

2. (Throughout, allow references to "blood sugar" as equivalent to "glucose".)

(a) Eg, muscular activity/exercise. (1)

(b) 20 (or 21). (1)

(c) Any two answers.

Passage into more permeable cells or just "Passage into cells" but *not* the latter as well as references to respiration or storage.

Conversion to fatty acids / Storage as glycogen/fat/in liver (but *not* storage as glycerol).

Used for respiration/glycolysis/metabolic activity. (Allow references to "releasing energy" as an equivalent idea; do not be too hard on answers referring to the 'production' or 'creation' of energy.)

Answers of "Some is used", "Some is broken down" or "Some is stored" are *too vague* (unless in *later* answers, the candidate indicates correct knowledge of the fate of glucose). (2)

(d) Increased levels of glucose stimulate insulin release (1) from the pancreas / pancreas monitors glucose levels (1). This promotes use/storage of glucose (1) so decreasing levels of glucose trigger reduced insulin release (1). Insulin is removed from blood (deactivated/destroyed/excreted/reabsorbed into cells but *not* "used up by glucose") (1). (To gain the third mark, reference *must* be made to reduction of insulin release/removal from blood).

(Allow appropriate references, in context, to feedback or negative feedback.) MAX (3)

(e) (i) Fatty acids were released from fat reserves *during the period of fasting* (or other reference to lack of food intake).

Do *not* allow answers such as "Fats are utilised for energy in the absence of glucose.". (1)

(ii) As glucose is absorbed into the blood, fat reserves are no longer needed/utilised / fatty acids are no longer released. (1) Those already in the blood are respired / converted back to storage fats / removed from the blood (but *not* excreted). (1) (2)

(f) Glucose is quickly absorbed into the blood so a rapid change is seen. (or equivalent idea) (1)
Suitable explanation of a delay before the fatty acids start to change, eg, time taken for glucose to reach pancreas/secretion of insulin/insulin affecting fat stores. (1) Allow comments about feedback delays, if appropriately worded. (2)
(12)