--Question Starting--  
Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R).  
Assertion (A): During adolescence, an increase in iron requirements is observed due to the acceleration of growth and the onset of menstruation in females.  
Reason (R): Nutritional needs fluctuate significantly with physiological changes such as puberty, which necessitates a higher intake of specific minerals to support rapid developmental changes.  
In light of the above statements, choose the correct option:  
(1) A is false but R is true.  
(2) A is true but R is false.  
(3) Both A and R are true, and R is the correct explanation of A.  
(4) Both A and R are true, and R is not the correct explanation of A.  
Answer Key: (3)  
Solution:  
Assertion (A) is true. Adolescence is a critical period of growth where there is an increased demand for nutrients to support the growth spurt and physiological changes. For females, menstruation begins, which increases the demand for iron due to blood loss.  
Reason (R) is true and is the correct explanation of Assertion (A). The physiological changes during puberty, including rapid growth and onset of menstruation in females, indeed require increased intake of certain nutrients, notably iron, to support these developmental changes. Hence, both the Assertion and Reason are true, and the Reason correctly explains the Assertion.  
Hence, the correct answer is Option (3).  
  
--Question Starting--  
Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R).  
Assertion (A): Nutritional assessment often employs bioelectrical impedance analysis (BIA) to measure body composition.  
Reason (R): BIA estimates body composition based on the resistance of body tissues to electric currents, which varies according to the amount of body fat and lean muscle mass.  
In light of the above statements, choose the correct option:  
(1) A is false but R is true.  
(2) A is true but R is false.  
(3) Both A and R are true, and R is the correct explanation of A.  
(4) Both A and R are true, and R is not the correct explanation of A.  
Answer Key: (3)  
Solution:  
Assertion (A) is true as bioelectrical impedance analysis (BIA) is a commonly used method for assessing body composition in clinical and research settings. It measures the resistance of body tissues which is an indicator of the cellular health and the body's lean mass versus fat mass.  
Reason (R) is true and provides the correct explanation for Assertion (A). BIA operates on the principle that different body tissues (fat, muscle, water) conduct electricity differently, which allows the estimation of body composition based on the resistance measured when a small electrical current is passed through the body. Hence, both the Assertion and Reason are true, and the Reason correctly explains the Assertion.  
Hence, the correct answer is Option (3).  
  
--Question Starting--  
Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R).  
Assertion (A): Theories of cognitive development, such as Piaget’s stages of cognitive development, emphasize the sequential and predictable patterns of learning and intellectual growth in children.  
Reason (R): Cognitive theories are crucial for understanding how children conceptualize and interact with the world around them, which aids in tailoring educational approaches to enhance learning efficacy.  
In light of the above statements, choose the correct option:  
(1) A is false but R is true.  
(2) A is true but R is false.  
(3) Both A and R are true, and R is the correct explanation of A.  
(4) Both A and R are true, and R is not the correct explanation of A.  
Answer Key: (3)  
Solution:  
Assertion (A) is true as Piaget’s theory is fundamental in developmental psychology, outlining how children progress through distinct stages of cognitive development, each characterized by unique ways of thinking and understanding the world.  
Reason (R) is true and correctly explains Assertion (A). Cognitive theories like Piaget’s provide deep insights into the developmental stages of children’s cognition, which are essential for developing age-appropriate educational methods and interactions that foster cognitive growth and understanding in children. Hence, both the Assertion and Reason are true, and the Reason correctly explains the Assertion.  
Hence, the correct answer is Option (3).  
  
--Question Starting--  
Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R).  
Assertion (A): Effective development communication utilizes empathy to enhance message receptivity and behavioral change among target audiences.  
Reason (R): Empathy in communication helps in understanding and addressing the emotional and psychological states of the audience, which is crucial for reducing resistance and enhancing the persuasiveness of the message.  
In light of the above statements, choose the correct option:  
(1) A is false but R is true.  
(2) A is true but R is false.  
(3) Both A and R are true, and R is the correct explanation of A.  
(4) Both A and R are true, and R is not the correct explanation of A.  
Answer Key: (3)  
Solution:  
Assertion (A) is true. In the context of development communication, employing empathy allows the communicator to connect on a deeper level with the audience, facilitating a more effective transmission of messages intended to alter behaviors or improve conditions.  
Reason (R) is true and accurately explains why empathy is effective. Understanding the emotional and psychological states of the audience through empathy can significantly lower barriers to communication, making the information more acceptable and likely to be acted upon. Hence, both the Assertion and Reason are true, and the Reason correctly explains the Assertion.  
Hence, the correct answer is Option (3).  
  
--Question Starting--  
Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R).  
Assertion (A): Integrating sensory evaluation in food science enhances the development of food products that better meet consumer expectations.  
Reason (R): Sensory evaluation methods systematically gather, analyze, and interpret responses to products as perceived through the senses of sight, smell, touch, taste, and hearing, which are critical for consumer product acceptance.  
In light of the above statements, choose the correct option:  
(1) A is false but R is true.  
(2) A is true but R is false.  
(3) Both A and R are true, and R is the correct explanation of A.  
(4) Both A and R are true, and R is not the correct explanation of A.  
Answer Key: (3)  
Solution:  
Assertion (A) is true. In food science, sensory evaluation is a crucial tool used to assess the acceptability of food products. It helps in understanding how well a product will be received by consumers based on its sensory attributes.  
Reason (R) is true and provides a precise explanation of Assertion (A). By employing methods that evaluate the sensory response to products, food scientists can fine-tune recipes to better align with consumer preferences, thus enhancing the likelihood of product success in the market. Hence, both the Assertion and Reason are true, and the Reason correctly explains the Assertion.  
Hence, the correct answer is Option (3).