

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE O Level

MARK SCHEME for the May/June 2006 question paper

5090 BIOLOGY

5090/06

Paper 6

maximum raw mark 40

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- 1 (a) (i) F1: no fat/oil, starch present ; [1]
F2: fat/oil present, no starch ; [1]
- (ii) test for fat: break up/prepare food ;
add/mix with ethanol ;
ref clear (solution) ;
add/pour into water ;
cloudy if positive/fat present ; [up to 3]
- (other test: allow 1)
- test for starch: add iodine (solution) – food turns black ; [1]
- (b) (i) In Table 1.2:
F1: 2 F2: 11 ; [1]
- (ii) F1: $20 \times 2 \times 4.2 \text{ over } 0.25 = 672$;
F2: $20 \times 11 \times 4.2 \text{ over } 0.5 = 1848$;
F2 more than F1 ; [3]
- (iii) F2 contains fat ;
higher energy content in fat ; [2]
- (iv) repeat and average ;
same starting temperature of water ;
reduce delay in heating AW ;
insulate test-tube ;
increase area being heated ;
OVP ; [up to 3]
- [Total : 15]
- 2 (a) (i) crush/cut up in water ;
heat with Benedict's ;
ref specified amount ;
use water-bath ; [up to 3]
- (ii) orange/red colour/ppt ; [1]
- (b) higher water potential outside ; [1]
ref osmosis ;
water enters sultana ;
through ppm ;
ref turgor ; [up to 2]
- (c) (i) drawing marks: D.3
- at least 6 cm realistic, clear and clean.
 - marginal pattern of flower edge well attempted.
 - tripartite with some seeds.
- labels:
- seed ;
pericarp/mesocarp/epicarp (outer layer) ;
loculus/placenta/AVP ; [up to 2]

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- (ii) indication on both Figs., accurately measured on Fig.2.3, units ;
 expression and magnification correct ;
 allowance for x 1.5

[3]

[Total : 15]

3 slide preparation:

suitable named material ;
 cut thin section ;
 using razor (blade)/scalpel ;
 point of technique (guard etc.) ;

transfer it to slide – how ;
 into/add mountant/water ;
 put cover glass on ;
 avoid bubbles ;
 – how achieved (lowered with support/at angle ;

named stain (iodine/me Blue) ;
 how applied ;

[up to 5]

microscope:

place on stage ;
 clips on ;
 illumination described ; (mirror/built in light)
 low power focused ;
 to high power ;
 point of care in using HP ;

[up to 3]

recording:

drawing – LP plan ;
 HP of cells ;
 epidermis with no chloroplasts ;
 ref mesophyll with chloroplasts ;
 especially palisade ;

[up to 3]

To max 10

[Total : 10]