

HALF YEARLY EXAMINATION - 2017 (PART - III)

HSE II

GEOLOGY
Answer Key/Value points

SET A

Qn. No.	Sub Qns	Answer Key/Value points	Score	Total
1		Groundwater/ solar energy/wind energy	1	1
2	(ii)	The minerals have grown very long in one direction relative to the other two directions	1	1
3		Monazite	1	1
4		Processes that are operated in the past are the same processes that are operating at present-principle of uniformitarianism	2	2
5	a) b)	a) fault plane b) fold	1 1	2
6		Geological record-evidences of geological events are recorded in the strata like a book-strata reveals the time, location and history of their formation-any two points	2	2
7		Intrusive rocks cool at depth-cools slowly-crystals grow in size Extrusive rocks forms at the surface-cools fast-crystals do not grow large	1 1	2
8		Contact:-associated with the intrusions-heat due to contact with cooling magma-rycrystallisation- metamorphic aureole Burial:-Lithostatic pressure and geothermal heat at depth - weight of overlying rocks-burial under sediments- recrystallization and alteration of minerals	1 1	2
9		Ceramic industry-electrical insulators-floor and wall tiles-refractory products-sanitary articles-filler in paper- paint,soap, toothpaste,etc.	2	2
10		Scattering of economically valuable minerals through out the country rock-diamond disseminations	1 1	2
11		Types of coal- peat,lignite,bituminous coal and anthracite-variation in carbon content- increasing grade of coal and calorific value-	2	2
12		Migration-movement of oil from source rock to a reservoir rock Reservoir rock- rocks in which oil occurs at present	1 1	2
13		Biosphere-deforestation-loss of habitat and biodiversity Atmosphere-air pollution-dusts and gas emission Hydrosphere- acid mine drainage- outflow of acidic water from mines	1 1 1	3
14	a) b)	a) Relative dating:- chronological ordering of events relatively- not assigning age in exact years- tells if an event or strata younger or older than the other Absolute dating:- specifies age in actual years-more precise than relative ages-quantifies the exact age of an event or strata b) Absolute dating	1 1 1	3

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15	a) b) c)	Normal fault Correlation Outcrop	1 1 1	3
16		Horst:- Rock blocks when upthrown forms a horst-bounded on either sides by a normal fault Graben:- Down thrown blocks bounded on either sides by normal faults Block mountains:- forms when horsts become very high and extensive - 2000 to 4000 metres high	1 1 1	3
17		Joints:- Fractures involving no relative movement of adjacent blocks Faults:- Fractures along which relative movement of blocks has taken place Columnar joints:- develops during cooling of basaltic magma- tensile stress associated with contraction of hot magma	1 1 1	3
18	a) b)	true dip true dip is measured at right angle/perpendicular to the strike direction- maximum in the the direction perpendicular to the strike	1 2	3
19	a) b) c)	petrified wood Imprints/impressions/moulds marking or traces of an organism's activity preserved in rocks	1 1 1	3
20		Interdependence of man with the earth's subsystems- awareness about the causes of environmental problems- solution to resolve environmental degradation- man's use and abuse of environmental - maximising beneficial results of using environment-minimizing environmental issues- global concerns- impacts of humans on earth system- any three points	3	3
21		Living in a suitable environment, Possession of preservable hard parts, rapid burial under sediments, escape from physical, chemical and biological destruction after burial- any three points	3	3
22	a) b)	Stratigraphy:- Study of rock strata and their interpretation in terms of geological time Palaeontology:- Study of fossils Compressional stress:- stress that squeezes or pushes the rock together- acts towards one direction Tensional stresses:- forces that stretch or pull apart the rock	1+1 1+1	4

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23		Angular unconformity Stages of formation:- deposition of bottom layers, their upliftment followed by tilting, erosion of the uplifted portion of layers, subsidence and deposition of younger sediments on top of eroded sediments	1 3	4
24		Significant increase in sand mining since 1990s- boom in the construction industry- sand mining at alarming rate- dropping of water table- water scarcity- drying up of wells-lowering of river bed -erosion of river banks and coastal zone- saline water intrusion- coastal erosion- dangers of drowning in pits and loss of life	4	4
25	a) b)	Movement of saline water into fresh water aquifer Relocation of wells, increasing recharge of aquifers, reducing pumping rates, construction of impermeable barriers etc.	1 1 3	4
26		Global warming;- increase in the average temperature of the earth's atmosphere enough to cause changes in global climate Green house effect associated with the release of green house gases such as CO ₂ entraps incoming solar radiations and enhances global temperature Consequences;-climatic changes, rise in sea level, changes in ice pattern, change in ecosystems-any two	1 1 2	4
27		Description with examples- Recycling:- collection and remelting of scraps-reuse value of metallic resources Substitution:- replacement of rare materials with more abundant one- Eg:- replacement of copper by aluminium in electric cables Utilization of renewable energy resources such as solar,wind,geothermal powers Extraction of resources in such a way that does not damage to the global environment- sustainable development	1 1 1 1	4
28		Faults:- create surfaces along which fluids such as oil or water travels- cause zones of sliding and earthquakes- potential risks of failure during construction of tunnels, dams,etc. Joints:- create open spaces through which oil or water moves- act as surfaces along which slides occur- facilitates quarry operations by providing dimension stones- orientation of joints needs due consideration inn civil engineering projects such as construction of tunnels, reservoirs, buildings,etc.		4