**Question 1**

Which is true regarding the development of the cranium?

A The two halves of the mandible at birth fuse by the 5th year of life

B The bones of the calvaria and cranial base develop by intramembranous ossification only

C Eruption of permanent teeth is complete by year 15.

D The sternocleidomastoid muscles help complete the development of the mastoid processes, which are absent at birth

Explanation (D)

The bones of the calvaria and some parts of the cranial base develop by intramembranous ossification. Most parts of the cranial base develop by endochondral ossification. The facial aspect of the newborn is small compared to the calvaria (skull)-approximately one eighth of the cranium (because of the precocious growth and development of the brain and eyes). The adult facial skeleton forms one third of the cranium. There are no mastoid processes at birth, they form gradually during the first year of life as the sternocleidomastoid muscles complete their development and pull on the mastoid parts of the temporal bones. The mandible of the newborn consists of two halves of which the union begins in the first year and fusion occurs by the end of the second year. Eruption of permanent teeth is not complete until early adulthood. Growth of the face is associate with enlargement of the paranasal sinuses which adds to the final shape of the face and resonance to the voice

**Question 2**

Which bone in a child is the same size as adult at birth?

A Parietal bone

B Ethmoid bone

C Auditory ossicles

D Squamous bone

Explanation (C)

The auditory ossicles are present and take on their characteristic adult shape and size between 9-15foetal weeks

**Question 3**

Which bones form the borders of the anterior fontanelle in an infant?

A 2 frontals, 2 parietal bones

B 1 frontal, 2 parietals and the squamous bones

C 1 frontal, 1 parietal and 2 frontal bones

D 2 frontal, 2 temporal and the occipital bones

Explanation (A)

The anterior fontanelle lies between four bones. The 2 parietal bones bound it behind, the two halves of the frontal bone lie in front. It overlies the superior saggital dural venous sinus. The anterior fontanelle is usually not palpable after the age of 18 months.

**Question 4**

Regarding ossification centres, which of the following statements is correct?

A The capitate ossifies at 10 years

B The medial epicondyle fuses at 20 years

C The pisiform ossifies by the end of the 1st year

D The two centres of radius ossify by 15years

Explanation (B)

The capitate bone ossifies first (within the first year) and the pisiform ossifies by year 10. The upper end of the humerus (head, tubercles) fuse with the shaft at about 20years. The lower end of the humerus (trochlea, capitulum and lateral epicondyle) fuse with the shaft at about 15years. The medial epicondyle (is a separate centre) fuses at 20yrs. The radius starts ossifying in cartilage form a centre in the middle of the shaft at the eighth week. The clavicle is the first bone to ossify in the foetus

Note: CRITOE 1, 3, 5, 7, 9, 11' mnemonic. The ages at which these ossification centers appear and are highly variable. It does not tell you when the bone OSSIFIES

Capetellum 1 Radius 3 Internal (medial) epicondyle 5 Trochlea 7 Olecranon 9 External (latreral) Epicondyle 11

**Question 5**

Which of the following statements is correct regarding the newborn skull?

A The posterior fontanelle has as its borders the occipital,parietal,temporal bones

B The anterior fontanelle has as its borders the frontal,parietal,temporal,sphenoid bones

C The skull has similar vertical proportions to the adult

D The bones of the skull develop by intramembranous ossification and by endochondral ossification

Explanation (D)

The bones of the calvaria develop by intramembranous ossification and most parts of the cranial base by endochondral ossification. The anterior fontanelle is bounded by the halves of the frontal bones anteriorly and the parietal bones posteriorly. The posterior fontanelle is triangular and is bounded by the parietal bones anteriorly and the occipital bone posteriorly