5   **(a)**   A–B (lag phase) due to time taken to grow/reach size necessary to form
            buds/time taken for buds to grow before separating;
            nutrient assimilation/activating genes/producing enzymes;
            D–E (decline phase) due to death rate > rate of cell production;
            due to running out of nutrients/build-up of waste;   [4]

   (b) **(i)**   8200 cells mm^{-3};   [1]

         (ii)   Adding more glucose/using a larger flask (to dilute waste or allow
                   more oxygen to diffuse into the solution)/other appropriate answer;   [1]

   (c) **(i)**   Volume = (0.04 × 0.1) = 0.004 mm^3;
                   16 ÷ 0.004/16 × 250 = 4000 cells mm^{-3} [2]

         (ii) **Any two from**
                   • flask not mixed before sampling
                   • samples not obtained from the same depth
                   • clumping of cells
                   • haemocytometer grid not totally filled/overfilled   [2]

         (iii) Dead yeast cells were counted/other appropriate suggestion;   [1]

   (d) (Serial) dilution (or explained);
            when calculating numbers need to multiply by dilution factor;   [2]