

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA, VADODARA

Ph. D. ENTRANCE TEST (PET) 2023

Signature of Invigilator

Paper - II
Geology

Roll.
No.

--	--	--	--	--	--

Maximum Marks: 50

No. Of Printed Pages: 8

Instruction for the Candidate:

1. This paper consists of **FIFTY (50)** multiple choice type questions. Each Question carries **ONE (1)** mark.
2. There is no Negative Marking for Wrong Answer.
3. A separate OMR Answer Sheet has been provided to answer questions. Your answers will be evaluated based on your response in the OMR Sheet only. No credit will be given for any answering made in question booklet.
4. Defective question booklet or OMR if noticed may immediately replace by the concerned invigilator.
5. Write roll number, subject code, booklet type, category and other information correctly in the OMR Sheet else your OMR Sheet will not be evaluated by machine.
6. Select most appropriate answer to the question and darken appropriate oval on the OMR answer sheet, with black / blue ball pen only. **DO NOT USE PENCIL** for darkening. In case of over writing on any answer, the same will be treated as invalid. Each question has exactly one correct answer and has four alternative responses (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
Example: (A) (B) (C) (D) where (B) is correct response.
7. Rough Work is to be done in the end of this booklet.
8. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
9. Calculators, Log tables any other calculating devices, mobiles, slide rule, text manuals etc are **NOT** allowed in the examination hall. If any of above is seized from the candidates during examination time; he/she will be immediately debarred from the examination and corresponding disciplinary action will be initiated by the Center Supervisor as deemed fit.
10. **DO NOT FOLD or TEAR** OMR Answer sheet as machine will not be able to recognize torn or folded OMR Answer sheet.
11. **You have to return the OMR Answer Sheet to the invigilator at the end of the examination compulsorily** and must not carry it with you outside the Examination Hall. You are however, allowed to carry original question booklet on conclusion of examination.

Paper - II

Geology

Note: This paper contains **FIFTY (50)** multiple-choice questions. Each Question carries **ONE (1)** mark.

01)	Kimberlite is a variety of A. Dunite B. Pyroxenite C. Peridotite D. Gabbro
02)	Polymetallic nodules on the ocean floor contain significant amounts of? A. U-Th-Nb B. Pb-Zn-Ti C. Hg-Mo-Pt D. Cu-Ni-Co
03)	Heat producing elements in the crust are A. Mg-Ca-Na B. K-Th-U C. Zr-Ti-Hf D. Al-Fe-Mn
04)	Which one of the following minerals is a lithium Mica? A. Phlogopite B. Muscovite C. Lepidolite D. Biotite
05)	Main boundary thrust (MBT) is observed in A. Maharashtra B. West Bengal C. Orissa D. Uttarakhand
06)	What is the fundamental unit of lithostratigraphic classification is A. Member B. Epoch C. Formation D. Bed
07)	Match the following Minerals from Group I with appropriate Chemical composition in Group II <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>Group I</u></p> <p>P. Rhodochrosite</p> <p>Q. Smithsonite</p> <p>R. Cerussite</p> <p>S. Siderite</p> <p>A. P-5, Q-4, R-2, S-3</p> <p>B. P-4, Q-5, R-3, S-1</p> <p>C. P-4, Q-5, R-2, S-1</p> <p>D. P-5, Q-1, R-4, S-3</p> </div> <div style="width: 45%;"> <p><u>Group II</u></p> <p>1. FeCO_3</p> <p>2. PbCO_3</p> <p>3. CuFeS_2</p> <p>4. MnCO_3</p> <p>5. ZnCO_3</p> </div> </div>
08)	The lava flows of peridotitic composition are designated as A. Phonolites B. Komatiites C. Tholeiites D. Tachylites
09)	The metamorphic rock Mylonite represents A. Contact Metamorphism B. Regional metamorphism C. Dynamic Metamorphism D. Burial metamorphism

10)	Devonian is known as age of A. Frogs B. Giant lizards C. Fishes D. reptiles
11)	Genesis of El Nino is associated with A. climatic change B. weather change C. global floods D. regional droughts
12)	On a photo-scale of 1:40000, a square shaped open cast coal mine of 1 km ² area would have an area of (in cm ²) A. 2.50 B. 6.25 C. 4.00 D. 12.00
13)	A point on ground exactly above the point of earthquake energy release is called A. Hypocentre B. focal point C. Epicentre D. Hyalocenter
14)	The country rock occurring above the orebody/vein/seam is known as A. skarn B. footwall C. pedestal D. hanging wall
15)	Which of the following isotopes has maximum half life A. U ²³⁸ B. U ²³⁵ C. Th ²³² D. Rb ⁸⁷
16)	Which of the following best explains the principle of superposition? A. All sedimentary deposits accumulate on older rock or sediment layers. B. Strata with fossils are generally deposited on strata with no fossils. C. Older strata generally are deposited directly on younger strata without intervening, intermediate age strata. D. None of the above
17)	Which of the following is not a greenhouse gas A. CO ₂ B. O ₂ C. Methane D. CFC
18)	Match the stratigraphic units in Group I with the economic deposits in Group II. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Group I</p> <p>P. Sausar Group</p> <p>Q. Bailadilla Group</p> <p>R. Nallamalai Group</p> <p>S. Udaipur Group</p> </div> <div style="text-align: center;"> <p>Group 2</p> <p>1. Phosphorite.</p> <p>2. Pyrite</p> <p>3. BIF</p> <p>4. Mn</p> <p>5. Pb-Zn</p> </div> </div> <p>A. P-4, Q-3, R-5, S-1 B. P-4, Q-2, R-1, S-3 C. P-3, Q-4, R-2, S-1 D. P-4, Q-2, R-4, S-1</p>
19)	The supercontinent Pangaea begin to break up during A. Cenozoic B. Paleozoic

	C. Mesozoic D. Proterozoic
20) 2	The strongest phase of Himalayan uplift was during A. Early Eocene B. Mid Miocene C. Oligocene D. Cretaceous
21)	In which of the following mineral zone in the Barrovian sequence are migmatites common? A. Staurolite B. Andalusite C. Sillimanite D. Garnet
22)	Which is the most common metamorphic rock found at mid-oceanic ridges A. Blueschist B. Eclogite C. Greenstone D. Hornfels
23)	Equilibrium temperature of a metamorphic reaction is higher when the composition of the fluid involved in the reaction is A. Same as the ambient fluid B. Different from that of ambient fluid C. Has no consequence on the temperature of the reaction D. Of mixed composition
24)	In which of the following folds the axial plane is horizontal A. Overturned fold B. Symmetrical fold C. Recumbent fold D. Asymmetrical fold
25)	Soil moisture is measured by A. Lysimeter B. current meter C. evaporation pan D. hygrometer
26)	Match the causative processes given in the Group I with the resulting landforms given in Group II <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>Group I</u></p> <p>P. Glacial Erosion</p> <p>Q. Wind Erosion</p> <p>R. Glacial Deposition</p> <p>S. Fluvial Deposition</p> </div> <div style="width: 45%;"> <p><u>Group II</u></p> <p>1. Drumlins</p> <p>2. Point bar</p> <p>3. Yardangs</p> <p>4. Cirque</p> </div> </div> <p>A. P-4, Q-2, R-3, S-1 B. P-4, Q-3, R-1, S-2 C. P-1, Q-3, R-2, S-4 D. P-1, Q-4, R-2, S-3</p>
27)	Seismic reflection survey is more relevant in A. hydrocarbon exploration B. groundwater exploration C. civil engineering application D. metallic mineral exploration
28)	The act of placing rocks in their proper sequence of formation is called ____. A. principle of original horizontality B. absolute dating C. Correlation D. Interpretation
29)	Hawaiian Island chain is the result of

	<p>A. Collision of two oceanic plates</p> <p>B. Intraplate hot spot activity</p> <p>C. Divergence of two oceanic plates</p> <p>D. Interplate hot spot activity</p>										
30)	<p>Least stable mineral among the following is</p> <p>A. Feldspar</p> <p>B. Mica</p> <p>C. Quartz</p> <p>D. Olivine</p>										
31)	<p>In geological mapping in the field, following a dried-up nala you will encounter older and older formations if you walk</p> <p>A. opposite to dip direction of strata</p> <p>B. in the dip direction of strata</p> <p>C. perpendicular to the dip direction</p> <p>D. in strike direction</p>										
32)	<p>A transform fault is _____.</p> <p>A. a dip-slip fault connecting an anticline with a syncline</p> <p>B. a reverse fault that steepens into a thrust fault</p> <p>C. a strike-slip fault that forms the boundary between tectonic plates</p> <p>D. the rift bounding faults on a mid-ocean ridge</p>										
33)	<p>Point bar deposits are associated with</p> <p>A. Glaciers</p> <p>B. Rivers</p> <p>C. Deserts</p> <p>D. Oceans</p>										
34)	<p>Which component of the continental margin has the greatest economic and political significance?</p> <p>A. continental slope</p> <p>B. Shelf Break</p> <p>C. continental rise</p> <p>D. continental shelf</p>										
35)	<p>Match the Mineral habits from Group I with appropriate minerals in Group II</p> <p>Group I Group II</p> <table border="0"> <tr> <td>P. Fibrous</td> <td>1. Olivine</td> </tr> <tr> <td>Q. Acicular</td> <td>2. Kyanite</td> </tr> <tr> <td>R. Columnar</td> <td>3. Beryl</td> </tr> <tr> <td>S. Bladed</td> <td>4. Chrysotile</td> </tr> <tr> <td></td> <td>5. Sillimanite</td> </tr> </table> <p>A. P-5, Q-4, R-2, S-3</p> <p>B. P-4, Q-5, R-3, S-2</p> <p>C. P-4, Q-5, R-2, S-1</p> <p>D. P-5, Q-1, R-4, S-3</p>	P. Fibrous	1. Olivine	Q. Acicular	2. Kyanite	R. Columnar	3. Beryl	S. Bladed	4. Chrysotile		5. Sillimanite
P. Fibrous	1. Olivine										
Q. Acicular	2. Kyanite										
R. Columnar	3. Beryl										
S. Bladed	4. Chrysotile										
	5. Sillimanite										
36)	<p>Geological time should be considered when examining Earth's natural processes for all of the following reasons except _____.</p> <p>A. Geological processes are usually too fast to be seen.</p> <p>B. Most processes can be seen directly, but in part only, not in total.</p> <p>C. Most phenomena are too slow to perceive.</p> <p>D. Natural phenomena occur over such a long time span that "human" time is insufficient to understand them.</p>										
37)	<p>Glass is not a mineral because _____.</p> <p>A. glass does not have a chemical composition</p> <p>B. glass lacks an internal atomic structure</p> <p>C. glass is not considered a solid</p> <p>D. glass is not naturally occurring</p>										
38)	<p>Match the sedimentary rocks and their features given in the Group I with the resulting depositional environments in Group II</p>										

	<p><u>Group I</u></p> <p>P. Chalk with Coccolith</p> <p>Q. Sandstone with herring-bone cross bedding</p> <p>R. Poorly sorted sediments with faceted and striated pebbles</p> <p>S. Well-sorted, cross-bedded(4-5mts) sandstone</p> <p>A. P-1, Q-4, R-2, S-3</p> <p>B. P-1, Q-3, R-2, S-4</p> <p>C. P-4, Q-3, R-1, S-2</p> <p>D. P-4, Q-2, R-3, S-1</p>	<p><u>Group II</u></p> <p>1. Glacial</p> <p>2. Eolian</p> <p>3. Tidal</p> <p>4. Pelagic</p> <p>5. Sabhka</p>
39)	Gravity is measured in units of A. Ohm-m B. Tesla C. Mgals D. Kg/m	
40)	Narmada-Tapti region of central India represents a -----? A. Palaeosuture B. Failed island arc C. Failed rift D. Trench	
41)	On a photo-scale of 1:40000, a square shaped open cast coal mine of 1 km ² area would have an area of (in cm ²) A. 2.50 B. 4.25 C. 6.25 D. 12.5	
42)	Which of the following represents the oldest record of metazoan soft bodied animals? A. Planktonic Foraminifers B. Ediacaran fauna C. Acritarchs D. Stromatolites	
43)	What likely environment is implied by the presence of halite or gypsum in a sedimentary rock terrain? A. Freshwater Lake B. Glacial Lake C. River D. An evaporite lake	
44)	Which of the following element is generally found in the meteorite samples? A. Calcium B. Phosphorous C. Iridium D. Monazite	
45)	Age of the most productive source rocks for oil and gas belong to A. Jurassic B. Miocene C. Proterozoic D. Cretaceous	
46)	A map that emphasizes a particular set of data, for examples, the average distribution of rainfall in an area, is called a _____ map. A. Geomorphological map B. Thematic map C. Isopach D. Drainage map	
47)	Most minerals on the Earth's crust belong to this group A. Silicates B. Carbonates	

	C. Halides D. Oxides
48)	The era that covers the longest span of time is: A. Proterozoic B. Phanerozoic C. Precambrian D. Palaeozoic
49)	The upper shell of the earth upto 100km depth is called A. Crust B. Asthenosphere C. Biosphere D. Lithosphere
50)	In which one of the following configurations the electrodes are uniformly spaced? A. Schlumberger array B. Wenner array C. Pole-dipole array D. Pole-pole array

Rough Work: