

FOOD SCIENCE

SUBJECT 9194

PAPER 02

GENERAL COMMENTS

This year's performance showed some improvements in both sections. However, candidates are still encouraged to logically allocate and distribute adequate time to each question so that they attempt all the four questions. In some centres, candidates failed to complete the examination.

SECTION A

QUESTION 1

- (a) (i) Most candidates answered this question and did exceptionally well. Candidates compared the structural differences quite clearly and scored good marks here.
- (ii) This was a challenging question to those candidates who attempted it. Candidates failed to explain why sucrose is a non-reducing sugar. The expected response was:
- In sucrose, these groups, the aldehyde in the glucose and the ketone group in fructose are not available to participate in a reaction since they are linked together in the glycosidic bond.
- (b) The question on the absorption and transportation of monosaccharides by the body was done well. Candidates knew that this takes place in the ileum up to the point that the capillaries carry them to the portal vein through which they reach the liver.
- (c) This question required candidates to describe Lean Body Mass (LBM). Unfortunately they described Basal Metabolic Rate (BMR). They also wasted precious time explaining the factors affecting the BMR instead of explaining the importance of LBM in determining the BMR, hence lost marks.
- (d) (i) Another question that was well answered. The factors that cause obesity and the dangers of obesity were well narrated although hormonal and psychological factors were not mentioned.

- (ii) Most candidates knew about exercising as a way of reducing weight. There was, however, a lot of repetition, for example, reduction of energy giving foods – then reduction of carbohydrates. At A-Level, candidates are expected to mention the removal of saturated fats in the diet as well as reduction of the unsaturated fats.

QUESTION 2

- (a) This was an unpopular question in this section as very few candidates attempted it. Those who attempted it did not do so well as the formation of the peptide bond was not known. Some candidates did not have the required diagram that would have helped to show the formation of the peptide molecule.
- (b) Defining the nitrogen balance was satisfactorily done but highlighting the negative and positive nitrogen balance proved difficult. Many candidates confused the two hence lost marks.
- (c) The process of balanced nitrogen proved difficult to most candidates. The process involves:
- deamination
 - urea and uric acid formation
 - formation of energy
 - sweating and
 - respiration
- (d) Candidates did not remember the functions of the stated amino acids.
- (e) Functions of lipoproteins were confused with the functions of fats. Candidates forgot the purposes of:
- chylomicrons
 - very low density lipoproteins (VLDL)
 - low density lipoproteins (LDL)
 - high density lipoproteins (HDL)

QUESTION 3

Many candidates who attempted this question did very well. 3(a)(i), 3(a)(ii), 3(b)(i) and 3(b)(ii) were given good answers. However, the challenge came on questions 3(c) and 3(d).

- (c) In question 3(c), a simple experiment using ascorbic acid tablet and (DCPIP) dichlorophenol indophenol was required. An individual is given the tablet and asked to wait for 12 hours. Urine is collected. DCPIP is used in the urine and should turn pink in colour.

An individual with a compromised ascorbic acid status will have little or no ascorbic acid in the urine as the DCPIP will not change colour.

- (d) How acids are introduced into the body was also a challenging question. Acids could be introduced by using the following:
- Phosphorus, sulphur and chlorine in foods such as meat, eggs, cereals and plums.
 - Protein foods containing sulphur and phosphorus, during oxidation and metabolism, produce sulphuric acid and phosphoric acid,
 - Chlorine from the common salt (NaCl),
 - Acetic acid,
 - Krebs cycle/Citric acid cycle.

SECTION B

QUESTION 4

This was the most popular question in this section. Almost all the candidates attempted this question and scored good marks. However, question 4(c) was a bit challenging to some candidates as they could not come up with the five factors that can affect heat and mass transfer during preservation of vegetables by the drying method. The following factors and a clear explanation were expected:

- surface area,
- temperature,
- air velocity,
- humidity,
- evaporation,
- water content.

QUESTION 5

This was another very popular question in this section and all those who answered this question scored very good marks. Good answers were given to 5(a)(i), 5(a)(ii) and 5(b). In 5(c)(i) and (ii), answers were marred by repetition.

Candidates failed to give different benefits to the consumer and the shopkeeper in 5(c)(i). In 5(c)(ii), candidates just wrote the same advantage to all the packagings given, hence lost marks.

QUESTION 6

- (a) Though not a very popular question, a few candidates who attempted this question did well. They understood what turgidity is and gave clear explanations on how it determines the structure of vegetables and fruit. Even the structural changes were well narrated.
- (b) Candidates also gave good answers on how enzymic browning takes place but question 6(b)(ii) rather confused the candidates as the following precautionary measures were not stated, i.e.:
- blanching
 - using decreased pH
 - use of acid juices
 - inhibiting enzyme activity
 - vacuum packing
- (c) A few candidates gave good answers but many forgot to justify their inclusion/use when processing vegetables and fruits and also did not come up with at least three additives:
- flavourings - used to replace flavours lost during processing and storage,
- emulsifiers - bring out the correct consistencies,
- humectants - they retain moisture and prevent drying out of dried fruits.