



IIT-JAM - GEOLOGY

MOCK TEST PAPER(According to new pattern)

- Attempt ALL the 60 questions.
- SECTION-A Consists of 30 questions. These questions are Multiple Choice Questions (MCQs), First 20 questions carries one marks for each and remaining 10 questions carries two marks for each.
- Section-B Consists of 10 questions. These questions are Multiple Select Questions (MSQs), each question carries two marks.
- Section-C Consists of 20 Numerical Answer Type (NAT) questions each question carries two marks. For each NAT type question, the answer is a signed real number.
- In Section A, for all 1 mark questions, 1/3 marks will be deducted for each wrong answer and for all 2 marks questions, 2/3 marks will be deducted for each wrong answer. There is no negative marking in Section B and Section C.

• **Total marks** : 100

• **Duration of test** : 3 Hours

VPM CLASSES

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SECTION-A (Q. 1-30)

MULTIPLE CHOICE QUESTIONS (MCQs)

1. While preparing a geologic report, you receive useful and valid original information in the form of a letter from another geologist. With the geologist's permission, this information may:
 - (A) be utilized in your report and cited as a personal communication
 - (B) NOT be utilized in your report because it has not been peer-reviewed
 - (C) NOT be utilized in your report because it has not been formally published
 - (D) be utilized in your report but not cited as to source
2. Which of the following geophysical methods is most likely to be successful in locating shallowly buried 55-gallon steel barrels in dry sand?
 - (A) ground penetrating radar
 - (B) seismic reflection
 - (C) seismic refraction
 - (D) gravity
3. The proper treatment of septic tank effluent as it moves through soil after leaving the leach line system would be most likely under which one of the following sets of conditions?
 - (A) Aerobic conditions and a sufficient clearance from saturated zone ground water.
 - (B) Septic conditions and the absence of aerobic bacteria.
 - (C) Aerobic conditions and a phreatic surface at or above the leach line elevation.
 - (D) Septic conditions and a phreatic surface at or above the leach line elevation.

4. Alkali-aggregate reaction is least likely to occur in Portland cement concrete with aggregate composed of which one of the following?
- (A) rhyolite
 - (B) opal
 - (C) chert
 - (D) quartzite
5. Bottom-hole reservoir pressure can be derived by which of the following?
- (A) the amount of gas recorded on the chromatograph after pulling the drill-pipe out of the hole and returning to bottom
 - (B) the amount of solid cuttings suspended in the drilling mud system
 - (C) drill-stem test shut-in pressure measurements
 - (D) the diameter of the drill hole
6. Left and right can be ambiguous terms unless the convention for their usage is understood. In the United States, with respect to terms such as the left abutment of dams or the right bank of streams or rivers, which one of the following statements is correct?
- (A) Left and right are as perceived by a person looking downstream.
 - (B) Left and right are as perceived by a person looking upstream.
 - (C) Left and right are as perceived by a person looking upstream for dams, but as perceived by a person looking downstream for rivers.
 - (D) Left and right are as perceived by a person looking downstream for dams, but as perceived by a person looking upstream, for rivers.

7. Falling-head tests and constant-head tests are used to determine the:
- (A) porosity of rock or soil
 - (B) safety factors of critical reservoir levels
 - (C) hydrostatic pressure on liners
 - (D) permeability of rock or soil
8. Which of the following does not result from the lateral movements of rock debris
- (A) Spreading
 - (B) Solifluction
 - (C) Cambering
 - (D) Sackung
9. Which of the following is a mixture of white mica and chlorite?
- (A) Sericite
 - (B) Pinite
 - (C) Saussurite
 - (D) Greisen
10. A prominent Precambrian tillite occurs at the base of which Indian stratigraphic unit ?
- (A) Gwalior
 - (B) Bijawar
 - (C) Vindhyan
 - (D) Delhi
11. The Gangpur Group is assigned to which geological age ?
- (A) Archaean

- (B) Palaeoproterozoic
- (C) Mesoproterozoic
- (D) Neoproterozoic

12. What is a short break in sedimentation ?

- (A) Overlap
- (B) Disconformity
- (C) Non conformity
- (D) Diastem

13. The plunge is that part of the fold where the axis is

- (A) Horizontal
- (B) Parallel to limb
- (C) Inclined
- (D) Vertical

14. A fold upon which minor fold with similar axes have developed is called ?

- (A) Compound fold
- (B) Complex fold
- (C) Cross fold
- (D) Oblique fold.

15. Which is the present stratigraphic status of the Eocene?

- (A) System
- (B) Series

- (C) Stage
(D) Substage
16. What is the term used for a repeated set of deposits laid down by cyclic or rhythmic sedimentation?
(A) Cyclolith
(B) Cyclosediment
(C) Cyclothem
(D) Cyclostrome
17. What will a window glass measure on mohs scale?
(A) 3 – 4
(B) 4 – 5
(C) 5 – 6
(D) 6 – 7
18. Which was the largest known dinosaur at 25 - 28m length?
(A) Suprasaurus
(B) Ultra saurus
(C) Diplodocus
(D) Brachiosaurus.

19. Mineral lineation in metamorphic rock is caused by ?
- (A) Recrystallisation
 - (B) Crushing
 - (C) Rubbing against each other.
 - (D) Deformation
20. Metamorphism of pure limestone gives rise to which silicate mineral?
- (A) Wollastonite
 - (B) Diopside
 - (C) Tremolite
 - (D) Actinolite
21. In which stratigraphic horizon are the first brachiopod fossils found.
- (A) Neoproterozoic
 - (B) Cambrian
 - (C) Ordovician
 - (D) Devonian
22. What is tachylite?
- (A) Glassy basalt
 - (B) Porphyritic basalt
 - (C) Tholeiitic basalt
 - (D) Variety of gabbro.

23. Hydraulic conductivity (K) is equal to

(A) $-\frac{v}{dh/dl}$

(B) $\frac{Q}{A}$

(C) $\frac{PVD}{\mu}$

(D) $\frac{PV}{\mu}$

24. Extinction angle is the angle between

(A) $X \cap C$

(B) $Y \cap C$

(C) $Z \cap C$

(D) $Z \cap b$

25. The equivalent of vindhyar in the Raipur basin is called

(A) Karnool series

(B) Sullabai series

(C) Indravati series

(D) None of the above

26. The force of adhesion in capillary water is _____ than hygroscopic water.

(A) Less

(B) Equal

(C) More

(D) Fluctuates time to time

27. Which is the name of the membrane, which surrounds the mouth in Echinoidea,
- (A) Periproct
 - (B) Madreporite
 - (C) Ambulacra
 - (D) Peristome
28. In which geological time is Gondwana land thought to have broken up?
- (A) Carboniferous
 - (B) Permian
 - (C) Mesozoic
 - (D) Eocene
29. The down - folded portion of an orogene known as ?
- (A) Tectonic enclave
 - (B) Tectonic block
 - (C) Tectogene
 - (D) Tectofacies
30. What is a mineral which is formed contemporaneously with the enclosing rock called?
- (A) Epigenetic
 - (B) Diagenetic

- (C) Syngenetic
- (D) Hypogenetic.

SECTION-B (Q. 31-40)**MULTIPLE SELECT QUESTIONS (MSQs)**

31. Fatehpur sikri is not situated on which sandstones of Vindhyan Group?
- (A) Semri
 - (B) Kaimur
 - (C) Rewah
 - (D) Bhandar
32. A body of strata that cannot be designated as formal stratigraphic unit is/are known as ?
- (A) Lithozone
 - (B) Lithotope
 - (C) Lithod
 - (D) Litho sere
33. The Gondwana fossil 'Vertebraria' is not a part of plant's _____.
- (A) Leaf
 - (B) Branch
 - (C) Root
 - (D) Stem.
34. Which of the following is/are not an example of a branching stromatolite?
- (A) Stratifera

- (B) Colonella
(C) Baicala
(D) Kussoidella
35. Accumulation of water is not possible in which of the following ?
(A) Porous sandstone
(B) Cavernous limestone
(C) Weathered granite
(D) Basalt layer
36. Graptolite fossils are not found in which stratigraphic ranges?
(A) Cambrian - Ordovician
(B) Ordovician - silurian
(C) Cambrian - Devonian
(D) Silurian – carboniferous
37. Which variety of coal does not have the highest heat value ?
(A) Para – anthracite
(B) Lignite
(C) Anthracite
(D) Bituminous
38. Out of the following which is/are not a chain of coral island ?
(A) Island arc
(B) Archipelago
(C) Great Barrier reef
(D) None of the above

39. Under which sea island the remains of a forest are not found ?
- (A) Pemban
 (B) Bombay
 (C) Kavaratti
 (D) Baratang
40. Among the following, which element's polymorphs do not range from the softest to the hardest?
- (A) Sulphur
 (B) Carbon
 (C) Silicon
 (D) Calcium

SECTION-C (Q. 41-50)

NUMERICAL ANSWER TYPE (NATs)

41. Core samples from an exploration hole in an ore deposit indicate the following concentrations of copper. From the values of the percent copper given below, what is the average concentration of copper in the total cored interval? Interval (ft.) Drilled (ft.) Recovered (ft.) Percent Copper
- | | | | |
|---------|----|----|------|
| 410-425 | 15 | 12 | 0.37 |
| 425-435 | 10 | 5 | 1.42 |
| 435-455 | 20 | 9 | 2.51 |
| 455-485 | 30 | 28 | 0.05 |
| 485-500 | 15 | 15 | 0.70 |
42. For dating of rocks K - 40 decays to Ar⁴⁰ with a half life of how many billion years?

43. In the β - diagram, if the number of plotted plane is 20, then find out the value of the number of intersection in such diagram?
44. What is the hardness level of streak plate?
45. What is the atomic number of silicon ?
46. An axis of how many fold symmetry in an individual crystal can serve as a twinning axis.
47. What is the salinity of average open ocean seawater?
48. Which prog is used to pick out both short waves and vorticity centers.
49. What is the oldest isotopic age of rocks from the Earth (in by)?
50. Industrialisation resulted in loss of what % of forests?
51. A signal contains components with frequencies up to 10 kHz, although no useful information is contained at frequencies above 6 kHz. What is the minimum frequency at which the signal should be sampled?
52. The Pacific Ocean has an average depth of about 5,500 meters. What is the theoretical deep-ocean tsunami velocity in meters per second?
53. What is the altitude of a GOES weather satellite (in kilometers)?
54. What is the largest magnitude for the Indian earthquake recorded (in M)?
55. What is the approximate density of the Earth?
56. Topographic maps usually illustrate elevation using contour lines (lines connecting points of equal elevation). Consider, for example, this contour map. It represents a region of high relief along the continental divide near Estes Park, Colorado. What is the contour interval (the distance between adjacent contour lines in m)?
57. In how many million years polarity reversals of the earth occur?
58. Plutonium-239, one of the most toxic substances known to humans, is a by-product of nuclear fission of Uranium-238. What is the half-life of this isotope?
59. What is the age of oldest sediments (ma)?

60. If the temperature of the sun were raised by 2%, how much more solar radiation would reach Earth?

ANSWER KEY

