



FOR KUET EXAM PREPARATION

KUET 2023

Question Paper · M.Sc. Geology

EXAM	YEAR	TYPE	SUBJECT
KUET	2023	Question Paper	M.Sc. Geology

Sr. No.

ENTRANCE TEST-2023**SCHOOL OF ENVIRONMENTAL AND EARTH SCIENCES****APPLIED GEOLOGY****Total Questions : 60****Question Booklet Series****A****Time Allowed : 70 Minutes****Roll No. :**

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Instructions for Candidates :

1. Write your Entrance Test Roll Number in the space provided at the top of this page of Question Booklet and fill up the necessary information in the spaces provided on the OMR Answer Sheet.
2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be '**Negative Marking**' for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/herself.
14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate's Copy to the candidate.

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⊗**[Turn over**

1. The second most abundant element in the solar system is:
 - (A) Hydrogen
 - (B) Helium
 - (C) Iron
 - (D) Oxygen
2. Which of the following is not a metamorphic rock?
 - (A) Anthracite
 - (B) Schist
 - (C) Eclogite
 - (D) Puddingstone
3. The Love waves generated during an earthquake are:
 - (A) Compressional waves
 - (B) Shear waves
 - (C) Longitudinal waves
 - (D) Transverse waves
4. The oldest eon in the Geological time scale is named:
 - (A) Archaean
 - (B) Proterozoic
 - (C) Hadean
 - (D) Phanerozoic
5. The correct sequence of thrust faults encountered as we move from South to North in the Himalayas is:
 - (A) MFT-MBT-MCT
 - (B) MBT-MFT-MCT
 - (C) MCT-MBT-MFT
 - (D) MFT-MCT-MBT
6. Which of the following matches with respect to Goldschmidt's classification of chemical elements is incorrect?
 - (A) Atmophile-Oxygen
 - (B) Lithophile-Lithium
 - (C) Chalcophile-Cadmium
 - (D) Siderophile-REE
7. The terrestrial planet in the solar system that displays retrograde rotation is:
 - (A) Mercury
 - (B) Venus
 - (C) Mars
 - (D) Uranus
8. The conversion of anhydrite to gypsum is an example of _____.
 - (A) Oxidation
 - (B) Hydration
 - (C) Carbonation
 - (D) Hydrolysis
9. Which of the following is the non-radioactive isotope of lead (Pb)?
 - (A) Pb²⁰⁴
 - (B) Pb²⁰⁸
 - (C) Pb²¹⁰
 - (D) Pb²⁰⁷
10. Badland topography generally occurs in:
 - (A) Calcareous rocks in humid region
 - (B) Shale in arid region
 - (C) Clay in sub-humid region
 - (D) Calcareous rock in arid region
11. Which one of the following would indicate the presence of a former glacial lake?
 - (A) Loess
 - (B) Varved clay
 - (C) Till
 - (D) Outwash sands
12. Which of the following is not an erosional feature of karst topography?
 - (A) Blind valleys
 - (B) Lapies
 - (C) Poljes
 - (D) Dripstones

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13. Match the geomorphic features with their environments of formation :
- | <u>Feature</u> | <u>Environment</u> |
|----------------|--------------------|
| P. Tombolo | 1. Aeolian |
| Q. Moulin | 2. Fluvial |
| R. Zeugen | 3. Glacial |
| S. Billabong | 4. Coastal |
- (A) P-4, Q-3, R-2, S-1
(B) P-3, Q-4, R-2, S-1
(C) P-4, Q-3, R-1, S-2
(D) P-3, Q-4, R-1, S-2
14. Diamond exhibits _____ cleavage while pyroxenes show _____ cleavage.
(A) Cubic, prismatic
(B) Octahedral, cubic
(C) Octahedral, prismatic
(D) Cubic, pyramidal
15. In the interference figure of an uniaxial mineral, the melatope indicates:
(A) Position of optic axis
(B) Position of optic normal
(C) Vibration direction of ordinary ray
(D) The direction along which mineral is elongated
16. The phenomenon of double refraction is shown by:
(A) Isotropic minerals
(B) Uniaxial and biaxial minerals
(C) Uniaxial minerals
(D) Biaxial minerals
17. Most of the rock forming silicates are studied under _____ light microscopy while most of the ore forming minerals are studied under _____ light microscopy.
(A) Transmitted, reflected
(B) Reflected, transmitted
(C) Transmitted, transmitted
(D) Reflected, reflected
18. Identify the tectosilicate mineral from the Mohs' scale of hardness, which produces clay mineral due to chemical weathering.
(A) Orthoclase
(B) Quartz
(C) Talc
(D) Topaz
19. Match the following minerals with their appropriate physical properties seen in hand specimen.
- | | |
|--------------|------------------------------|
| P. Pyroxene | 1. Pearly lustre |
| Q. Calcite | 2. Rhombohedral cleavage |
| R. Garnet | 3. Prismatic habit |
| S. Muscovite | 4. Perfect dodecahedral form |
- (A) P-1, Q-2, R-4, S-3
(B) P-3, Q-2, R-4, S-1
(C) P-3, Q-4, R-2, S-1
(D) P-1, Q-4, R-3, S-2
20. Which of the following statements about the rock forming silicate minerals is correct?
(A) Sorosilicates have an Si:O ratio of 2:7.
(B) Phyllosilicates are minerals having isolated silica tetrahedra linked by divalent cations
(C) All amphiboles crystallise in monoclinic system
(D) Zeolite minerals like laumontite, analcite, wairakite, heulandite etc. are essentially ionosilicates.
21. Which of the following optical properties of a mineral is seen exclusively under cross nicols?
(A) Body color
(B) Pleochroism
(C) Interference color
(D) Cleavage plane

22. Muscovite crystallizes in the _____ system.
- Tetragonal
 - Hexagonal
 - Isometric
 - Monoclinic
23. Which of the following is not a silicate mineral?
- Augite
 - Apatite
 - Andalusite
 - Anorthite
24. Which of the following processes does not help in 'magmatic differentiation'?
- Assimilation with the surrounding country rocks
 - Fractional crystallization
 - Mingling with other magmas
 - Equilibrium crystallization
25. The system of classification of igneous rocks in which the constituent minerals of an igneous rock are considered both chemically and qualitatively:
- Dunham classification
 - Shands classification
 - CIPW classification
 - IUGS classification
26. Match the following:
- | <u>Texture</u> | <u>Rocks</u> |
|---------------------|--------------|
| A. Rapakivi texture | 1. Dolerites |
| B. Ophitic texture | 2. Komatites |
| C. Spinifex texture | 3. Granites |
- A-1, B-2, C-3
 - A-3, B-2, C-1
 - A-3, B-1, C-2
 - A-1, B-3, C-2
27. The most abundant volatile that is present within magmatic liquids is:
- Water vapor
 - Carbon dioxide
 - Nitrogen
 - Sulphur dioxide
28. Which of the following volcanic eruptions is the most dangerous?
- Hawaiian
 - Vesuvian
 - Strombolian
 - Pelean
29. Select the rock that is not a metamorphic one.
- Biotite gneiss
 - Staurolite schist
 - Chert
 - Quartzite
30. Select the correct order of metamorphic rocks with increasing grade of metamorphism.
- Slate, schist, phyllites, gneiss, migmatite
 - Slate, phyllites, gneiss, schist, migmatite
 - Slate, schist, gneiss, phyllites, migmatite
 - Slate, phyllites, schist, gneiss, migmatite
31. Which one of the following sedimentary structures is formed by liquefaction?
- Graded bedding
 - Longitudinal scour
 - Convolute lamination
 - Flute cast
32. Which of the following sedimentary rocks is most prone to chemical weathering?
- Sandstone
 - Shale
 - Limestone
 - Conglomerate

33. Choose the sandstone that is mineralogical and textural immature.
- Quartz arenite
 - Quartz wacke
 - Arkose
 - Feldspathic wacke
34. Most of the coal deposits of India belong to _____ Era.
- Paleozoic
 - Mesozoic
 - Cenozoic
 - Mesozoic-Cenozoic boundary
35. The supergene enrichment process that commonly enhances the grade of primary copper deposits is essentially a _____ process.
- Contact metasomatic
 - Metamorphic
 - Weathering
 - Hydrothermal
36. 'Cockade ore' is formed when:
- Ore is arranged in successive layers
 - Small crystals develop haphazardly within cavities
 - Fissure fillings are composed of alternate bands of quartz and altered country rocks
 - Breccia fragments are surrounded by crusts
37. Arrange the elements Fe, O, H, He, Si in decreasing order of their abundance in the solar system.
- H>He>O>Si>Fe
 - He>H>Si>O>Fe
 - H>He>O>Fe>Si
 - Si>Fe>H>He>O
38. The number of alpha (α) particles emitted to produce a daughter isotope of ^{206}Pb from a parent isotope of ^{238}U by radioactive decay is:
- 2
 - 4
 - 6
 - 8
39. Airy's model of isostasy :
- Requires mountains to have higher density than the oceanic crust
 - Requires mountains to have lower density than the oceanic crust
 - Requires mountains to have the same density as oceanic crust
 - Does not consider the densities of mountain and oceanic crust
40. Parallel magnetic reversal patterns observed on the ocean floor near mid-oceanic ridges suggest the:
- Formation of new crust in the geologic past
 - Presence of mineral deposits in the oceanic crust
 - Origin of Earth's magnetic field in the inner core
 - Non-uniform movement of tectonic plates in the geologic past
41. Earth's main magnetic field is generated due to:
- Magnetic material present in the crust
 - Inter planetary interactions
 - Electric current present in the outer core
 - Polar wandering
42. The sum of specific yield and specific retention in an aquifer is called:
- Transmissivity
 - Storativity
 - Porosity
 - Hydraulic conductivity

43. A confined aquifer of cross sectional area (A) has a hydraulic gradient of 5×10^{-3} and its coefficient of permeability is 2 m/day. 250 m³ of water is collected from the aquifer over a period of 24 hours. What is the value of 'A' in m² ?
- (A) 2500
(B) 25000
(C) 250
(D) 25
44. According to fold classification by interlimb angle, ones with interlimb angle of 100 degrees would be classified as:
- (A) Gentle
(B) Open
(C) Isoclinal
(D) Tight
45. Tabular cross-bedding is formed due to the migration of _____ .
- (A) 2D dunes only
(B) 2D ripples and dunes
(C) 3D ripples only
(D) 3D ripples and dunes
46. A shallow focus earthquake strikes near a seismological observatory. A seismologist first observes _____ on the seismograph.
- (A) P - waves
(B) S - waves
(C) Rayleigh waves
(D) Love waves
47. In an outcrop of an intensely folded and metamorphosed terrain, a geologist measures the dip of the bedding to be 70 degrees whereas the dip of the axial planar foliation is about 35 degrees. What should be the most plausible interpretation?
- (A) It is the normal limb of an overturned fold
(B) It is the overturned limb of an overturned fold
(C) It is a recumbent fold
(D) It is an upright non-plunging fold
48. In which of the following tectonic settings are the highest mountain chains and thickest crust found?
- (A) Island arc
(B) Continental arc
(C) Continental collision
(D) Transcurrent
49. Which of the following is associated with a divergent plate boundary?
- (A) Ridge
(B) Trench
(C) Island arc
(D) Accretionary prism
50. Find the odd one out.
- (A) *Murex*
(B) *Nerita*
(C) *Turbo*
(D) *Venus*
51. Aristotle's lantern present in some echinoids is an apparatus for _____ .
- (A) Reproduction
(B) Respiration
(C) Chewing
(D) Aiding the water circulatory system

52. The Paleozoic Po Formation is exposed in the _____.
 (A) Spiti Basin
 (B) Kashmir-Liddar Valley
 (C) Kumaon-Garhwal
 (D) Nepal
53. The shortest period of the Paleozoic is:
 (A) Ordovician
 (B) Silurian
 (C) Cambrian
 (D) Permian
54. Choose the Archaean stratigraphic unit from the following:
 (A) Cuddapah Supergroup
 (B) Erinpura Granite
 (C) Haimanta Group
 (D) Bababudan Group
55. Choose the youngest stratigraphic unit from those given :
 (A) Lameta Beds
 (B) Garbyang Fm.
 (C) Barakar Fm.
 (D) Bhuj Fm.
56. The mass movement process in which cohesive blocks of earth move on a failure plane with concave-up geometry, is known as:
 (A) Debris flow
 (B) Creep
 (C) Rotational slide
 (D) Translational slide
57. Rapid mass movement of water saturated regolith is called:
 (A) Landslide
 (B) Creep
 (C) Solifluction
 (D) Earth flow
58. The valency of iron in hematite is _____.
 (A) 2
 (B) 3
 (C) 4
 (D) 5
59. Which of the following oil field is NOT located in the western part of India?
 (A) Bombay High
 (B) Ankleshwar
 (C) Gandhar
 (D) Moran
60. Match the tectonic units listed in Group I with their geographical locations in Group II.
- | <u>Group I</u> | <u>Group II</u> |
|--|---------------------|
| P. Continent-oceanic lithosphere convergence | 1. Himalayas |
| Q. Continent-continent collision | 2. Andes |
| R. Continental rift system | 3. Japanese islands |
| S. Oceanic-oceanic lithosphere convergence | 4. East Africa |
| (A) P-2, Q-1, R-4, S-3 | |
| (B) P-2, Q-3, R-4, S-1 | |
| (C) P-3, Q-4, R-1, S-2 | |
| (D) P-4, Q-1, R-2, S-3 | |

ROUGH WORK**SM-29550-A****8**
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