

**1. Solid hydrocarbons that are soluble in organic solvents**

- A. Bitumen
- B. Phytoclast
- C. Kerogen
- D. Petroleum
- E. Asphalt

**2. Banding in femicrete exhibits following features except**

- A. It could be lenticular
- B. consists of strikingly red & gray bands in outcrop
- C. partly by absence of burrowing in Precambrian
- D. an original depositional structure
- E. formed after uplift of the Fe-rich succession

**3. Francolite**

- A. has < 1% F
- B. is not crystalline
- C. has > 1% fluorine & appreciable carbonate
- D. is the same as collophane

**4. Hemipelagic mudrocks exhibit following features except**

- A. Covered the sea floor on the deep outer parts of continental shelves, continental slopes & vast areas
- B. characterized by pelagic fauna such as diatoms, planktonic foraminifera, & Coccolithophoridae
- C. Grey color, although red, brown, green or black
- D. accumulate now above CCD, red & brown colors
- E. They are commonly interbedded with siliciclastic & carbonate turbidites

**5. About phosphate, following statements are true, except**

- A. can be represented by:  $Ca_{10}(PO_4)_6F_{2-3}$
- B. It is fluorapatite
- C. It can be called carbonate hydroxyl fluorapatite
- D. It contains no fluorine in all cases

**6. About clay minerals origin, the wrong statements is**

- A. Neoformed clay minerals are the clay minerals that formed in situ by precipitation from solution
- B. Transformed clay are inherited clay minerals that modified by ion exchange or cation arrangement
- C. Degraded clay minerals are formed by cementation in deep buried sediments
- D. Inherited clay are detrital clay, formed in another area, transported, & deposited away from source

**7. false statement about Palaeokarstic surface in limestone**

- A. contain preserved soil as discontinuous clay seam or bed immediately above the dissolution surface
- B. were formed after emergence of carbonate sediments followed by dissolution through contact with meteoric water
- C. are a type of bedding discontinuity peculiar to some limestones
- D. formed now at ocean sediment-water interface

**8. Subaqueous precipitation of evaporites:**

- A. basically a simple "evaporating-dish process"
- B. takes place in supratidal environment
- C. takes place within sediment (sabkha)

D. gives rise to chicken wire texture

E. Formed quartz

**9. Phosphorites**

- A. used to produce fertilizers
- B. only in Upper Cretaceous in stratigraphic record
- C. are not present in Jordan
- D. phosphate deposit containing any amount of  $PO_4$

**10. Evaporites include the following minerals, except:**

- A. Sylvite
- B. Kainite
- C. Tremolite
- D. Halite
- E. Anhydrite

**11. Bedded cherts**

- A. Black colored variety called novaculite
- B. always show regular flat bedding
- C. devoid of ripple marks & cross-bedding in all case
- D. produced by replacement of carbonate grains
- E. May associated with limestone & phosphorites

**12. Phosphorites**

- A. consist only of detrital apatite
- B. contain at least 50%  $P_2O_5$
- C. are restricted in age to the Permian
- D. cryptocrystalline to X-ray amorphous collophane
- E. Not found in Jordan

**13. Mudrocks formed from the alteration of volcanoclastic**

- A. may contain zeolite minerals
- B. known as tenstein it montmorillonite is dominant
- C. subjected to vitrification (forms macroquartz)
- D. Is fuller's earth if vermiculite main clay present
- E. Is bentonites if illite is main clay mineral present

**14. Peloids**

- A. are very poorly sorted
- B. devoid of any internal structure
- C. are composed of coarse crystalline carbonate
- D. have multiple internal concentric layers
- E. are sub-spherical or ellipsoidal angular grains

**15. Chert**

- A. consists only of mega or coarse crystalline quartz
- B. cannot be formed by replacement of limestone
- C. Could occur in a bedded form
- D. is found only in Upper Cretaceous strata
- E. always black due to content of organic matter

**16. Dolomite**

- A. associated with supratidal deposit in arid climate
- B. stains red through staining with Alizarin red S
- C. has the formula  $CaMgCO_3$
- D. formed by direct precipitation from sea water
- E. is a mineral not a rock

**17. Loess is**

- A. usually stratified & consolidated
- B. yellow-to-buff clastic deposit composed silt-Qz
- C. characterized by distinctive poor-sorting silt-sand

- D. Always devoid of shells of land snails & concretions formed around roots
- E. primarily of a fluvial origin

**18. Regarding the silica that formed the chert nodules, the following statements are true, except**

- A. **It was precipitated originally as opal & subsequently crystallized to chert**
- B. originated by dissolution of associated limestone
- C. Came from dissolved tests of siliceous organisms
- D. It migrated along surfaces of greater permeability
- E. have crossed bedding plane & filled burrows

**19. Aragonite shells**

- A. a are characterized by concavo-convex outline
- B. exhibit microstructure in Paleozoic limestone
- C. are very stable during chemical weathering
- D. are very stable during diagenesis
- E. **commonly dissolve in diagenesis to form molds that may or may not be refilled with cement**

**20. phosphates occur in the following forms, except**

- A. **Metamorphic apatite deposits**
- B. Bioclastic & pebble-bed phosphorites
- C. Nodular & bedded phosphorites
- D. Oceanic island phosphorites
- E. guano phosphorites

**21. Regarding the phosphorites, which of following is true**

- A. distributed equally in the stratigraphic record
- B. Phosphatization of lime is among the processes involved in formation of the phosphorites
- C. **Most phosphorites deposited in deep marine**
- D. Invertebrates are the only organisms involved in the formation of phosphorites
- E. Upwelling currents required for deposition of phosphorites are occurring on the eastern margin of continents in tropical or subtropical latitudes

**22. Hematite**

- A. need high organic content to formed & preserved
- B. stable under moderate-high reducing conditions
- C. **forms diagenetically from a hydrated ferric oxide precursor by ageing process involving dehydration**
- D. occurs only as a cement of sandstone

**23. Gypsum crystals that precipitated on floor of a lagoons, lakes, & shallow shelves around evaporite basins in form of the following , except**

- A. **enterolithic texture**
- B. selenitic gypsum crystals
- C. single prismatic crystals
- D. growing vertical crystals like grass
- E. twinned (swallow-tail) crystals

**24. Organisms in reefs are the following types, except**

- A. reef-users such as calcareous algae
- B. **crawlers such as Trilobite**
- C. framework builders such as corals now

- D. frame-binders & encrusters such as sponges

**25. Bedded iron-rich deposits**

- A. **encountered in Precambrian & Phanerozoic**
- B. include the Phanerozoic banded iron formations
- C. include the Precambrian ooidal ironstones
- D. consist only of ferrous-containing minerals
- E. are defined as those that contain at least 5%Fe

**26. Wet gas**

- A. is closely associated with coal deposits
- B. **consists mainly of methane & ethane**
- C. contains > 50% propane & butane
- D. does not contain any quantity of H<sub>2</sub>S, CO<sub>2</sub> & N<sub>2</sub>

**27. Regarding guano, the following statements true except**

- A. Guano consists of birds & bats excrements
- B. Forms now on some oceanic islands in E-Pacific
- C. Form phosphate deposit of economic significance
- D. leached to give downward percolating solutions cause phosphatization of underlying carbonates

**28. The least common Fe-oxide in sedimentary rocks is**

- A. Goethite
- B. Hematite
- C. Siderite
- D. **Magnetite**
- E. Pyrite

**29. Mudrocks**

- A. the least abundant type of sedimentary rocks (5-15 % of the sedimentary sequences)
- B. can be deposited only in river's floodplains
- C. are very well exposed
- D. **Composed mainly of clay mineral & silt-grade Qz**
- E. are restricted to the Mesozoic Erathem

**30. Micrite originates**

- A. **by direct precipitation of calcite filling pore spaces between carbonate grains**
  - B. by recrystallization of microsparite into micrite
  - C. by direct precipitation from sea water under-saturated with respect to calcium carbonate
  - D. by organisms that have hard parts consisting of tiny aragonite needles such as diatoms
  - E. By disintegration of calcareous green algae
- Mudrocks can be used as paleocurrent indicators
    - A. If their quartz grains are equidimensional
    - B. When they are massive
    - C. **If they show an increase in the clay to quartz ratio**
    - D. In all cases
    - E. If contain any magnetic minerals in any orientation
  - Among the thick evaporite sequences (about 1000 m) is
    - A. Um Ishrin
    - B. Old Red
    - C. Abu Rweis gypsum
    - D. Kurnub Sandstone
    - E. **Permian Zechstein**

- In normal marine depositional environment, the following statements are true, except:
  - A. Sediment color is light gray
  - B. Anoxic conditions dominate deep in the sediment below the water-sediment interface
  - C. Organic matter preservation is good in sediments
  - D. Oxic conditions dominate in the water column & upper part of the sediments
  - E. Benthic organisms rich above anoxic-oxic interface
- The first mineral to be deposited upon evaporation of sea water from an isolated basin is (calcite, Gypsum, Halite, Mg, then Na)
  - A. Halite
  - B. Mg-minerals
  - C. Gypsum
  - D. K-minerals
  - E. **Calcite**
- Ferromanganese nodules exhibit the following properties, except
  - A. Contain high amounts of Cr, Ni, Co, Cu, Pb, Zn & V
  - B. Are metalliferous sediment that occur on sea floors, particularly, Atlantic, Pacific & Indian oceans
  - C. **Are formed in areas of high sedimentation rate**
  - D. composed mainly of X-ray amorphous, todorokite together with the hydrated iron oxide goethite
  - E. Originate due to hydrothermal-volcanic activities.
- Siliceous oozes characterized by the following, except
  - A. accumulating on ocean floors at the present time
  - B. **Occur entirely above the CCD in the present oceans**
  - C. Consist mainly of radiolarians & diatoms
  - D. May be found at depths greater than CCD
  - E. May contain sponge spicules
- Regarding the oil window, the following statements are true, except
  - A. occurs at depths where the T from 70 to 100 °C
  - B. the depth where oil is generated
  - C. occurs at depths ranging from 2 to 3.5 km in areas of average geothermal gradient
  - D. **the whole in ground, through which oil is expelled to the surface**
- Dolomitization occurs by the following, except
  - A. **Direct precipitation from normal salinity sea water**
  - B. S-reduction (release Mg),stimulating dolomitization
  - C. Circulation of sea water via carbonate sequences, where water is pumped through highly permeable carbonates by tidal fluxes or oceanic currents
  - D. Microbial reduction of sulfate (act as methanogens, increase Mg activity & facilitating dolomitization)
- Mudstones:
  - A. Consist completely of clay minerals
  - B. **May contain silt-sized detrital quartz**
  - C. Feel smooth when chewed
  - D. Restricted to the Paleozoic Erathem
- E. characterized by fissility
- The term mud
  - A. Black shales also called lutite
  - B. **Refers to sediments consisting of the mud size**
  - C. Indicates coarse-sized siliciclastic sediments
  - D. Loosely refers to mixture of clay & sandy materials
  - E. Points to continental siliciclastic sediments
- Organic metamorphism
  - A. **same as coalification**
  - B. metamorphism of C-poor limestone
  - C. metamorphism of shale free of organic matter
  - D. same as lithification
- Black shales exhibit the following properties, except
  - A. **Are very abundant in the Precambrian**
  - B. Are usually rich with pyrite
  - C. Were deposited in an anoxic environment
  - D. Were deposited in an euxinic environment
  - E. Contain an appreciable amount of organic matter
- Coccoliths exhibit the following properties, except
  - A. significant component in carbonate oozes
  - B. have disc shape
  - C. studied by scanning electron microscope
  - D. **accumulate at beaches**
  - E. composed of calcite
- Regarding the detrital mudstone, the following statements are true, except
  - A. **Final destination of detrital clay minerals is accumulation on continental shelves & slopes**
  - B. The majority of clay & silt-grade Qz in mudrocks derived from erosion of continental rocks & soils
  - C. Wind transported dust up to 1000's Km from source areas to the desert where loess was deposited
  - D. Rivers transported vast quantities of silt & clay in suspension to be deposited in floodplains, lakes, deltaic environment & nearshore & offshore marine
- Sylvite is a
  - A. Borate
  - B. **Chloride**
  - C. Sulfide
  - D. Sulfate
  - E. Carbonate
- Regarding coal petrology which of the following statements is not correct
  - A. Macerals of coal are analogous to minerals in rocks
  - B. Liptinite maceral group originated from resin & algae
  - C. Vitrinite maceral group originated from wood
  - D. **Inertinite maceral group originated from cuticle & spores**
- The spores & resinous parts of plants in coal are termed
  - A. **Liptinite**
  - B. Vitrinite
  - C. Coalinite

- D. Inertinite
- E. Swampite
- Upwelling currents exhibit the following features, except
  - A. originate from the deep ocean & flow towards water surface
  - B. lead to high organic productivities & phytoplankton growth in surface waters
  - C. **active now along the western margin of Africa & South America**
  - D. do not play any role in the formation of cherts
  - E. rich with nutrients, such as dissolved phosphorous & nitrogen
- Which of the following is an organic constituent of coal
  - A. Quartz grains
  - B. Pyrite
  - C. Some heavy minerals
  - D. **Macerals**
  - E. Clay minerals
- Carbonate platforms include the following, except
  - A. Ramp
  - B. Epeiric platform
  - C. Isolated platform
  - D. **Coastal sabkha**
  - E. Rimmed shelf
- Carbonate diagenesis include the following, except
  - A. Neomorphism
  - B. Microbial micritization
  - C. **Cross stratification**
  - D. Dissolution
  - E. Cementation
- A drusy fabric of sparite
  - A. **Shows an increase in crystal size away from the substrate or cavity wall**
  - B. precipitated before the fibrous calcite of marine
  - C. Is always cloudy or turbid
  - D. Is characterized by equant or equal calcite crystals