COMPETANCY BASED TEST

October - 2023

CLASS X
SCIENCE

CASE STUDY 1:-

Adolescence is the period during which several changes occur in a human body to attain reproductive maturity. The adolescence period usually begins around 11 years of age and lasts till the 18^{th} year in girls and 19^{th} year in boys. The beginning of this period is known as Puberty. On attaining puberty the male gonads called testes start producing male gametes called sperms and the female gonads called ovaries start producing female gametes called Eggs. In addition to producing gametes, testes and ovaries also start secreting sex hormones. Sex hormones are responsible for the development of secondary sexual change in males and females.

On the basis of the above case and related studied concepts, answer the following questions:-

a) During puberty, the general body growth begins to,

i) Slow down as reproductive tissues begin to mature

ii) Increase as reproductive organs begin to mature.

iii) Stop totally as reproductive tissues begin to mature.

iv) Remain unaffected as reproductive tissues disappear.

Ans : i) Slow down as reproductive tissues begin to mature

Explanation :- Their body shape begins to change as their shoulders broaden and they gain weight and muscle. A growth spurt usually happens between ages 12 and 15.

b) Which of the following information is incorrect observed at puberty in boys:-

i) Release of testosterone hormone

ii) Occurrence of cracking of voice

iii) Puberty starts at the age of 10 years.

iv) Testes secrets the sex hormones.

Ans : iii) Puberty starts at the age of 10 years.

Explanation :- Rest will occour

C) The female gamete is produced in :-

i) Ovule

ii) Ovary

iii) Fallopian tube

iv) Uterus

Ans : ii) Ovary

Explanation :- Overy is female reproductive organ.

D) The changes that appear during puberty that are common are:-

i) Increase in height

ii) Attain reproductive maturity.

iii) Secretion of estrogen hormone

iv) Formation of gametes.

A) (i) and (ii) B) (iii) and (iv) C) (i), (ii) and (iv) D)(iii)

Ans :- D)(iii)

Explanation :- Oestrogen is one of the main female sex hormones. It is needed for puberty, the menstrual cycle, pregnancy, bone strength and other functions of the body.

E) Which of the following character we do not observe in girls

i) Release of estrogen hormone

ii) Broadening of shoulders

iii) Broadening of pelvis

iv) Initiation of menstruation.

Ans : ii) Broadening of shoulders

Explanation :- Rest will occour in Girls.

CASE STUDY 2:-

A student take four metal P, Q ,R, and S and carried out different experiments to study the properties of metals. Some of the observations were:

*All metals could not be cut with knife except metal R.

*Metal P combined with oxygen to form an oxide M_2O_3 which reacted with both acids and bases.

*Reaction with water

P – Did not react either with cold or hot water but reacted with steam

Q – Reacted with hot water and the metal started floating.

R- Reacted violently with cold water

S- Did not react with water at all.

On the basis of the above case and the related studied concepts, answer the following questions:-

a) Out of the given metals the one which needs to be stored under kerosene is:-

i)P ii)R iii) S iv) Q

Ans : ii)R

Explanation :- Property of Sodium as per statement given.

B) Out of the given metals , the metal Q is

i) Iron ii) Zinc iii) Potassium iv) Magnesium

Ans : iv) Magnesium

Explanation :- Magnesium as per statement given.

C) Metal which form amphoteric oxides is

i) P ii) Q iii) R iv) S

Ans : i) P

Explanation :- Metal aluminum form amphoteric oxides or hydroxides.

D) The increasing order of the reactivity of the four metals is:-

i) P< QR <S ii) S<R<Q<P iii) S<P<Q<R iv) P < R< Q< S

Ans : iii) S<P<Q<R

Explanation :- As per reactivity series.

E) The metal R may be:-

i) Sodium ii) Potassium iii) Both (i) and (ii) iv) Aluminum

Ans : iii) Both (i) and (ii)

Explanation :- True as per properties and statement in case study.

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