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**TEST BOOKLET**

Sl. No. **00045**

**Subject Code : 11**

**Subject : Geology**

**LECTURERS FOR NON-GOVT. AIDED COLLEGES OF ODISHA**

**Time Allowed : 3 Hours**

**Maximum Marks : 165**

**: INSTRUCTIONS TO CANDIDATES :**

1. **IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET CONTAINS 23 PAGES AND DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.**
2. You have to enter your **Roll No.** on the Test Booklet in the Box provided alongside. **DO NOT** write anything else on the Test Booklet. 

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3. The Test Booklet contains **165** questions. Each question comprises four answers. You have to select the correct answer which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct answer, you should mark (darken) the answer which you consider the best. In any case choose **ONLY ONE** answer for each question. If more than one answer is darkened it will be considered as wrong.
4. You have to mark (darken) all your answers **ONLY** on the **separate OMR Answer Sheet** provided, by **using BLACK BALL POINT PEN**. You have to do rough work on the space provided in the Test Booklet only. See instruction in the Answer Sheet.
5. All questions carry equal marks, i.e. of one mark for each correct answer and each wrong answer will result in negative marking of **0.25** mark.
6. Before you proceed to mark (darken) in the Answer Sheet the answers to various questions in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions in your Admit Card.
7. After you have completed filling in all your answers on the Answer Sheet and after completion of the examination, you should hand over to the Invigilator the **Original Answer Sheet (OMR Answer Sheet)** issued to you. You are allowed to take with you the candidate's copy/second page of the Answer Sheet along with the Test Booklet after completion of the examination for your reference.

**SEAL**

**Candidate's full signature**

**Invigilator's signature**

RS – 23/21

(Turn over)

2018

1. Which one of the following drives the Earth's internal heat engine ?
  - (A) Solar energy
  - (B) Volcanoes
  - (C) Radioactivity
  - (D) Ocean tides
  
2. The characteristic mineral of lower mantle is :
  - (A) Rutile
  - (B) Anatase
  - (C) Perovskite
  - (D) Spinel
  
3. The asthenosphere is :
  - (A) Hot and weak
  - (B) Hot and strong
  - (C) Cool and strong
  - (D) Cool and weak
  
4. With how many large rigid plates the Earth's lithosphere is broken into :
  - (A) 50
  - (B) 5
  - (C) 12
  - (D) 75
  
5. New seafloor is created at a :
  - (A) Transform fault
  - (B) Subduction zone
  - (C) Mid-oceanic ridge
  - (D) Deep sea trench
  
6. The process by which the oceanic lithosphere descends into the mantle is called :
  - (A) Subduction
  - (B) Contraction
  - (C) Divergence
  - (D) Convergence
  
7. Which one will be produced by mechanical weathering ?
  - (A) Calcium carbonate
  - (B) Quartz
  - (C) Smaller particles
  - (D) Large particles
  
8. Which mineral is least susceptible to chemical weathering at the Earth's surface ?
  - (A) Quartz
  - (B) Calcite
  - (C) Plagioclase
  - (D) Olivine
  
9. When a rock breaks into smaller pieces, the surface area to volume ratio :
  - (A) Decreases
  - (B) Increases
  - (C) Remains the same
  - (D) Increase or decrease

10. Which one of the following minerals is most stable at the Earth's surface ?
- (A) Mica
  - (B) Olivine
  - (C) Hematite
  - (D) Feldspar
11. An oblique-slip fault suggests ?
- (A) Tensional forces only
  - (B) Shear forces combined with compressive or tensional forces
  - (C) Shear forces only
  - (D) Compressive forces only
12. Exfoliation domes form :
- (A) Pressure release
  - (B) Hydrolysis
  - (C) Root wedging
  - (D) Frost wedging
13. Which one of the following forces dominate at divergent plate margins ?
- (A) Shearing forces
  - (B) Tensional forces
  - (C) Compressive forces
  - (D) Longitudinal forces
14. At convergent plate boundaries one would expect to find :
- (A) Only faults
  - (B) Only folds
  - (C) Both faults and folds
  - (D) Neither folds nor faults
15. In an overturned fold :
- (A) Two limbs dip in the same direction with one of them tilted beyond vertical
  - (B) Two limbs dipping in opposite direction
  - (C) Two limbs not parallel to each other
  - (D) Two limbs at right angles to one another
16. What types of faults are expected to associated with shearing forces ?
- (A) Normal faults
  - (B) Reverse faults
  - (C) Strike-slip faults
  - (D) Oblique faults
17. Which conditions would favor folding rather than faulting ?
- (A) High temperatures and high confining pressures
  - (B) Low temperatures and high confining pressures
  - (C) High temperatures and low confining pressures
  - (D) Low temperatures and low confining pressures

18. In listric fault morphologies, fault planes are always :
- (A) Convex upwards
  - (B) Concave upwards
  - (C) Planar
  - (D) Horizontal
19. Dip-slip faults are associated with :
- (A) Shearing
  - (B) Tensional
  - (C) Compressive
  - (D) Tensional and Compressive
20. Valley glaciers are also known as :
- (A) Lowland glaciers
  - (B) Alpine glaciers
  - (C) Gorge glaciers
  - (D) Upland glaciers
21. At what altitude does the snow line lie at the equator :
- (A) About 5000 meters
  - (B) About 2000 meters
  - (C) About 15000 meters
  - (D) About 7500 meters
22. Amphitheater-like hollow that forms at the head of a glacier is called :
- (A) Horn
  - (B) Cirque
  - (C) Moraine
  - (D) Kettle
23. During which Epoch the recent ice ages occurred :
- (A) Pleistocene
  - (B) Pliocene
  - (C) Permian
  - (D) Paleozoic
24. Which of the following are not related to wind erosion ?
- (A) Ventifact
  - (B) Deflation
  - (C) Loess
  - (D) Blowout
25. On which fundamental principle photogrammetry is based upon ?
- (A) Interference
  - (B) Triangulation
  - (C) Resection
  - (D) Intersection
26. Coherence of two electromagnetic waves takes place if their phase difference is :
- (A) Constant in time
  - (B) Constant in space
  - (C) Constant in space and time
  - (D) Infinite
27. The mantle consists mainly of :
- (A) Granitic rocks
  - (B) Basaltic rocks
  - (C) Gabbroic rocks
  - (D) Ultramafic rocks

28. Which of the following regions consists primarily of olivine and pyroxene ?
- Continental crust
  - Upper mantle
  - Oceanic crust
  - Core
29. The coherence length over which there is a strong relationship between amplitudes is :
- Directly proportional to the bandwidth
  - The square of the bandwidth
  - Inversely proportional to the bandwidth
  - The cube of the bandwidth
30. Why do magmas rise towards Earth's surface ?
- Magmas are more viscous than solid rocks in the crust and upper mantle
  - Most magmas are richer in silica than most crustal and upper mantle rocks
  - Magmas, being melts and having gases, are less dense than the adjacent solid rock
  - Magmas have higher content of pyroxenes than the surrounding rocks
31. A thrust fault is a :
- Normal fault
  - Low angle reverse fault
  - Decollement
  - Wrench fault
32. At transform plate boundaries :
- Two plates slip horizontally past each other
  - Two plates move in opposite directions towards each other
  - Two plates move in opposite directions away from each other
  - Two plates are subducted beneath each other
33. India separated from Seychelles during :
- 65 Ma
  - 83 Ma
  - 123 Ma
  - 140 Ma
34. Stishovite is a polymorph of :
- Olivine
  - Garnet
  - Zeolite
  - Quartz

35. Pyrope garnet and chrome diopside characteristic minerals of :
- (A) Kimberlite
  - (B) Lamprophyre
  - (C) Lamproite
  - (D) Carbonitite
36. Coesite is a high pressure polymorph of :
- (A) Diopside
  - (B) Hypersthene
  - (C) Olivine
  - (D) Quartz
37. The mineral assemblage quartz-sapphirine is characteristic of :
- (A) Granulite facies
  - (B) Eclogite facies
  - (C) Ultra high temperature metamorphism
  - (D) Blue schist facies
38. The characteristic assemblage of eclogite facies :
- (A) Lawsonite – glaucophane-chloritoid
  - (B) Garnet – diopside-ilmanite
  - (C) Garnet – pigeonite-epidote
  - (D) Garnet – omphacite-rutile
39. Positive Ce anomalies in sediments indicate :
- (A) Reducing environments
  - (B) Oxidizing environments
  - (C) Low pH-conditions
  - (D) High pH environments
40. The atomic mass number of an element is defined as the :
- (A) Number of neutrons
  - (B) Number of protons
  - (C) Number of electrons
  - (D) Number of protons and neutrons
41. Which of the following mineral crystallizes in tetragonal system ?
- (A) Garnet
  - (B) Orthoclase
  - (C) Rutile
  - (D) Olivine
42. Spinifex texture is the characteristic of texture of :
- (A) Gabbro
  - (B) Dolerite
  - (C) Komatite
  - (D) Basalt

43. When molar  $\text{Al}_2\text{O}_3 / (\text{K}_2\text{O} + \text{Na}_2\text{O} + \text{CaO}) > 1.0$  then according to Shand's classification of Alumina saturation, the rock is classified as :
- (A) Mataluminous  
(B) Peraluminous  
(C) Peralkaline  
(D) Alkaline
44. Which of the following magmas will be more viscous ?
- (A) Magma rich in  $\text{SiO}_2$   
(B) Magma containing high concentration of alkalis and magnesium  
(C) Magma deficient in  $\text{SiO}_2$   
(D) Magma rich in  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$  and  $\text{Fe}^{2+}$  ions
45. Depleted mantle is characterized by :
- (A) High  $^{143}\text{Nd}/^{144}\text{Nd}$ , Low  $^{87}\text{Sr}/^{86}\text{Sr}$  and low  $^{206}\text{Pb}/^{204}\text{Pb}$   
(B) Low  $^{143}\text{Nd}/^{144}\text{Nd}$ , Low  $^{87}\text{Sr}/^{86}\text{Sr}$  and low  $^{206}\text{Pb}/^{204}\text{Pb}$   
(C) High  $^{143}\text{Nd}/^{144}\text{Nd}$ , high  $^{87}\text{Sr}/^{86}\text{Sr}$  and high  $^{206}\text{Pb}/^{204}\text{Pb}$   
(D) High  $^{143}\text{Nd}/^{144}\text{Nd}$ , high  $^{87}\text{Sr}/^{86}\text{Sr}$  and low  $^{206}\text{Pb}/^{204}\text{Pb}$
46. Which of the following rock characterise deep water environment ?
- (A) Marl  
(B) Sand stone  
(C) Loess  
(D) Carbonaceous shale
47. Peridotites containing olivine and orthopyroxene (enstatite, bronzite, hypersthene) as essential minerals, is known as :
- (A) Wherlite  
(B) Harzburgite  
(C) Lherzolite  
(D) Limburgite
48. In gabbro cumulate the positive Eu-anomaly is mainly due to :
- (A) Plagioclase accumulation  
(B) Pyroxene accumulation  
(C) Magnetite and Ilmenite  
(D) Olivine
49. Excess alumina in an igneous rock will form the normative mineral :
- (A) Quartz  
(B) Feldspars  
(C) Aluminosilicates  
(D) Corundum

50. The lithophile elements generally concentrate in :
- Rock-forming minerals
  - Earths' core
  - Sulphides
  - Atmosphere
51. In Khetri and Singhbhum, copper mainly occurs as :
- Cuprite
  - Chalcopyrite
  - Chalcocite
  - Covellite
52. Syngenitic deposits are crystallized :
- Before the host rocks
  - After the host rocks
  - Simultaneously with host rocks
  - Any of these
53. The most common structural element of the silicate mineral group is :
- A silicon-oxygen octahedron
  - A silicon-oxygen tetrahedron
  - A silicon-aluminum tetrahedron
  - A silicon-nitrogen tetrahedron
54. The bonding of diamond is :
- Covalent
  - Ionic
  - Metallic
  - Bail
55. Pyroxene is an example of which silicate ?
- Single chain
  - Sheet
  - Ring
  - Framework
56. Where the largest crystals in a lava flow be expected ?
- In the centre of the flow
  - Near the top surface of the flow
  - Near the bottom of the flow
  - Uniform through out
57. According to Bowen's reaction series, which of the following pairs of phases are likely to be incompatible ?
- Na-plagioclase and Amphibole
  - Ca-Plagioclase and Olivine
  - Quartz and alkali Feldspar
  - Quartz and Olivine
58. In plate tectonic settings where the basaltic rocks will be expected :
- Transform boundary
  - Spreading center
  - Continent-continent collision
  - Subduction zones