

(J)

set 1

(Q.P. code 54449)

Q1. A

- (i) fossils
- (ii) spire
- (iii) Geochronology
- (iv) superposition
- (v) more
- (vi) Brachial
- (vii) body whorl / living chamber
- (viii) genital
- (ix) tube foot
- (x) Paleozoic

Q1 B (i) Index fossil → used for age determination, wide geographic distribution & narrow age range


- (ii) concurrent Biozone → depends on FAD & LAD of two taxons
- (iii) Adaptive radiation → with favourable conditions diversification of taxon & group.
- (iv) orthoconatic suture → straight, least evolved
- (v) cross cutting → the structure that cuts is younger than the structure being cut.
- (vi) sequence stratigraphy → used to identify diff sedimentary deposits and explain them in terms of time line on the basis of variation of sediment supply.
- (vii) orthogenesis → straight line evolution eg. horse
- (viii) Aboral → top surface having periproct & coronal region dorsal surface.
- (ix) Pallial sinus → An indentation or notch in pallial line to accomodate siphons in living forms. On posterior side.
- (x) Prosogyral shell → the umbo towards the anterior side.

2) a) Lithostratigraphy is the study of strata on the basis of variation of lithological characters. units are bed  $\rightarrow$  member  $\rightarrow$  formation group  $\rightarrow$  supergroup. (1½ for each point + 1 extra for complete write up.)


<u>Chronostratigraphy</u>	<u>Geochronologic</u>	
Eonothem	Eon	5x2 = 10
Erathem	Era	
System	Period	
Series	Epoch	
Stage	Age	
Chronozone	Chron	
strata deposited in that time	time for dep of the litho unit	

c) Transgression  $\rightarrow$  sea level rise  $\rightarrow$  landward movement of shoreline vertical profile in which more offshore sediments stacked on top of nearshore sediments (4 description + 1 dia)

Regression  $\rightarrow$  sea level fall  $\rightarrow$  seaward movement of shoreline vertical profile in which offshore sediments are down end on top of it beach environment sediments are deposited (4 + 1)

d.) Acme biozone  $\rightarrow$   - one sp. is abundant  
 First appearance datum  $\downarrow$  - date/age from where the sp. is reported to start.

concurrent biozone  based on 2 or more sp. occurrence

Taxon biozone  $\rightarrow$   based on range of taxon.  $2\frac{1}{2} \times 4 = 10$

Q.3 a) Palaeontology study of life of past (plants & animals)  
 applications

- Biostratigraphy
- Paleoceanography
- Paleoclimatology
- Paleoenvironment
- Economic geology
- Paleogeographic reconstruction
- etc.

(2 + 1½ x 4) for each application description

3b) based on the principle of faunal succession. Different types of biozones are taxon, concurrent, interval, lineage, assemblage, abundance (2 x 5 = 10) (Q.P code 54449)

3c) Patterns of evolution → convergent, divergent, parallel, adaptive, mutation, orthogenesis, & bradygenesis, sympatricogenesis, etc. (2 x 5 = 10)

3d) Reasons → volcanic impact, meteorite, tectonic activity, salinity change, sea level fall, climate change, competition for nutrition, etc. (2 x 5 = 10)

4a Ichnofossil are trace fossils, life activities & not the organism → feeding, resting, grazing, escape, dwelling traces. (7 for full description)

+  
paleoenvironment, climate, ecology, mode of life, etc can be inferred, top & bottom of the beds can be deciphered (sole markings), 3 for application

4b ambulacra → more no. of plates  
more tube foot in each plate  
evolved to petal shape in irregular forms  
became sunken

interambulacra → plates increased  
Modified in irregular echinoids

(for each change along with dia 2 marks)

4c schizodont, pachyodont, desmodont, taxodont, dyssodont, heterodont. Evolution from schizodont → taxodont, desmodont → heterodont (7 for description + 3 for evolution)


4d  
orthoceratic —————  
Nautilitic ~~~~~  
Goniatitic ^^^^  
Ceratitic ~~~~~  
Ammonitic ~~~~~

5.) a) Eon, Era, period, Epoch, age, chron  $\frac{1}{2}$  for each + 1 for full descrip

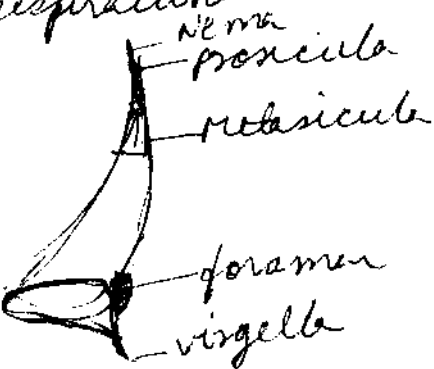
b.) Beds expand in a lateral fashion, laterally continuous (4)  
 rocks separated by valleys or erosional features were otherwise continuous (4 Marks)


c.) Mould: organic body leaves a void, which forms a mould (2)  
 can be external or internal

Petrification: Materials of original organic matter are removed with simultaneous addition of new mineral matter. 2 for each.

d.)  calyx, depression  
 tabulae: transverse growth lines 2 for each  
 (1 description + 1 sketch)

e. sunken petal  $\rightarrow$  More area, water remains for more time & thus allows better absorption of food & oxygen for respiration (4)

f.)  nematode  
 proboscis  
 foramen  
 virgella

 thick stipe  
 1 for each  
 1/4