# University of Mumbai
# Examination 2020

Program: Civil Engineering
Curriculum Scheme: Rev2019
Examination: Third Semester III
Course Code: CE-C-304 and Course Name: Engineering Geology
Time: 2-hour Max. Marks: 80

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| Q1) | Choose the correct option for following questions. All the Questions are compulsory and carry equal marks |
| 1. | Asbestos is showing which type of luster? |
| Option A: | Vitreous |
| Option B: | Metallic |
| Option C: | non-metallic |
| Option D: | Silky |
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| 2. | Identify a rock.<br>i) Extrusive igneous rock, rich in iron & magnesium, Color- Grey to black in color, Streak- white to grey, Fracture- Conchoidal, Used for Construction work. |
| Option A: | Sandstone |
| Option B: | Shale |
| Option C: | Basalt |
| Option D: | Granite |
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| 3. | Which classification of rock is not found in rock cycle? |
| Option A: | cemented rock |
| Option B: | metamorphic rock |
| Option C: | sedimentary rock |
| Option D: | igneous rock |
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| 4. | What do the normal faults cause to the crust of the Earth? |
| Option A: | Shortening of crest |
| Option B: | Cracking of crest |
| Option C: | Extension in the crust |
| Option D: | Strengthening of crust |
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| 5. | Plutonic type of rocks generally shows: |
| Option A: | fine grained texture |
| Option B: | Course grained texture |
| Option C: | Medium grained texture |
| Option D: | All of the above |
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| 6. | The discontinuity which marks the lower boundary of the crust is _____ |
| Option A: | Crust-Mantle discontinuity |
| Option B: | SIMA layer |
| Option C: | SIAL layer |
| Option D: | Mohorovicic discontinuity |

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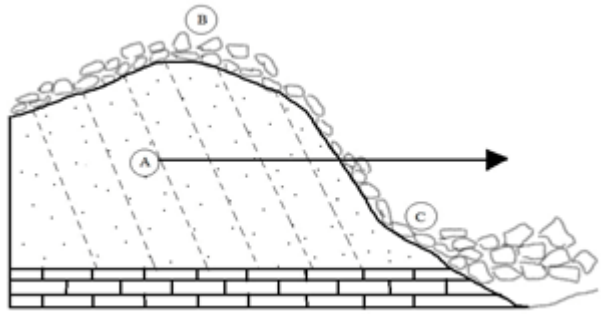
| 7. | Identify the part labelled as “A” in the below diagram   |
| Option A: | Weathered rock |
| Option B: | Parent rock |
| Option C: | Rolled down rock |
| Option D: | Powdered rock |
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| Q8. | What is the thickness of the crust under the mountainous areas and in particular the Himalayas? |
| Option A: | 50-55 km |
| Option B: | 60-65 km |
| Option C: | 70-75 km |
| Option D: | 30-35 km |
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| Q9. | Which of the following is also an overturned fold? |
| Option A: | Isoclinal fold |
| Option B: | Symmetrical fold |
| Option C: | Asymmetrical fold |
| Option D: | Recumbent fold |
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| Q10. | Volcanic islands arcs are associated with _____ |
| Option A: | Transform plate boundaries |
| Option B: | Divergent plate boundaries |
| Option C: | Ocean-ocean convergent plate boundaries |
| Option D: | Ocean continent convergent plate boundaries |
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| Q11. | What is the specialty of the Artesian Water? |
| Option A: | Has a characteristic color |
| Option B: | Has a characteristic odor |
| Option C: | Requires no pumping |
| Option D: | Requires special type of pumping |
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| Q12. | The water in an oasis is obtained from which source? |
| Option A: | Rain |
| Option B: | Erosion from other place |
| Option C: | Water table |

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| Option D: | Water released from adsorption |
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| Q13. | Folded rocks are often best storehouses of which of water? |
| Option A: | Juvenile water |
| Option B: | Magmatic water |
| Option C: | Artesian water |
| Option D: | Connate water |
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| Q14. | Which of the following is not included under preliminary survey? |
| Option A: | Knowing the general topography of the area |
| Option B: | Knowing the lithology of the area |
| Option C: | Knowing the structural conditions of the rocks |
| Option D: | Driving the pilot tunnels |
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| Q15. | The type of fault which appears in such a way that the central wedge appears raised high up with respect to the sides is |
| Option A: | Graben |
| Option B: | Horst |
| Option C: | Nappe |
| Option D: | Thrust |
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| Q16. | Which quality of rock should be known properly for the foundations of dams, reservoirs etc? |
| Option A: | a cone of depression |
| Option B: | Sinking table |
| Option C: | Groundwater recharge |
| Option D: | Hydrogeological |
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| Q17. | Foliation is a primary structure of which type of rock? |
| Option A: | Igneous rock |
| Option B: | Sedimentary rock |
| Option C: | Metamorphic rock |
| Option D: | Not associated with any rock |
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| 18. | The maximum angle of inclination of a layer of a rock with the horizontal is _____ |
| Option A: | Dip |
| Option B: | Heave angle |
| Option C: | Strike |
| Option D: | Depth |
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| 19 | 6Which of the following rock forming minerals is more resistant to weathering compared to Hornblende? |
| Option A: | Augite |
| Option B: | Biotite |

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| Option C: | Olivine |
| Option D: | Calcite |
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| 20. | It represents distribution of types of rock and surficial deposits as well as locations of structures such as faults and fold |
| Option A: | Geological maps |
| Option B: | Superficial deposits |
| Option C: | Talus slope |
| Option D: | RMR |
| | |
| Q2) A | Solve any Two 5marks each |
| i) | What are the preventive measures can be taken to prevent occurrence of Landslide? |
| ii) | Which departments deal with Engineering Geology in India, also elaborate their scope of work? |
| iii) | Explain briefly the construction & working of seismograph |
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| B) | Explain the favorable & unfavorable conditions of rocks at Dam site? |
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| C) | What are the geological considerations while choosing a tunnel site? |
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| Q3) | Solve any Four 5marks each |
| i) | A coal seam is exposed on a horizontal ground. If it is 30° towards West. Its width of outcrop on a level ground is 360 m. What is its true thickness and vertical thickness? |
| ii) | Three boreholes M, N and O are sunk at the corners of an isosceles triangle. M lies 400 m due west of N. O lies 500 m from both M and N and north of midpoint AB. The boreholes touch the oil-bearing stratum in M, N & O at 30m, 80m & 130m respectively.<br>Determine the attitude of the oil-bearing stratum. Another borehole is proposed at midpoint of BC. Calculate at what depth the same oil-bearing stratum is met. |
| iii) | What do you understand by Rock Mass Rating |
| iv) | Explain Rock Quality Designation & Core recovery |
| v) | What are the Seismic method of Geological investigation |
| vi) | In an area three vertical drill holes were driven to locate a probable fault. The locations of drill holes and altitude of the fault are as follows: |

| Drill Hole level | Location | Altitude of fault above sea |
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| P | 1000 feet East of O | 900 ft |
| Q | 1000 feet North of O | 100 ft |
| R | 1200 feet N60 degree W of O | 700 ft |