

B.Sc. Zoology Part III

CENOZOIC ERA

- The Cenozoic is the latest era.
- It began 63 million years ago and continued up to the present.
- The name Cenozoic is comprised of two Latin words *koinos* and *zoilos* meaning recent and life respectively.
- Though this era is marked by great adaptive radiation in birds, insects and flowering plants yet it is called age of mammals.
- This era is divided into two periods:-

1. Tertiary period:-

- This period began 63 million years ago and continued up to 1 million years ago.
- The name tertiary was given by **Giovanni Arduino (1960)**.
- This period is characterized by the flourishing of mammals.
- Its early warm climate become colder latter on tertiary period is divided into 5 epoch.

(i) Paleocene epoch:-

- This epoch began 63 million years ago and continued up to 58 years ago.
- The climate was fairly warm in the beginning but become colder latter on.
- Mammals of this epoch were primitive in the beginning.
- Modern mammals like lemurs originated.
- Marine mammals like whale and sea caw prefer to enter seas.
- Bats became Arial.
- Modern birds also arose during this epoch.

(ii) Eocene:-

- This epoch begins 58 million years ago and continued up to 36 million years ago.
- Climate less hot during this epoch.
- There was a wide spread erosion of mountains.
- Archaic mammals or monotremes were present in the beginning but they became extinct during late Eocene.
- Some of the existing reptiles turtles and alligators reached the peak of development.
- The progenitors of pig, rat, horse, camel and monkey were found.

- Elephant appeared by the end of this epoch and developed along the same line as the horse.
- Carnivores and hoofed mammals were developed.

(iii) Oligocene:-

- This epoch began 36 million years ago and continued up to 25 million years ago.
- The climate remained hot during this epoch, however some parts began to have cooler weather.
- Erosion and great movements of the earth crust occurred.
- Turtles, crocodiles and alligators well developed.
- Hawks and vultures hovered in the sky.
- Archaic mammals became extinct.
- Horses obtained Miohippus stage.
- Rhinoceros has attained large size.
- The true flesh eaters like dogs, cats and some other small mammals along with rodents and insect eating mammals became most abundant. Anthropoid apes made their appearance.

(iv) Miocene:-

- This epoch began 25 million years ago and continued up to 13 million years ago.
- The Alps reached their highest height and the Himalayas were pushed up.
- The temperature was lowered.
- So the climate remained somewhat cold.
- This epoch was favorable for rapid rise and evolution of grazing animals.
- The horses achieved Meryhippus stage.
- Long slender limbed camels, oxydactylus, small foxes, American pig etc. were abundant.
- The ungulate rodents, elephant, carnivores, sirenians, dolphins and whales etc. were spread out.
- Ancestors of whales etc. were appeared during this epoch.
- This epoch considered as the golden age of mammals.

(v) Pliocene:-

- This epoch began 13 million years ago and continued up to 1 million years ago.

- Mountain continued to rise in western North America.
- The climate remained cooler and drier.
- Sea water turned North West.
- Europe with decline of forests and grassland became more widespread.
- One toad horses developed during this epoch.
- Fossils of camels, tapirs, rhinoceros, mastodons and hippopotamus are found from the rock of this epoch.
- Australopithecus (first ape man) appeared in this epoch.

2. Quaternary period:-

- This period began 1 million years ago and continued up to present.
- This period is called the age of man is divided in to two epochs.

(i) Pleistocene:-

- This epoch began one million years ago and continued up to 10 thousand years B.C.
- This epoch witnessed four times glaciation alternating with warmer intervals widespread glaciation lowered the sea level.
- Ice was formed in the Polar Regions and on the mountains in temperate parts and the high altitude.
- During this various Lakes like Swiss Lakes and those of Northern Italy, English and Scottish Lakes and Great Lakes between Eastern Canada and United States were formed.
- The repeated glaciation and the cold weather caused diversifications and modifications of animals.
- Saber toothed tigers, ground sloths and mammoths became extinct.
- The erect bipedal primates appeared during early hours of this epoch.
- More advanced humanoids appeared and spread widely through the old world during glacial and interglacial phases.
- This included *Homo heidelbergensis* (China) and *Pithicanthropus erectus* (Java).
- The entire Pleistocene epoch was dominated by man.

(ii) Holocene:-

- This is an epoch of 10 thousand years B.C.
- The climate has again become hot during this epoch.
- Ice formation become reduced.
- Deserts became spread over large areas.

- Modern species of man *Homo sapiens* evolved.
- Man was forced to cultural evolution and got physiological as well as intellectual powers during this epoch.
- Hence this epoch is regarded as the **age of man**.

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