

Nepal Engineering Council Registration Examination

Model Question for Mining Engineering (AMiE)

Section A (60*1 = 60)

1. The crystal structure of Aluminum is
 - a) Body centered cubic
 - b) Body centered tetragonal
 - c) Hexagonally closed packed
 - d) Face centered cubic

2. Which out of the following metallic minerals is obtained from veins and lodes?
 - a) Zinc
 - b) Limestone
 - c) Rutile
 - d) Mica

3. The value of most gemstones depends on their
 - a) Appearance
 - b) Streak
 - c) Shape
 - d) Color

4. Luster minerals are of types.
 - a) 2
 - b) 3
 - c) 4
 - d) 5

5. The branch of geology which deals with various aspects of rocks is called as
 - a) Petrology
 - b) Mineralogy
 - c) Lithology
 - d) Rockology

6. What are the two conditions believed to be required for the formation of igneous rocks?
 - a) Low temperature and molten state
 - b) Molten state and very high temperature
 - c) Molten state and moderate temperature
 - d) Crystallized state and moderate temperature

7. What can be said about the grain size of pegmatite?
 - a) Fine grained
 - b) Medium grained
 - c) Fine to medium grained
 - d) Coarse grained

8. Identify the metamorphic rock formed by thermodynamic method of metamorphism.
 - a) Slate
 - b) Gneiss
 - c) Schist
 - d) Marble

9. The angle at which a sedimentary bed is inclined from the horizontal is called the _____.
 - a) Anticline
 - b) Strike
 - c) Syncline
 - d) Dip

10. Which of the following is the most abundant metal on Earth's crust?
 - a) Magnesium
 - b) Iron
 - c) Copper
 - d) Aluminum

11. Which of the following is a non-metallic mineral?
 - a) Bauxite
 - b) Magnesium
 - c) Gypsum
 - d) Manganese

12. During which geological period did the earth become oxygen rich?
 - a) Orosirian period
 - b) Ediacaran period
 - c) Devonian period
 - d) Ordovician period

13. Which mineral group is abundantly found in the earth's crust?
 - a) Mica group
 - b) Felspar group
 - c) Oxide group
 - d) Silicate group

14. In seismic refraction method, the radiating shock waves are picked up by
- a) Geophone
 - b) Wave buoy
 - c) Thermometer
 - d) Cohesive soils
15. Percussion drilling is unsuitable in
- a) Consolidated rocks
 - b) Quick sand
 - c) Unconsolidated gravel
 - d) Unconsolidated sand
16. Grab sampling consists of
- a) Picking pieces of ore at one place only.
 - b) Picking pieces of ore at random to make up a sample.
 - c) Picking pieces of coal only.
 - d) Picking pieces of ore in a grid fashion.
17. The type of surveying used for exploring mineral wealth is
- a) Military surveying
 - b) Mine surveying
 - c) Topographic surveying
 - d) Engineering surveying
18. The mining terminology, exploitation or winning is
- a) The process of blasting.
 - b) The process of extracting the ore or economic mineral from the earth.
 - c) The process of ventilation.
 - d) The detailed mapping of the ore body.
19. Rotary drilling is the fastest method in case of
- a) Rocky soils
 - b) Clay soils
 - c) Sandy soil
 - d) All of above
20. The length of the well-bore measured along the actual well path is known as
- a) True vertical depth
 - b) Measured depth
 - c) False vertical depth
 - d) Horizontal length
21. A secondary explosive is, by definition
- a) a low explosive.

- b) the main charge of an explosive device that is set off by a small quantity of explosive that is relatively easier to initiate than itself
 - c) a deflagrating explosive
 - d) a dispersed explosive.
22. Which one of the following is a definition of a detonation?
- a) A small explosion used to set off a main charge of explosive.
 - b) A type of chemical explosion in which the speed at which the reaction front moves through the explosive is less than the speed of sound in that material.
 - c) A type of chemical explosion in which the speed at which the reaction front moves through the explosive is greater than the speed of sound in that material.
 - d) The name given to any explosion that occurs in a condensed explosive.
23. Explosive magazines shall be located in accordance with the
- a) American Table Of Separation
 - b) American Table Of Distances
 - c) 1953 Separation Tables
 - d) None of the above
24. The term is used to indicate the spacing of the drill holes.
- a) Drilling bit
 - b) Drilling pattern
 - c) Abrasion drill
 - d) Percussion drilling
25. In Opencast Mining, the portion which is extracted from the working bench is termed as
- a) Cut
 - b) Bank width
 - c) Bench face
 - d) Bench width
26. When the open pit mines are refilled with the tailings is called as _____
- a) Pond storage
 - b) Extraction
 - c) Beneficiation
 - d) Processing
27. Choose the most suitable answer for gathering.
- a) It is an opencast mining method
 - b) It is a underground mining method
 - c) It is a mining method, which is used for coal winning
 - d) It is a underground mining method used for small rich ore bodies

28. The openings in the mine, which serve as a means of entry is known as
- a) Shafts.
 - b) Edits
 - c) Cross cut.
 - d) Stop.
29. A road in a coal seam is called as
- a) Drift
 - b) Haulage road
 - c) Tunnel
 - d) Gallery
30. In board and pillar panel worked in conjunction with hydraulic stowing, extraction line preferred is
- a) Step diagonal
 - b) Steep diagonal
 - c) Straight line
 - d) Curve line
31. What is the mineral which contains a metallic element which can be economically exploited called?
- a) Ore mineral
 - b) Metallic mineral
 - c) Eco-ore
 - d) Eco-mineral
32. Which device is used to measure hardness in Mohs?
- a) Gyro meter
 - b) Universal testing machine
 - c) Rockwell tester
 - d) Sclerometer
33. If the hole's width decreases in the direction of the load for an elliptical hole in a flat plate, the stress concentration factor will
- a) Increase
 - b) Decrease
 - c) Retains its value
 - d) Is unknown, varies depending on the material
34. Which of the following part of mechanics deals with study of crack propagation?
- a) Solid mechanics
 - b) Fluid mechanics

- c) Applied mechanics
 - d) Fracture mechanics
35. Mechanical properties which are of interest in rock mechanics are: Strength, Deformability, Elasticity and
- a) Hardness
 - b) Porosity
 - c) Moisture content
 - d) Swelling
36. Rock bolting is very common in:
- a) Mining
 - b) Tunneling
 - c) Both mining and tunneling
 - d) Reservoir construction
37. _____ type of excavator is used for digging below, at or above operating level in a vertical range.
- a) Skimmer
 - b) Dragline
 - c) Clamshell
 - d) Back trench
38. The factor of safety for the drum winding is
- a) 6
 - b) 7
 - c) 9
 - d) 10
39. Which of the following is a correct description about the different types of conveyors?
- a) Belt conveyor transports material in any direction
 - b) Slat conveyor requires high maintenance
 - c) Vibrating conveyor can convey materials of any friction factor
 - d) Screw conveyors usually handle lightweight materials
40. The range of horsepower of diesel locomotive is
- a) 100-500
 - b) 1500-2500
 - c) 3000-4500
 - d) 4500-5000
41. Where continuous movement of loaded and empty tubs are necessary the rope haulage suitable is
- a) Direct rope haulage

- b) Endless rope haulage
 - c) Main tail rope haulage
 - d) Gravity
42. When gradient is less than 1 in 6, manhole shall be provided at a maximum interval of ...
- a) 10 m
 - b) 20 m
 - c) 15 m
 - d) 25 m
43. Black damp is mixture of
- a) CO₂+N₂
 - b) CO₂+H₂
 - c) CO₂+O₂
 - d) CO₂+CO
44. Which of the following equipment is used for determining the concentration of dust accurately?
- a) Screener
 - b) Air Dryer
 - c) Jas Filter
 - d) Gravimetric sampler
45. Methane gas is also called as
- a) Stink damp
 - b) Choke damp
 - c) White damp
 - d) Marsh gas
46. Mechanical ventilation is classified into
- a) Positive pressure ventilation
 - b) Negative pressure ventilation
 - c) Both a and b
 - d) Neither a and b
47. A manometric liquid should suitably have _____
- a) Low density & Low Vapour pressure
 - b) Low density & High Vapour pressure
 - c) High density & Low Vapour pressure
 - d) High density & High Vapour pressure
48. What is the main purpose of hazard identification?
- a) To minimize the effect of a consequence
 - b) For better risk management
 - c) To characterize adverse effect of toxins
 - d) To reduce probability of occurrence

49. Which of the following is the longest river of Nepal?
- a) Trishuli
 - b) Arun
 - c) Tamor
 - d) Karnali
50. The Himalayas belong to which of the following categories of mountains?
- a) Fold mountain
 - b) Plateau mountain
 - c) Fault-block mountain
 - d) Dome mountain
51. Which of the following is used by geologists to determine the relative ages in a rock sequence?
- a) Stratigraphy
 - b) Fossils
 - c) Cross-cutting relationships
 - d) All of these
52. The branch of geology which deals with the morphology, classification, mechanism and causes of development of these rock structures is called as _____
- a) Rock geology
 - b) Structural geology
 - c) Basic geology
 - d) Lithology
53. What is stratigraphy?
- a) Study of artifacts
 - b) Study of historical layers
 - c) Study of coins
 - d) None of the above
54. What is the per kg royalty rate for rattan according to the current Forest Regulation in Nepal?
- a) Rs 5/kg
 - b) Rs 10/kg
 - c) Rs 15/kg
 - d) Rs 20/kg
55. Standard dimensions (mm x mm) of A3 drawing sheet is
- a) 11.69×16.54
 - b) 29.7×42
 - c) 297×420
 - d) 420×280

56. Which of the following methods of charging depreciation of an asset has increased amount of depreciation as the age of asset increases
- a) Sum-of-year digit
 - b) Sinking fund
 - c) Diminishing balance
 - d) Straight line
57. The process of optimizing the project's limited resources without extending the project duration is known as
- a) Project crashing
 - b) Resource levelling
 - c) Resource smoothing
 - d) Networking
58. The process of composing/raising the required fund from different sources such as equity, preferred stock, bond and debenture is known as
- a) Capital structure planning
 - b) Project financing
 - c) Capital budgeting decision
 - d) Deducing earning per share
59. In which of the following society, people used to seek their existence on growing plants for their cattle and domestic animals
- a) Pastoral society
 - b) Tribal society
 - c) Horticultural society
 - d) Agricultural society
60. According to Nepal Engineering Council Act, 2055 (Revised, 2079), all engineering academic institutions shall be in the Council.
- a) Affiliated
 - b) United
 - c) Recognized
 - d) Associated

Section-B (20*2 = 40)

61. A mineral has a weight of 4.5 grams in air and 3.2 grams in water. Assuming density of water to be 1g/cm^2 the specific gravity (up to 2 decimal places) of the mineral is
- a) 3.45
 - b) 3.46
 - c) 3.49
 - d) 3.50
62. Which one of the following minerals is correctly matched with its optical property?

- a) Sillimanite – Isotropic
- b) Orthoclase – High relief
- c) Pyroxene – Nearly orthogonal cleavage
- d) Garnet – Lamellar twinning

63. Consider the following mineral deposits:

- A. Limestone deposits of Caucasus region of France
- B. Manganese deposition of Georgia and Ukraine
- C. Phosphate beds of Algeria

Which kind of rocks holds these deposits?

- a) Sedimentary rocks
- b) Igneous rocks
- c) Igneous and sedimentary rocks
- d) Metamorphic and sedimentary rocks

64. Arrange the following granitoid bodies in order of their decreasing age.

- P. Erinpura Granite
- Q. Closepet Granite
- R. Singhbhum Granite
- S. Ladakh Granitoids

- a) R-P-R-S
- b) S-Q-R-P
- c) R-Q-P-S
- d) Q-R-S-P

65. While calculating h_2 with reference to h_1 , line of sight must be _____ m above the point of tangency.

- a) 5-6 m
- b) 4-5 m
- c) 3-4 m
- d) 2-3 m

66. Which of the following methods of levelling makes use of the phenomenon that difference in elevation between two points is proportional to the difference in atmospheric pressures at these points?

- a) Barometric levelling
- b) Trigonometric levelling
- c) Spirit levelling
- d) Traverse levelling

67. Based on the following two statements, please select the most appropriate option.

- (i) The handling of bulk samples of explosives has to be carried out with great care, not least because they may explode.

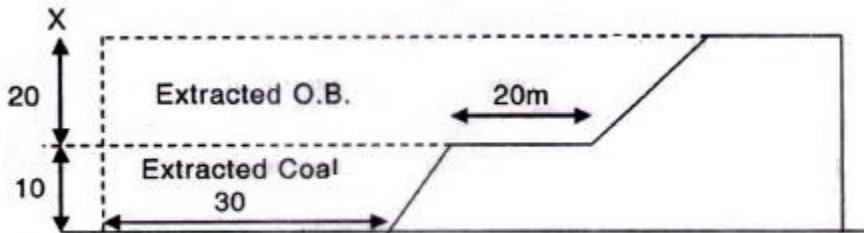
(ii) The ease with which nitroglycerine can be caused to explode means that it cannot be analysed by either GC or HPLC.

- a) Statement (i) is false but statement (ii) is true
- b) Statement (i) is true but statement (ii) is false.
- c) Both statement (i) and statement (ii) are false.
- d) Both statement (i) and statement (ii) are true.

68. The limits of a shaft designated as 100h5 are 100.000 mm and 100.014 mm. Similarly, the limits of a shaft designated as 100h8 are 100.000 mm and 100.055 mm. If a shaft is designated as 100h6, the fundamental deviation (in μm) for the same is

- a) -22
- b) 0
- c) 22
- d) 24

69. In an opencast mine shown in the figure below, the coal has a density of 1.4 t/m^3 . Assuming mining operation started from plane XY, the operating stripping ratio under the given conditions in m^3/t is

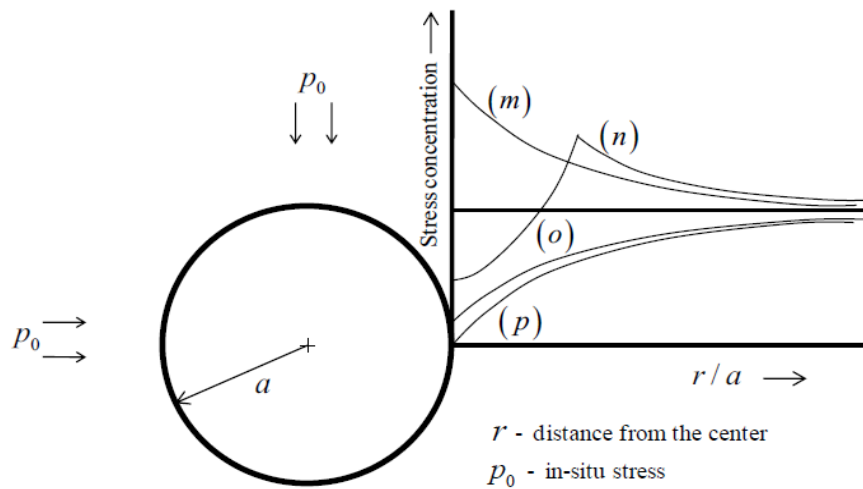


- a) 2.32
- b) 2.47
- c) 2.56
- d) 2.64

70. Depending on the decreasing ability of surrounding rock to store strain energy, the underground metal mining methods can be ordered as

- a) Sublevel open stoping, Cut-and-fill stoping, Sublevel caving, Block caving
- b) Cut-and-fill stoping, Sublevel caving, Sublevel open stoping, Block caving
- c) Sublevel caving, Sublevel open stoping, Cut-and-fill stoping, Block caving
- d) Block caving, Sublevel caving, Sublevel open stoping, Cut-and-fill stoping

71. The radial stress concentration around a long circular tunnel in rock is given by



- a) Curve m
- b) Curve n
- c) Curve o
- d) Curve p

72. **Statement (i)** : A homogeneous rock material is one in which the physical properties for all of its parts or elements are the same.

Statement (ii) : An isotropic material is one that has the same physical properties in every direction at any point.

Statement (iii) : An anisotropic material is one with certain of its properties varying with direction at any point.

Statement (iv) : Heterogeneity is a characteristic of a material or a force field signifying that the material has properties which vary with position within it.

Out of the above statements, which is correct?

- a) Only (i) is correct
- b) All are correct
- c) None is correct
- d) Only (i) and (iv) are correct

73. The method of speed control and electric winder of large capacity, i. e., above 800kw is?

- a) Sheostatic control
- b) Liquid control
- c) Ward leonard speed control
- d) Electrical breaking

74. In main and tail rope haulage the length of the tail rope is.....of the haulage plane.

- a) Equal
- b) 1/2 times
- c) 2 times
- d) A times

75. For a particular loading condition unsaturated clay layer undergoes 30% consolidation in a period of 180 days. What would be the additional time required for further 20 consolidation to occur?
- 320 days
 - 220 days
 - 280 days
 - 160 days
76. A fan running at 200 rpm develops a pressure of 50 mm water gauge; the fan speed is increased to 300 rpm. The water gauge developed will be
- 75 mm
 - 112.5 mm
 - 164 mm
 - 97 mm
77. Compressive stresses, granitic magmas, and intermediate depth earthquakes are associated with _____
- Subduction zones
 - Continent/continent convergence
 - Spreading centers
 - Transform boundaries
78. Atoms of AA decay to atoms of BB with a half-life of 100,000 years. If there are 20,000 atoms of AA to begin with (and 0 atoms of BB), how long will it take for there to be 2,500 atoms of AA?
- 100,000 years
 - 200,000 years
 - 300,000 years
 - 400,000 years
79. Effective monthly interest rate will be, if nominal interest rate of 10% accounted for continuous compounding
- 1%
 - 0.84%
 - 1.2%
 - 2%
80. By considering following activities of a project, the project duration will be

Activity	A	B	C	D	E
Immediate predecessors	-	-	-	C	A, B, D
Duration (days)	4	5	3	7	5

- 9 days
- 10 days
- 15 days
- 24 days