PUMDET–2017

Subject : Applied Geology

Time Allowed : 1Hour 30 Minutes | *Maximum Marks* : 100

20600222

Booklet No. .....

INSTRUCTIONS

Candidates should read the following instructions carefully before answering the questions:

1. This question paper contains 50 MCQ type objective questions. Each question has four answer options given, viz. A, B, C and D.
2. Only one answer is correct. Correct answer will fetch full marks 2. Incorrect answer or any combination of more than one answer will fetch— ½ marks. No answer will fetch 0 marks.
3. Questions must be answered on OMR sheet by darkening the appropriate bubble marked A, B, C or D.
4. Use only **Black/Blue ball point pen** to mark the answer by complete filling up of the respective bubbles.
5. Mark the answers only in the space provided. Do not make any stray mark on the OMR.
6. Write question booklet number and your roll number carefully in the specified locations of the **OMR**. Also fill appropriate bubbles.
7. Write your name (in block letter), name of the examination centre and put your full signature in appropriate boxes in the OMR.
8. The OMRs will be processed by electronic means. Hence it is liable to become invilid if there is any mistake in the question booklet number or roll number entered or if there is any mistake in filling corresponding bubbles. Also it may become invalid if there is any discrepancy in the name of the candidate, name of the examination centre of signature of the candidate vis-a-vis what is given in the candidate's admit card. The OMR may also become invalid due to folding or putting stray marks on it or any damage to it. The consequence of such invalidation due to incorrect marking or careless handling by the candidate will be sole responsibility of candidate.
9. Rough work must be done on the question paper itself. Additional blank pages are given in the question paper for rough work.
10. Hand over the OMR to the invigilator before leaving the Examination Hall.

1. In the biological name *Garbula (Bicorbula) exarata* the middle term refers to
   (A) Genus
   (B) Subgenus
   (C) Species
   (D) Subspecies

2. An index fossil should have
   (A) long geographic and temporal ranges
   (B) short geographic and temporal ranges
   (C) long geographic and short temporal ranges
   (D) short geographic and long temporal ranges

3. Infaunal bivalves are commonly
   (A) Monomayarian and equivalved
   (B) Monomayarian and inequivalved
   (C) Dimayarian and equivalved
   (D) Dimayarian and inequivalved

4. Indicate the correct statement:
   (A) Calcite is the major inorganic component in bivalve and brachiopod shells
   (B) Aragonite is the major inorganic component in bivalve and brachiopod shells
   (C) Aragonite is the major inorganic component in bivalve shells whereas calcite is the major component in brachiopod shells
   (D) Calcite is the major inorganic component in bivalve shells whereas aragonite is the major component in brachiopod shells

5. Indicate the correct statement
   (A) Infaunal echinoids exhibit pentameral symmetry whereas epifaunal echinoids exhibit bilateral symmetry
   (B) Epifaunal echinoids exhibit pentameral symmetry whereas infaunal echinoids exhibit bilateral symmetry
   (C) Infaunal and epifaunal echinoids exhibit bilateral symmetry
   (D) Infaunal and epifaunal echinoids exhibit pentameral symmetry

6. Indicate the correct statement
   (A) Gastropods are mostly conispiral whereas cephalopods are generally planispiral
   (B) Gastropods are mostly planispiral whereas cephalopods are generally conispiral
   (C) Gastropods and cephalopods are commonly conispiral
   (D) Gastropods and cephalopods are commonly planispiral

7. Foraminiferids are
   (A) Unicellular prokaryotes
   (B) Unicellular eukaryotes
   (C) Multicellular prokaryotes
   (D) Multicellular eukaryotes

8. Fossil of terrestrial organisms are relatively rare because
   (A) Organic deversity is less on land
   (B) Organic abundance is less on land
   (C) Land organisms have little preservable body parts
   (D) Land offers little depositional environment

9. Corals are good environmental indicators because they have:
   (A) Narrow environmental tolerance
   (B) Wide environmental tolerance
   (C) Little migration potential
   (D) Colonial habit

10. Holochroal eye differs from schizochroal eye in having
   (A) a single lens with a corneal membrane
   (B) smaller lenses with a single corneal membrane
   (C) larger lenses with a single corneal membrane
   (D) larger lenses with multiple corneal membranes

11. In a crystal (100), (110) and (010) belong to a zone, the axis of which is

(A) [111]

(B) [101]

(C) [001]

(D) [010]

12. Common rock forming mafic minerals belong to the symmetry class

(A) 2/m

(B) 2

(C) 2/m 2/m 2/m

(D) 222

13. Common crystal faces are parallel to planes with:

(A) low lattice point density

(B) high lattice point density

(C) moderate lattice point density

(D) cleavage planes

14. Lattice points shared by a face-centered unit cell are

(A) 2

(B) 3

(C) 4

(D) 1

15. Gondwana succession ranges from

(A) upper Devonian to Upper Jurassic

(B) upper Carboniferous to Lower Cretaceous

(C) upper Carboniferous to Upper Jurassic

(D) lower Permain to Lower Cretaceous

16. The stability of minerals in contact with water may be determined if

(A) Eh of aqueous solution is known

(B) pH of aqueous solution is known

(C) Eh and pH of an aqueous solution is known

(D) All of the above

17. Fold axis in a reclined fold is

(A) horizontal

(B) vertical

(C) parallel to dip line of axial plane

(D) perpendicular to axial plane

18. Vertical fold is characterized by

(A) vertical axial plane and horizontal axis

(B) horizontal axial plane and horizontal axis

(C) inclined axial plane and inclined axis

(D) vertical axial plane and vertical axis

19. Pole to a bedding plane with 315/70 NE attitude plunges

(A) 20 towards 225

(B) 70 towards 225

(C) 20 towards 045

(D) 70 towards 045

20. If pitch of a lineation on a N-S vertical bedding plane is 30 from N, its plunge is

(A) 30 towards 180

(B) 30 towards 360

(C) 60 towards 180

(D) 60 towards 360

21. What are the bases of classification of igneous rocks after Hatch and Wells?

(A) SiO_2 content of rocks

(B) Alkali/lime ratio of rocks

(C) Grain size of rocks

(D) All of the above

22. Which is the characteristic texture of komatiite?

(A) Pilotaxitic

(B) Vitrophyric

(C) Spinifex

(D) Hyalophitic

23. What is an occult mineral?

(A) Mineral present in MODE

(B) Mineral present in NORM

(C) Mineral present in NORM but absent in MODE

(D) None of the above

24. What happens when water content of rhyolitic lava increases?

(A) Its viscosity increases

(B) Its viscosity decreases

(C) Its fluidity decreases

(D) Both viscosity and fluidity increase

25. How does calc-alkaline trend of magmatic evolution differ from that of tholeiitic trend?

(A) Calc-alkaline trend has an initial stage of alkali enrichment

(B) Tholeiitic trend has an initial stage of iron enrichment

(C) Tholeiitic trend has an intermediate stage of iron enrichment and final stage of alkali enrichment

(D) Calc-alkaline trend has a final stage of iron enrichment

26. Oscillatory zoning in plagioclase crystal may be explained by

(A) Equilibrium crystallization

(B) Fluctuation of P_{H2O} during crystallization

(C) Fractional crystallization

(D) Crystallization in a static magma chamber

27. Olivine crystallizing at high temperature from a basic magma is more forsteritic than olivine crystallizing at lower temperature the reason is:

(A) Mg has a smaller ionic size and higher charge than Fe^{2+}

(B) Mg has a larger size and lower charge than Fe^{2+}

(C) Size of Mg and Fe^{2+} are similar but charge of Mg is lower than Fe^{2+}

(D) Charge of Mg and Fe^{2+} are similar but Mg has smaller ionic size

28. Which type of meteorite is compositionally similar to primitive Earth?

(A) Iron meteorite

(B) Achondrite

(C) Carbonaceous Chondrite

(D) Enstatite Chondrite

29. Covex water table contour indicates

(A) Region of ground water discharge

(B) Region of ground water recharge

(C) Do not depict recharge/discharge pattern

(D) None of the above

30. Which of the following statement is true

(A) Elements with even atomic number are more abundant than elements with odd atomic number

(B) Elements with even atomic number are less abundant than elements with odd atomic number

(C) Atomic number of element has no bearing on elemental abundance

(D) Heavier elements are more abundant than lighter elemets

31. Ripple marks are products of
(A) bedload transport
(B) only saltaion
(C) suspension load transport
(D) soft-sediment deformation

32. Stream deposited gravels commonly show
(A) downcurrent imbrication
(B) upcurrent imbrication
(C) reverse grading
(D) all of the above

33. The effects of seismic shock on a pile of unconsolidated sand-mud heterolith is
(A) flame structure
(B) convolute laminations
(C) mud volcano
(D) all of the above

34. Hard ground in carbonates is a record of
(A) intense biogenic activity
(B) burial cementation
(C) early diagenetic cementation
(D) none of the above

35. Best suitable dam that can be constructed in seismically active areas
(A) curved gravity dam
(B) cupola dam
(C) arch dam
(D) embankment dam

36. Isohyets are lines joining all places having
(A) the same atmospheric pressure
(B) the same depth of rainfall
(C) the same depth to the ground water table
(D) the same temperature

37. A major lithologic component of crust of the Moon is
(A) anorthosite
(B) jaspillite
(C) itacolumite
(D) none of the above

38. A biaxial mineral splits ordinary light into
(A) two ordinary rays
(B) one extraordinary and one ordinary ray
(C) two extraordinary rays
(D) three extraordinary rays and one ordinary ray

39. Calcite show twinkling effect because
(A) it is biaxial
(B) it is triaxial
(C) because it has a high birefringence
(D) because it is strongly pleochroic

40. It is possible to polarize light through
(A) reflection
(B) refraction
(C) selective absorption
(D) all of the above

41. An important ore of manganese is
    (A) siderite
    (B) pyrolusite
    (C) rhodonite
    (D) gondite

42. Iron stays in highest oxidation state in
    (A) goethite
    (B) magnetite
    (C) pytite
    (D) hematite

43. The natural alloy of gold and silver is known as
    (A) electrum
    (B) argentarium
    (C) aurigentam
    (D) gentrium

44. Black smokers are composed of:
    (A) Zn sulphide
    (B) Cu sulphide
    (C) Ni sulphide
    (D) Fe sulphide

45. Ironstones often show which of the following structure?
    (A) lamellar
    (B) bedding
    (C) Öolitic
    (D) pisolitic

46. Skarn is an example of which rock type?
    (A) sedimentary
    (B) metasomatic
    (C) metamorphic
    (D) igneous

47. In a 3-component system containing 5 phases, the number of phases present in an invariant assemblage is:
    (A) 5
    (B) 4
    (C) 0
    (D) 3

48. Helicitic folds commonly occur in:
    (A) pre-kinematic crystals
    (B) post-kinematic crystals
    (C) syn-kinematic crystals
    (D) inter-kinematic crystals

49. Glaucophane and reibeckite are common in the following metamorphic facies:
    (A) greenschist
    (B) blueschist
    (C) eclogite
    (D) granulite

50. Calcite-diopside-anorthite-grossular-quartz can form from metamorphism of:
    (A) basic rock
    (B) pure limestone
    (C) pelitic rock
    (D) impure limestone

Space for Rough Work