

# ANSWER KEY

.....<sup>11</sup>..... YEAR HIGHER SECONDARY EXAMINATION .... March .... 2024

PART-I/II/III

SUBJECT: ..... GEOLOGY .....

CODE NO: SY 529

VERSION: R.....

..60. SCORES

....2.. HOURS


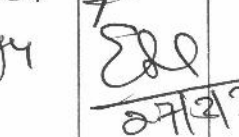
Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
1		Slate	1	1
2		Anthracite	1	1
3		Clinometer / Brunton compass	1	1
4		Seismograph	1	1
5		Pollution	1	1
<u>Section II</u>				
6		Dike: A tabular wall like igneous intrusion that cut across the structure	1	2
		Sill: Tabular intrusions that parallels the planar structure <sup>Any relevant points or plutons.</sup>	1	
7		Syngenic deposit: A mineral deposit formed at the same time with the enclosing rock	1	2
		Epigenetic deposit: Those that were formed later than the rock in which they occur	1	
8		Rocks salt and Gypsins were formed by the sedimentary processes. They were formed by the gas the Evaporite deposits.	2	2
		Evaporites/Sedimentary deposit		
9		Oil trap is a non-porous rock formations that holds the oil pool in place. Mainly the structural traps and Stratigraphic traps Fold trap, Fault trap, salt plunge trap etc. are to be mentioned Any two points about oil traps/Examples. oil pool <sup>or</sup>	2	2

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10		<p>The inclination of a structural feature will be the maximum in a direction perpendicular to the strike measured true dip</p> <p>Inclination measured along a direction other than true dip direction is termed apparent dip. The values of apparent dip are always less than that of true dip.</p>	2	2
11		<p>Any relevant points on structural features</p> <p>Renewable resources: Resources that can restock or renew within a lifespan examples: water, living resources, wind, solar etc</p> <p>Non-renewable resources: resources which cannot be replaced after the use example: Minerals, Fossil Fuels (coal, oil etc)</p> <p>Explanation of any two examples.</p>	2	2
12		<p>Engineering approaches</p> <p>(a) channel modifications (b) Retention ponds (c) Levees (d) flood gates</p> <p>(one or two points)</p> <p>flood plain building codes flood plain zoning flood mapping etc (Any 2 points on Floods)</p>	1 + 1	2
13		<p>Agents of metamorphism. Heat, pressure, fluid factor</p> <p>Write about heat and its sources for metamorphism, Lithostatic and Directed pressure, ion dissolved fluids.</p>	1 + 1	3
14.		<p>a) Bauxite b) Sphalerite c) Galena</p>	1 + 1 +	3
15		<p>Write about lightest to heaviest hydrocarbon components</p> <p>Natural gas → Methane, ethane, Propane, Butane</p> <p>Petroleum → Gasoline, Kerosene, Gas oil, Diesel Lubricating oil, Fuel oil, Greases, Asphalt</p> <p>(Any 3 products/components)</p>	3	3

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16		<p>Saline water intrusion is the movement of saline water into a freshwater aquifer. May be due to the over exploitation of groundwater.</p> <p>Prevention can be done by</p> <ol style="list-style-type: none"> <li>Reducing pumping</li> <li>Relocate wells</li> <li>Increase the recharge rate</li> <li>Construct impermeable surface barriers</li> </ol> <p>(Any 3 points or causes for prevention)</p>	<p>1</p> <p>+</p> <p>2</p>	3
17		<p>(Any 3 points or causes for prevention) Explanation</p> <ol style="list-style-type: none"> <li>shallow Focus earthquakes: that originate at a depth between 0-70 km</li> <li>Intermediate focus earthquake: - That take place at 70-350 km depths</li> <li>Deep focus earthquake: that occur at 350-700 km depths</li> </ol>	<p>1</p> <p>+</p> <p>1</p> <p>+</p> <p>1</p>	3
18		<p>Active, Dormant and Extinct volcanoes</p> <p>Active: - are presently active or have been active at least during the historic time</p> <p>Dormant: The volcanoes which are not active today, known as sleeping volcano. Some of these can be expected to become active again in the future</p> <p>The volcanoes which are geographically <del>present</del> <sup>absent</sup> today and have totally stopped all their activities <del>today</del> are grouped extinct volcanoes</p> <p>(Name or Explanation of 3 types/ Examples) Any 3 points <u>Section IV</u></p>	<p>1</p> <p>1</p> <p>1</p>	3
19		<p>Based on the amount of carbon, oxygen, hydrogen, nitrogen, water and sulfate matter the coal can be classified into</p> <p>Peat, lignite, Bituminous coal, Anthracite.</p> <p>Give 3 compositional characteristics for each</p> <p>(Name or Explanation)</p>		4

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20.		<p>Types of Folds.</p> <p>Anticline: Convex upward fold</p> <p>Syncline: convex downward fold</p> <p>Symmetrical: Axial plane is vertical</p> <p>Asymmetrical: Axial plane is inclined</p> <p>Overturned fold: In which limbs dip in the same direction</p> <p>Recumbent fold: Horizontal or sub-horizontal axial plane</p> <p>Isoclinal Fold: limbs are essentially parallel to each other.</p> <p>(Any four type in detail) / Explanation of fold or figure.</p>		4
21		<p>Green house effect and Global warming</p> <p>→ write about naturally occurring greenhouse gases in the atmosphere</p> <p>(CO<sub>2</sub>, Vapor (H<sub>2</sub>O), Methane (CH<sub>4</sub>) Ozone (O<sub>3</sub>))</p> <p>→ Green house gases push to increase the slowly maintained temperature</p> <p>Global warming is defined as an increase in the average temperature of the Earth's atmosphere</p> <p>Consequences of Global warming (in points)</p> <ul style="list-style-type: none"> <li>→ change in ice patterns</li> <li>→ Rise of sea level</li> <li>→ Global climatic changes</li> <li>→ changes in ecosystems</li> </ul> <p>(Any 2 points on Green house effect &amp; Impacts of Global warming) 2 points</p>		4
22		<p>Plate Tectonics and Earthquakes</p> <p>→ The tectonic earthquakes are most common</p> <p>→ The surface of Earth is in continuous slow motion associated with plate tectonic activity. The plates cover the entire surface of the globe</p>		

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23		<p>convergent, Divergent &amp; Transform fault plate boundaries in brief.</p> <p>Common seismic activities are associated with these highly active zones</p> <p>Earthquakes occur also in the stable portions - Intraplate earthquakes</p> <p>(Any 4 points on causes of Earthquakes)</p> <p>Disaster Management cycle.</p> <ul style="list-style-type: none"> <li>→ Preparedness: - Activities prior to disaster</li> <li>→ Response: - Activities during disaster</li> <li>→ Recovery: Activities following a disaster</li> <li>→ Mitigation: Activities that reduce the effect of disasters</li> </ul> <p>Give examples or methods for each (Explanation or Figure) <del>or</del> Examples)</p> <p style="text-align: center;"><u>Section V</u></p>	4	4
24		<p>→ Neat diagrams of Rock cycle</p> <p>Showing the path from magma to a granitic intrusion then metamorphic change - to sedimentary rocks.</p> <p>Explain each rock formation in detail.</p> <ul style="list-style-type: none"> <li>→ Igneous rocks - crystallisation</li> <li>→ Sedimentary - weathering activities</li> <li>→ Metamorphism - Temperature pressure, variations.</li> </ul> <p>(Explanation or Diagram)</p>	3 + 3	6

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
25		<p>Modes of fossilization</p> <p>The way in which the organisms was fossilized</p> <p>Methods included:</p> <ul style="list-style-type: none"> <li>(i) preservation of unaltered hard parts</li> <li>(ii) Chemical alteration <ul style="list-style-type: none"> <li>→ Permineralisation</li> <li>→ Replacement</li> <li>→ Carbonization</li> </ul> </li> <li>(iii) Imprints of hard parts in sediment</li> <li>(iv) preservation of unaltered soft parts</li> <li>v) Trace fossils or ichnofossils</li> </ul> <p>(Any 6 points on Fossilization) or FOSSILS.</p>		6
26		<p>Groundwater may contain some natural impurities or contaminants or by human activities</p> <p>Potential sources like</p> <ul style="list-style-type: none"> <li>a) Chemicals and fertilizers</li> <li>b) Septic systems</li> <li>c) uncontrolled hazardous wastes</li> <li>d) storage tanks and land fills</li> <li>e) Atmospheric contaminants</li> </ul> <p>Drinking contaminated water can have serious health effects such as hepatitis and dysentery, fluoride content related teeth issues etc.</p> <p>(Any 6 points on Ground Water contamination)</p> <p>—</p> <ol style="list-style-type: none"> <li>1. Balakrishnan.K, HSSST Geology</li> <li>2. RANJITH.T.R HSSST Geology</li> <li>3. SUNIL KUMAR.E HSSST Geology</li> </ol>	<p style="text-align: right;">     27/2/24. </p>	6