**1.**

(b) *causes* ***[2 max]:***

genetic component / high-risk ethnic group (Aboriginal, Asian, Pacific  
Islander, Hispanic, Pima);

obesity (BMI > 27 kg / m2) / diets high in fat / sugar;

*symptoms* ***[2 max]:***

poor ability to clear glucose from the blood is used to diagnose / high

blood glucose;

frequent urination / thirst / tiredness;

glucose detected in urine; 4 max

[6]

**2.** (a) minerals are usually elements whereas vitamins are compounds;

minerals are inorganic while vitamins are organic; 2

(b) iodine deficiency can lead to goitre / mental retardation;

iodine is necessary for thryoxine production;

dietary supplementation usually through iodized salt;

cost to supplement is minimal but cost of deficiency is high;

few foods rich in iodine / lack of marine food in diet can lead to deficiency; 3 max

[5]

**3.** (a) component of food that performs a physiological function in  
the body / chemical substance that must be supplied to the  
body (from its environment) 1

(b) A / retinol, for visual pigments / rhodopsin;  
B12 (not B) / cyanocobalamin, for enzyme production;  
C / ascorbic acid, anti-oxidant / collagen synthesis;  
D / calciferol, helps calcium uptake, for strong bones / teeth;  
E / tocopherol, anti-oxidant; 2 max  
*Allow other valid examples.*

(c) saturated fats have no double bonds / unsaturated fats have one  
or more double bonds;  
saturated fats raise cholesterol level;  
(higher) risk of CHD / coronary heart disease;  
(higher) risk of arteriosclerosis;  
many unsaturated fats cannot be synthesized by the body,  
saturated fats can;  
unsaturated fats essential to the body, saturated fats are not; 3 max

[6]

**4.** (a) (i) parsley; 1

(ii) egg; 1

*If the answers to A1 (a) (i) and (ii) are correct, but inverted, ie (i) egg and (ii) parsley, award* ***[0]****, but apply Error Carried Forward (ECF) to marking points (b) and (c). Write ECF beside the answer and use the alternative marking points given below.*

(b) plant products more effective overall / animal products least effective;  
the three / four / five most effective foods are all plant products / ratios given of 3 plants; but soy-beans is an exception / similar to egg; potato and skimmed milk are similar in effectiveness;

*With ECF:*

plant products least effective overall / animal products more effective;  
the three / four / five least effective foods are all plant products / ratios   
given of 3 plants;  
but soy-beans is an exception / similar to egg;  
potato and skimmed milk are similar in effectiveness; 3 max

(c) give supplements of parsley / garlic / onion to a group of people;  
use women after the menopause / with osteoporosis;  
use women with ovaries removed;  
have another control group of similar people who are not given the supplement;  
measure changes in bone density during the trial period / measure calcium loss;

*With ECF:*

give supplements of egg / meat / soy-bean to a group of people;  
use women after the menopause / with osteoporosis;  
use women with ovaries removed;  
have another control group of similar people who are not given  
the supplement;  
measure changes in bone density during the trial period / measure  
calcium loss; 3 max

[8]