1	4
25		<p>Environmental impact of mining and Quarrying on lithosphere</p> <ul style="list-style-type: none"> <li>* Deforestation</li> <li>* Land degradation and land pollution</li> <li>* Land Subsidence</li> <li>* Land slides</li> <li>* Accumulation of quarry waste</li> </ul>	4	4
26		<p>Effects of Earth- quakes</p> <ul style="list-style-type: none"> <li>* Modification of geological features</li> <li>* Damage to structures</li> <li>* Ground rupture</li> <li>* Tsunami</li> <li>* Seiches</li> <li>* Seaquakes</li> <li>* Fire, Landslides and Debris/Rockfalls</li> <li>* Flooding</li> <li>* Liquefaction</li> </ul>	4	4

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
27.		<p>Engineering approaches of Flood mitigation</p> <ul style="list-style-type: none"> <li>* channel modification - increase the channel cross sectional area</li> <li>* Retention ponds - construct retention ponds</li> <li>* Levees - raised banks built along a stream channel</li> <li>* Flood gate construction - adjustable gates restrain outpouring water</li> </ul>	4	4
28		<p style="text-align: center;"><u>SECTION-V</u></p> <p>Processes involved in the formation of Clastic Sedimentary rock</p> <ul style="list-style-type: none"> <li>* weathering of parent</li> <li>* Transportation and erosion of sediments by the agents of erosion</li> <li>* deposition of the sediments in lower basin</li> <li>* Lithification of the deposited sediments by compaction, cementation and diagenesis to form hard sedimentary rock.</li> </ul> <p>Compaction = weight of the sediments on top compress the sediments at the bottom, water squeezed out from between grains</p> <p>Cementation - filling up of the pore spaces by cementing material like quartz, calcite and hematite.</p>	6	6

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
29.		<p>Sources of groundwaters pollution</p> <ul style="list-style-type: none"> <li>* chemicals and Fertilizers - used in agriculture</li> <li>* Pesticides and insecticides - and industry</li> <li>* Septic systems</li> <li>* uncontrolled hazardous waste</li> <li>* leak from storage tanks - and land fill by garbage -</li> </ul> <p>Consequences of using polluted ground water</p> <ul style="list-style-type: none"> <li>- Septic tank waste - causes - diseases such as hepatitis, dysentery</li> <li>- mercury - causes impairment of brain function, neurological disorders, retardation of growth in children, abortion</li> <li>- Pesticide - damage liver, and nervous system</li> <li>- Fluoride - yellowing of teeth, damage joints and bones.</li> <li>- Salts - Kidney stone</li> </ul>	6	6