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| **A-level Biology – Year 11 transition work** **Exchange** **Quick questions**1. A small organism; (1)2. Three suitable examples, including: oxygen, waste products, nutrients; (3)3. The alveoli; (1)4. Decrease; (1)5. The intercostal muscles; diaphragm muscles; (2)**Total 8 marks****Examination questions****Q1.**(a)     (**P**) Trachea / windpipe and (**Q**) bronchus;*For* ***P*** *or* ***Q****, accept (ring of) cartilage (i.e. not for both)**Accept bronchi**Reject bronchioles**Ignore reference to left or right lung***1**(b)     1.      Increases volume (in lungs / thorax);*Context must be lungs / thorax**Ignore space increases*2.      Lowers pressure (in lungs / thorax);*Accept lungs / chest expand**Ignore reference to ‘change in pressure’*3.      Air (pushed) in by higher outside pressure / down pressure gradient;*Ignore reference to ‘sucked in’***2 max****[3]****Q2.**(a)     As size increases, ratio (of surface area to volume) decreases;*Accept converse.**Comparison required, e.g., smaller organisms have a larger ratio***1**(b)     Two marks for correct answer in range of 1.75 to 1.76032;;*Accept for 1 mark, incorrect answer using radius 0.87 / 0.88 / 0.880 / 0.8802 / 0.88015;****OR****Accept for 1 mark, incorrect answer with correct rearranged equation, e.g.,**Radius =****OR****=****OR****=****OR****r2 = surface area ÷ 4 π****OR****r2 = 9.73 ÷ 12.56****OR****r2 = 0.77 / 0.774 / 0.775***2**(c)     (Measures) small uptake / amount / quantity / volume / concentration / rate (of oxygen uptake);**OR**Avoids use of powers of ten / standard form / many decimal places;*Ignore weight / accuracy***1**(d)     More accurate / less error (in measuring mass);**OR**Causes less distress / damage to animal (to measure mass);**OR**Easier / quicker (to find mass) **because** irregular shapes;**OR**Fewer measurements / calculations;*Ignore references to* ***human*** *error**Accept converse if reference made to volume**Reject if comparison is made with surface area.***1**(e)     (Oxygen used in) respiration, **which** provides energy / ATP;**OR**(Oxygen is used in) respiration, **which** is a metabolic process / chemical reaction;*Reject produces energy**Reject references to anaerobic respiration***1**(f)      1.      No information about egg;2.      So cannot compare all stages (in Table 2);*Idea of comparing all three stages needed*3.      No statistical information / test / t-test / comparison of standard deviations;**OR**No measure of significant differences;*Reject statements that “results” are not significant**Reject references to chi squared or correlation coefficient***3****[9]****Q3.**(a)     1.      Contraction of internal intercostal muscles;2.      Relaxation of diaphragm muscles / of external intercostal muscles;3.      Causes decrease in volume of chest / thoracic cavity;4.      Air pushed down pressure gradient.**4**(b)     19(%);**1**(c)     1.      Muscle walls of bronchi / bronchioles contract;2.      Walls of bronchi / bronchioles secrete more mucus;3.      Diameter of airways reduced;4.      (Therefore) flow of air reduced.**4****[9]** |