

## FOOD SCIENCE

### SUBJECT 9194

#### PAPER 03

#### COMMENTS ON INDIVIDUAL QUESTIONS

#### QUESTION 1

- (a) The question required candidates to investigate the quantity of pectin in oranges and lemons. Most candidates managed to make correct observations showing that oranges produced a moderately firm gel and lemons, a very firm gel.
- (i) Most responses showed that candidates understood that lemon sample had a firmer gel.
  - (ii) Most candidates were clever enough to deduce from the previous question and the experiment that orange fruit was less appropriate for jam making because of its limited pectin content.
- (b) Most candidates made correct observations of gel formation in the five samples, given the different conditions. A few candidates lost marks by failing to focus on gel formation and focused on colour change.
- (i) Very few candidates were able to define the term "control" in this experiment. Most candidates referred to the term as an "experiment" instead of a "check" or "standard" for comparison.
  - (ii) The majority of candidates managed to list down pectin and sugar but citric acid was just written as "acid". Heat, duration and cooking time were often disregarded.
  - (iii) Most candidates were able to identify sample G as the sample that provided the best conditions for gel formation but could not give the reasons why. Candidates were required to go further and explain the effect of sample G conditions on gel formation.
  - (iv) Most responses to this question were correct. Some of the answers were not clear as to how the Vitamin C is lost, e.g. Vitamin C is lost during preparation or during boiling.
  - (v) Very few candidates were able to come up with the correct substitute for sugar, i.e. gelatin.

- (vi) The majority of candidates failed to differentiate jams and jellies. Candidates were supposed to give the part of the fruit that is used and how jams and jellies look like.

## QUESTION 2

- (a) (i) Candidates were required to investigate the presence of additives in meat by observing colour changes in two samples in which malachite green solution was added. Most candidates were not able to identify the initial colour of the meat in both samples. Most candidates managed to observe the dye decolourisation of sample A but failed to note the development of a blue-green colour in Sample B.
- (ii) Most candidates failed to identify the additive used in the meat but managed to give the correct effects of the additive.
- (iii) Candidates generally did badly in this question. They failed to relate the decolourisation of malachite green solution to the presence of Sulphites in Sample A and vice versa. They also failed to describe the reaction.
- (iv) Most candidates managed to explain the purpose of grinding meat but failed to give the correct reason in this experiment.
- (b) Most candidates were able to note the presence and absence of starch in samples C and D respectively.
- (i) Correct sample showing positive starch test was identified by the majority of candidates.
- (ii) The question was badly answered. Most candidates could not give correct use of starch substances in meat processing. Most responses focused on the nutritional aspect of starch.

## QUESTION 3

- (a) Results of the experiment were poorly determined right across the table, from the initial colour of the oil, time to change colour, and the final colour. Accurate observations and description of results are always encouraged.
- (b) Most candidates did badly in this question. Irrelevant observations were made though the question was clear that the candidates took note of the rate of colour formation in oil/fat. Most candidates focused on the rate of colour formation in food samples and not fat/oil.

- (c) Again, most candidates focused on the effect of breadcrumbs on the chicken and not oil. Candidates are encouraged to read and understand the question before attempting to answer it.
- (d) The question was also done badly. Colour formation is the only change known by the majority of candidates.
- (e) Very few candidates were able to explain scientifically how the change occurs. In some instances candidates referred to the changes to food stuffs and not the oil.
- (f) The question was well done. Responses showed good understanding of functions of lipids in the body.