KATHMANDU UNIVERSITY
End Semester Examination
January/February 2024

Marks Scored:

Level : B.E.
Year : II

01 FEB 2024

Course : CIEG 209
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date :

SECTION "A"
[20Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate option from each set of choices.

1. The hardness of Quartz is _____
   a. 1 b. 3 c. 7 d. 9

2. Which of the following is igneous rock?
   a. Gneiss b. Basalt c. Sandstone d. Schist

3. Parent rock of marble is _____
   a. Granite b. Siltstone c. Limestone d. Shale

4. Which is not a type of unconformity?
   a. Disconformity b. Angular unconformity
   c. Non conformity d. Tri conformity

5. The direction of the line generated by the intersection of an inclined plane with a horizontal plane is called
   a. Strike b. Direction of dip c. Angle of dip d. Axis

6. Fossils can be observed in _____
   a. Phyllite b. Mudstone c. Quartzite d. Amphibolite

7. An Anticline fold is _____
   a. A fold formed similar to an arch with the youngest rocks revealed in the center of the fold.
   b. A trough-shaped fold with the oldest rocks revealed in the center of the fold.
   c. A fold formed similar to an arch with the oldest rocks revealed in the center of the fold.
   d. A trough-shaped fold with the youngest rocks revealed in the center of the fold.

8. In a normal fault, the hanging-wall block has moved _____ relative to the foot wall block.
   a. upward b. downward c. sideways d. rotationally

9. Topographic maps do not show_____
   a. Elevation b. water c. bathymetry d. cities

10. The subsurface zone in which all rock openings are filled with water is called _____
a. Saturated zone b. water table c. unsaturated zone d. aquiclude

11. The dip direction of sandstone bed is measured to be $120^0/40^0$. What would be the strike, dip amount and dip direction of the sandstone bed?
a. N 30^0 E / 40^0 SE b. N 30^0 W / 40^0 SE c. N 30^0 E / 40^0 SW d. N 30^0 W / 40^0 SW

12. Higher Himalaya and lesser Himalaya is separated by the thrust called _____
a. MBT b. MCT c. HFT d. STDS

13. The Himalayan range extends about _____
a. 700 Km b. 1000 Km c. 1500 Km d. 2400 Km

14. The Earth's surface directly above the earthquake's focus is called _____
a. Hypocenter b. Epicenter c. Isoseismal line d. Seismic point

15. _____ is the glacial lake.
a. Tsho rolpa b. Rara c. Gosaikunda d. Indrasarowar

16. V-shape valley is the landform produced due to _____
a. glacial b. river c. wind d. tide

17. Geotechnical reports gives information about _____ of rock and soil.
a. minerology b. topography
c. geological properties d. geomorphology

18. Lesser Himalaya are basically comprised of _____
a. igneous and high-grade metamorphic rock
b. sedimentary and low-grade metamorphic rock
c. metamorphic rock
d. sedimentary rock

19. Which was the first tunnel constructed in Nepal?
a. Khulekhani hydropower tunnel c. Khimti hydropower tunnel
b. Churia mai tunnel d. Nagdhunga road tunnel

20. From hematite mineral which metal is extracted?
a. Copper b. Iron c. Zinc d. Lead

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01 FEB 2024

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F.M. : 40

SECTION "B"
[5Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions.

1. Describe fold with its types. What is the engineering significance of folding?

2. Describe the mechanism of an earthquake. Discus about the seismicity in Nepal.

3. What is mass movement? Mention the classification of mass movement as per varne's (1978)?

4. What do you mean by geophysical exploration? Why geophysical exploration is necessary in engineering? Describe the types of geophysical exploration?

5. Describe geological consideration in site investigation of hydropower project?

6. Define Hazard and risk. What are the geological hazards of Lesser Himalaya and Higher Himalaya zone with some examples? How hazard assessment can be carried out?

SECTION "C"
[15 marks]

7. Differentiate between *(ANY TWO)*: [2Q. × 4 = 8 marks]
   a. Sedimentary rock and Metamorphic rock
   b. Direct subsurface investigation and indirect subsurface investigation
   c. TBM for tunnel excavation and Drilling & Blasting for tunnel excavation

8. Write Short Notes on *(ANY TWO)*: [2Q. × 3.5 = 7 marks]
   a. Types of plate boundaries
   b. Q-system
   c. Physiographic division of Nepal Himalaya