1. Explain antibiotic, resistance observed in bacteria in light of Darwinian selection theory.
Ans: According to Darwin, environment selects organisms with favourable variations and these organisms are allowed to survive. When a bacterial population encounters a particular antibiotic, those sensitive to it die. But some bacteria having mutations become resistant to the antibiotic. Such resistant bacteria survive and multiply quickly as the competing bacteria have died. Some the resistance providing genes become widespread and entire bacterial population becomes resistant.

2. Find out from newspapers and popular science articles any new fossil discoveries or controversies about evolution.
Ans:
Chimps are more evolved than humans (The Times of India):
Chimpanzees are more evolved than humans, a study suggests. There is no doubt that humans are the more advanced species. But a comparison of 14,000 human and chimpanzee genes shows the forces of natural selection have and the greatest impact on our ape cousins.
The researchers' discovery challenges the common assumption that our large brains and high intelligence were the gifts of natural selection. Humans and chimps followed different evolutionary paths from a common ape ancestor about 5 million years ago. Both underwent changes as the fittest survived to pass their genes on to future generations. But the US study shows that humans possess a 'substantially smaller' number of positively-selected genes than chimps.

3. Attempt giving a clear definition of the term species.
Ans: Species is population or group of individuals that have potential of interbreeding and are able to produce viable, fertile young ones but are reproductively isolated from members of other species.

4.Try to trace the various components of human evolution (hint: brain size and function, skeletal structure, dietary preference, etc.)
Ans:

	Evolution of Brain (in human-brain volume)	Skeletal structures
•	*Australopithecus* (450-600 cc) *Homo erectus* (900-1200 cc) Neanderthal man (1400 cc) Cromagnon (2200 cc) *Homo sapiens* (2500 cc)	**In apes** – The backbone forms a simple arch, arms are longer than legs. **In man** – The backbone is S-shaped and legs are longer than arms.
•	Increase in grey matter	
•	Increase in no.of gyri and sulci in brain hypothalamus	

Dietary preference:
Dryopithecus and Ramapithecus — herbivores Australopithecus Africans, Homo Carnivores habilis
Homo erectus, Homo sapinens — Omnivores

5. Find out through internet and popular science articles whether animals other than man has self-consciousness.
Ans: Recent studies on self consciousness says gibbons are the nearest to human in this respect. Apes and orangutans came next. Among domestic animals, dog and other members of canidae family show subtle self consciousness.

6. List 10 modern-day animals and using the" internet resources link it to a corresponding ancient fossil. Name both.
Ans:
(i) Cockroach, Limulus (king crab), Neopilina, Latimaria (Fish) are fossil that has remain unchanged over years.
(ii) Trilobites- fossil arthropods
(iii) Lung fishes - connecting link between fishes and amphibians
(iv) Peripatus - connecting link between annelids and arthropods .
(v) Woody mammoth - ice fossils
(vi) Gastropods - mould and cast fossil
(vii) Giant elk - amber fossil of asphalt
(viii) Dinosaur footprint - imprints

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