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| Question 1: | Which of the following adaptions to cell injury is described as an increased number of cells within an organ? | |
|  | | |
|  | (A) | Atrophy |
|  | (B) | Dysplasia |
|  | (C) | Hyperplasia |
|  | (D) | Hypertrophy |
|  | (E) | Metaplasia |
|  |  |  |
| **Correct Response: C** | | |

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| Question 2: | A clinician-scientist was isolating leukocytes for a biomedical assay. He successfully removed red blood cells (RBCs) from other blood cells by briefly exposing the cell suspension to a hypotonic solution. Other blood cells remained intact while RBCs were lysed.  Which of the following mechanisms best explains the lysis of RBCs? | |
|  | | |
|  | (A) | RBCs are biconcave in shape |
|  | (B) | RBCs are lysed because Osmo > Osmi |
|  | (C) | RBCs cannot pump Na+ out effectively |
|  | (D) | RBCs do not have a nucleus |
|  | (E) | RBCs take up the hypotonic solution too rapidly through pinocytosis |
| **Correct Response: C** | | |

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| Question 3: | A 55 year old hypertensive obese man presents with sudden weakness of the right side of his body. He is subsequently diagnosed to have had a stroke.  Which is the correct order of the progression of events? | |
|  |  | |
|  | (A) | Embolism, thrombosis, ischaemia, endothelial injury |
|  | (B) | Endothelial injury, embolism, thrombosis, ischaemia |
|  | (C) | Endothelial injury, thrombosis, embolism, ischaemia |
|  | (D) | Ischaemia, thrombosis, endothelial injury, embolism |
|  | (E) | Thrombosis, embolism, endothelial injury, ischaemia |
|  |  |  |
| **Correct Response: C** | | |

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| Question 4: | During an experiment, a researcher observes that immediately after mitosis, daughter cells contain unequal numbers of chromosomes.  Improper function of which of the following is most likely responsible? | |
|  |  | |
|  | (A) | Actin |
|  | (B) | Chromatin |
|  | (C) | Lamin |
|  | (D) | Laminin |
|  | (E) | Microtubules |
|  |  |  |
| **Correct Response: E** | | |

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| Question 5: | A nucleosome is a fundamental unit of DNA packaging in eukaryotes, consisting of a segment of DNA wound in sequence around eight histone protein cores.  Which event involves disassembly of the nucleosome? | |
|  |  | |
|  | (A) | Chemotherapy drug treatment |
|  | (B) | Mitosis |
|  | (C) | Protein translation |
|  | (D) | RNA transcription |
|  | (E) | Virus infection |
|  |  |  |
| **Correct Response: D** | | |

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| Question 6: | Following infection of a host cell, the Listeria bacterium can infect neighbouring host cells and evade intracellular detection by generating actin comet tails for propulsion.  Which of the following is the most important nucleator of actin filament growth? | |
|  |  | |
|  | (A) | Arp2/3 |
|  | (B) | Myosin |
|  | (C) | Phosphatidylinositol 3-phosphate |
|  | (D) | Profilin |
|  | (E) | γ-tubulin |
|  |  |  |
| **Correct Response: A** | | |

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| Question 7: | DNA replication is known to be semi-conservative.  Which of the following statements best describes this semi-conservative nature? | |
|  |  | |
|  | (A) | After DNA replication, each daughter cell contains one newly synthesised DNA strand and one DNA strand inherited from the parent cell |
|  | (B) | DNA polymerases need an RNA primer to initiate replication |
|  | (C) | DNA replication only occurs during the S-phase of the cell cycle |
|  | (D) | DNA synthesis only occurs in the 5’ to 3’ direction, regardless of strand |
|  | (E) | During DNA replication, the leading strand is continuously synthesised whereas the lagging strand is synthesised in short fragments |
|  |  |  |
| **Correct Response: A** | | |

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| Question 8: | A 45 year old man presents to the clinic with a history of stage I colon cancer. His father was diagnosed at age 49 with colon cancer and his uncle also had colon cancer diagnosed at age 47. His grandmother had endometrial cancer diagnosed at age 51.  Which of the following genetic defects is most likely responsible for the colon cancer in this patient? | | |
|  |  | | |
|  | (A) | A gain of function mutation in APC gene | |
|  | (B) | A loss of function mutation in MSH-2 gene affecting DNA mismatched repair | |
|  | (C) | A loss of function mutation in Retinoblastoma gene (Rb) | |
|  | (D) | A loss of function mutation in TP53 | |
|  | (E) | A reciprocal translocation involving chromosomes 8 and 14, t(8;14) | |
|  |  |  | |
| **Correct Response: B** | | |  |

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| Question 9: | The figure below shows the 3D reconstruction of a computerised tomography (CT) scan of the foot.    Which of the following anatomical terms best describes the position of the foot shown in the figure? | |
|  |  | |
|  | (A) | Abduction |
|  | (B) | Dorsiflexion |
|  | (C) | Eversion |
|  | (D) | Inversion |
|  | (E) | Plantar flexion |
|  |  |  |
| **Correct Response: D** | | |

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| Question 10: | The figure below shows the histological section of the aorta.    What is the structure indicated by the arrows? | | |
|  |  | | |
|  | (A) | Collagen fibres | |
|  | (B) | Elastic fibres | |
|  | (C) | Fibroblast | |
|  | (D) | Myoblast | |
|  | (E) | Reticular fibres | |
|  |  |  | |
| **Correct Response: B** | | |  |

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| Question 11: | The cell membrane is somewhat permeable to water but is impermeable to intracellular proteins. Water tends to flow into the cells to equilibrate the osmolarity inside and outside the cell.  Which of the following mechanisms prevent the cell from bursting in this situation? | |
|  |  | |
|  | (A) | Active transport of proteins across the cell membrane reduces intracellular osmolarity |
|  | (B) | Potassium is pumped out of the cell to reduce intracellular osmolarity |
|  | (C) | The cytoskeleton forms a structure that prevents cell damage |
|  | (D) | The sodium-potassium pump maintains a low intracellular sodium concentration |
|  | (E) | The tonicity of the solution determines whether the cell will burst and osmolarity is unimportant |
|  |  |  |
| **Correct Response: D** | | |

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| Question 12: | By which mechanism does the colloid osmotic pressure in capillaries control the flow of water? | |
|  |  | |
|  | (A) | Increasing blood pressure |
|  | (B) | Maintaining proteins in the capillaries |
|  | (C) | Pushing water out of the capillaries |
|  | (D) | Retaining water in the capillaries |
|  | (E) | Returning water to the lymph vessels |
|  |  |  |
| **Correct Response: D** | | |

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| Question 13: | The immune system can sometimes destroy Schwann cells.  What property of neurons would be most affected by this? | |
|  |  | |
|  | (A) | Amplitude of action potentials |
|  | (B) | Resting potential |
|  | (C) | Speed of conductance |
|  | (D) | Synaptic transmission |
|  | (E) | Threshold potential |
|  |  |  |
| **Correct Response: C** | | |

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| Question 14: | You ate some mushrooms while walking in the woods. That was a poor decision as you suddenly feel ill. You lose control of your bladder, develop bronchospasm and feel pain in your eyes as your pupils constrict involuntarily.  Which of the following do you think explains what is happening to your peripheral nervous system? | |
|  |  | |
|  | (A) | The mushroom contains a poison that dampens the parasympathetic response |
|  | (B) | The mushroom contains a toxin that accelerates the release of norepinephrine in your body |
|  | (C) | The mushroom contains a toxin that stimulates your alpha-adrenergic receptors |
|  | (D) | There is a nicotinic receptor antagonist in the mushroom |
|  | (E) | You have ingested a toxin that stimulates your muscarinic receptors |
|  |  |  |
| **Correct Response: E** | | |

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| Question 15: | During exercise, there is a large and rapid increase in ATP demand in the skeletal muscles.  Which compound is converted to lactate under anaerobic conditions? | |
|  |  | |
|  | (A) | Acetyl-CoA |
|  | (B) | Glucose |
|  | (C) | Glycerol |
|  | (D) | Oxaloacetate |
|  | (E) | Pyruvate |
|  |  |  |
| **Correct Response: E** | | |

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| Question 16: | Which class of drugs is used to reduce the level of low-density lipoprotein (LDL) cholesterol in the blood of patients with hyperlipidaemia? | |
|  |  | |
|  | (A) | Angiotensin-converting enzyme inhibitors |
|  | (B) | Dipeptidyl peptidase-4 inhibitors |
|  | (C) | HMG-CoA reductase inhibitors |
|  | (D) | Neuraminidase inhibitors |
|  | (E) | Sodium glucose co-transporter 2 inhibitors |
|  |  |  |
| **Correct Response: C** | | |

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| Question 17: | Oxidation of long-chain fatty acids (β-oxidation) produces more energy per carbon atom compared to glucose oxidation.  In what form is the energy extracted from a lipid during β-oxidation? | |
|  |  | |
|  | (A) | 1 molecule of ATP and 1 molecule of NADH |
|  | (B) | 1 molecule of ATP only |
|  | (C) | 1 molecule of FADH2 and 1 molecule of NADH |
|  | (D) | 1 molecule of NADH, 1 molecule of FADH2 and 1 molecule of ATP |
|  | (E) | 1 molecule of NADH only |
|  |  |  |
| **Correct Response: C** | | |

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| Question 18: | Lipid droplets are conserved intracellular organelles that originate from the endoplasmic reticulum (ER). They contain a hydrophobic core of neutral lipids and cholesterol esters surrounded by a phospholipid bilayer.  What is a likely fate of neutral lipids within these droplets? | |
|  |  | |
|  | (A) | Hydrolysis to free fatty acids |
|  | (B) | Prostaglandin synthesis |
|  | (C) | Reduction to glycerol-3-phosphate |
|  | (D) | Triacylglycerol synthesis |
|  | (E) | β-oxidation in the ER |
|  |  |  |
| **Correct Response: A** | | |

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| Question 19: | Which of the following statements best describes the relationship between the Major Histocompatibility Complex (MHC) molecules and T lymphocytes? | |
|  |  | |
|  | (A) | CD4+ T lymphocytes recognise the extracellular antigen presented by MHC I |
|  | (B) | CD4+ T lymphocytes recognise the extracellular antigen presented by MHC II |
|  | (C) | CD4+ T lymphocytes recognise the intracellular antigen presented by MHC I |
|  | (D) | CD8+ T lymphocytes recognise the extracellular antigen presented by MHC II |
|  | (E) | CD8+ T lymphocytes recognise the intracellular antigen presented by MHC II |
|  |  |  |
| **Correct Response: B** | | |

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| Question 20: | Checkpoint blockade immunotherapy targeting the Programmed Death 1 (PD-1) receptor on T cells or the Programmed Death-Ligand 1 (PD-L1) on tumour cells is an innovative treatment to manage various types of cancer. It is accomplished by administering antibodies against PD-1 or PD-L1.  How do anti-PD-1 antibodies work? | |
|  |  | |
|  | (A) | By activating the complement system on the surface of tumour cells |
|  | (B) | By decreasing tumour-infiltrating regulatory T-cells within the tumour |
|  | (C) | By directing natural killer cells to tumour cells |
|  | (D) | By initiating antigen presentation by dendritic cells |
|  | (E) | By weakening host immune responses |
|  |  |  |
| **Correct Response: B** | | |

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| Question 21: | Why are Th1 cells the most important T helper cell subset for eliminating tumour cells? | |
|  |  | |
|  | (A) | They produce histamine, activating mast cells |
|  | (B) | They produce IFN-ɣ, activating cytotoxic T cells |
|  | (C) | They produce IL-5, activating eosinophils |
|  | (D) | They produce IL-10, activating regulatory T-cells |
|  | (E) | They produce tumour necrosis factor, activating macrophages |
|  |  |  |
| **Correct Response: B** | | |

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| Question 22: | A child with asthma and peanut-induced flare ups of eczema may develop wheeze following exposure to house dust mite.  What types of hypersensitivity are represented by these examples? | |
|  |  | |
|  | (A) | I and II |
|  | (B) | I and IV |
|  | (C) | II and III |
|  | (D) | II and IV |
|  | (E) | III and IV |
|  |  |  |
| **Correct Response: B** | | |

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| Question 23: | A 45 year old woman has been diagnosed to have systemic lupus erythematosus (SLE) which is a chronic autoimmune disease that can cause severe fatigue and joint pains.  Of the following statements, which one is most important for her to remember in light of her diagnosis? | |
|  |  | |
|  | (A) | Her health is completely dependent on her prescribed medications only |
|  | (B) | Her immune system is diminished so she must avoid people with the flu |
|  | (C) | She does not need to change her lifestyle because of SLE if she takes all her prescribed medications |
|  | (D) | She must avoid getting infections because they will increase the immune response in her body which can make her SLE worse |
|  | (E) | She must take all the available immunisations to avoid getting sick frequently |
|  |  |  |
| **Correct Response: D** | | |

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| Question 24: | A 25 year old man from a rural district presents to the hospital with green watery diarrhoea, steatorrhea, abdominal bloating and weight loss. He is afebrile and physical examination is unremarkable; concurrent retroviral disease is ruled out. A photomicrograph of the faecal specimen from the patient is shown below.    What is the most likely identification of this organism? | |
|  |  | |
|  | (A) | *Entamoeba histolytica* |
|  | (B) | *Giardia lamblia* |
|  | (C) | *Leishmania donovani* |
|  | (D) | *Naegleria fowleri* |
|  | (E) | *Trichomonas intestinalis* |
|  |  |  |
| **Correct Response: B** | | |

Question 25 is deleted.

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| Question 26: | A 55 year old man with a long smoking history presents with cough productive of blood-stained sputum for the past three weeks. He also reports loss of weight and appetite for the last six months. A computerised tomography scan of his chest reveals a 5 cm nodule in his right lung and he undergoes a percutaneous biopsy of the mass. The light microscopic (low power) view of the sample is shown below.    What is the histological diagnosis of the mass? | |
|  |  | |
|  | (A) | Adenocarcinoma |
|  | (B) | Adenosquamous cell carcinoma |
|  | (C) | Large cell carcinoma |
|  | (D) | Small cell carcinoma |
|  | (E) | Squamous cell carcinoma |
|  |  |  |
| **Correct Response: E** | | |

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| Question 27: | Lack of pulmonary surfactant in premature babies can contribute to difficult breathing.  Which cell type in the developing lung produces surfactant? | |
|  |  | |
|  | (A) | Ciliated cells |
|  | (B) | Goblet cells |
|  | (C) | Lung mesenchyme |
|  | (D) | Type I alveolar epithelial cells |
|  | (E) | Type II alveolar epithelial cells |
|  |  |  |
| **Correct Response: E** | | |

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| Question 28: | A 15 year old boy with chronic asthma attends a fireworks display with his family. He develops acute breathlessness triggered by the hazy air conditions and presents to his doctor with acute exacerbation of his asthma.  What change in his airways would be associated with this exacerbation? | |
|  |  | |
|  | (A) | Bronchodilation |
|  | (B) | Cellular infiltrate with neutrophils |
|  | (C) | Goblet cell hypoplasia |
|  | (D) | Mucus hypersecretion |
|  | (E) | Vasoconstriction |
|  |  |  |
| **Correct Response: D** | | |

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| Question 29: | A 55 year old woman underwent a total mastectomy including the excision of the axillary tail of Spence. Post-operatively, the patient complained of loss of sensation along the medial aspect of the arm and axilla.  Which of the following nerves is most likely to have been injured during the procedure? | |
|  |  | |
|  | (A) | Greater splanchnic nerve |
|  | (B) | Intercostobrachial nerve |
|  | (C) | Lesser splanchnic nerve |
|  | (D) | Phrenic nerve |
|  | (E) | Vagus nerve |
|  |  |  |
| **Correct Response: B** | | |

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| Question 30: | A 35 year old woman is referred to the Emergency Department, complaining of dysphagia, a few hours after eating a fish. Radiological examination revealed a foreign body impacted at the second constriction of the oesophagus.  Which of the following structures is constricting the oesophagus? | |
|  |  | |
|  | (A) | Arch of aorta |
|  | (B) | Brachiocephalic trunk |
|  | (C) | Cricopharyngeus muscle |
|  | (D) | Left brachiocephalic vein |
|  | (E) | Right principal bronchus |
|  |  |  |
| **Correct Response: A** | | |

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| Question 31: | A surgeon is performing a lung transplant operation and is careful to avoid damage to the major blood vessels in the patient’s chest.  Which blood vessel crosses superior to the left lung root? | |
|  |  | |
|  | (A) | Aortic arch |
|  | (B) | Azygos vein |
|  | (C) | Left pulmonary artery |
|  | (D) | Left pulmonary vein |
|  | (E) | Superior vena cava |
|  |  |  |
| **Correct Response: A** | | |

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| Question 32: | A computerised tomography scan is performed with intravenous contrast injected via a vein in the right upper arm.  Which of the following is the last structure to be opacified by the contrast? | |
|  |  | |
|  | (A) | Ascending aorta |
|  | (B) | Left ventricle |
|  | (C) | Pulmonary trunk |
|  | (D) | Right atrium |
|  | (E) | Right subclavian artery |
|  |  |  |
| **Correct Response: E** | | |

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| Question 33: | A 65 year old man visits the Emergency Department with complaints of acute breathlessness and chest pain. His coronary angiographs reveal an occlusion in the left anterior descending (anterior interventricular) branch of the left coronary artery.  Which structure is most likely to be injured by this vascular insult? | |
|  |  | |
|  | (A) | Atrioventricular bundle (of His) |
|  | (B) | Base of the heart |
|  | (C) | Inferior wall of the heart |
|  | (D) | Left auricle |
|  | (E) | Sinoatrial node |
|  |  |  |
| **Correct Response: A** | | |

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| Question 34: | A 65 year old man suffers a spontaneous aortic dissection. A computerised tomography scan shows that the dissection is distal to the left subclavian artery.  What clinical presentation is most likely to be associated with this dissection? | |
|  |  | |
|  | (A) | Hemiparesis |
|  | (B) | Lower limb ischaemia |
|  | (C) | Myocardial infarction |
|  | (D) | Pericardial effusion |
|  | (E) | Upper limb ischaemia |
|  |  |  |
| **Correct Response: B** | | |

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| Question 35: | A 34 year old man is involved in a major road traffic accident. He sustains severe traumatic injury to his neck and is admitted to the Intensive Care Unit.    What is the most likely effect of injury to the left phrenic nerve? | |
|  |  | |
|  | (A) | Difficulty in expiration |
|  | (B) | Pain in the arm |
|  | (C) | Raised left hemi-diaphragm |
|  | (D) | Reduced bronchial secretions |
|  | (E) | Weakened arm abduction |
|  |  |  |
| **Correct Response: C** | | |

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| Question 36: | A 55 year old man develops sudden neurological symptoms due to an embolus in the right common carotid artery.  Which vessel (indicated by the numbered arrows) in the computerised tomography image gives rise to the right common carotid artery?  Anatomy Q 152 | |
|  |  | |
|  | (A) | 1 |
|  | (B) | 2 |
|  | (C) | 3 |
|  | (D) | 4 |
|  | (E) | 5 |
|  |  |  |
| **Correct Response: C** | | |

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| Question 37: | During foetal life, which embryonic feature allows blood to enter the left atrium from the right atrium? | |
|  |  | |
|  | (A) | Ductus arteriosus |
|  | (B) | Ductus venosus |
|  | (C) | Foramen ovale |
|  | (D) | Sinus venosus |
|  | (E) | Umbilical vein |
|  |  |  |
| **Correct Response: C** | | |

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| Question 38: | A previously healthy 30 year old woman is admitted to the Intensive Care Unit with pneumonia in her right lung following a bout of viral illness. On examination, she is febrile and breathing heavily with supplemental oxygen provided via a facemask.    What is the most likely effect of this disease on her pulmonary gas exchange? | |
|  |  | |
|  | (A) | Increased alveolar dead space |
|  | (B) | Increased anatomical dead space |
|  | (C) | Increased chest wall compliance |
|  | (D) | Increased intrapulmonary shunting |
|  | (E) | Increased lung compliance |
|  |  |  |
| **Correct Response: D** | | |

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| Question 39: | A healthy 45 year old man is sent to work in his company’s satellite office, located in a city in China that is 3000 metres above sea level.  What physiological adaptation would be present in this man three months later? | |
|  |  | |
|  | (A) | Decreased 2,3 diphosphoglycerate in red blood cells |
|  | (B) | Decreased haematocrit |
|  | (C) | Decreased pulmonary diffusing capacity for oxygen |
|  | (D) | Decreased pulmonary vascular resistance |
|  | (E) | Decreased serum bicarbonate |
|  |  |  |
| **Correct Response: E** | | |

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| Question 40: | A healthy 20 year old man is asked to perform a forced expiratory manoeuvre.  At which lung volume should he initiate his forced expiration to achieve the highest expiratory flow? | |
|  |  | |
|  | (A) | End of a maximal inspiration |
|  | (B) | End of tidal inspiration |
|  | (C) | Functional residual capacity |
|  | (D) | Midway through a maximal inspiration |
|  | (E) | Residual volume |
|  |  |  |
| **Correct Response: A** | | |

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| Question 41: | A 15 year old girl awakens from deep sleep and realises that she is late for class. She panics and jumps out of bed and momentarily feels faint.  Which of the following is part of the compensatory physiological response that prevents her from fainting? | |
|  |  | |
|  | (A) | Peripheral vasoconstriction by angiotensin II |
|  | (B) | Release of aldosterone from the adrenal glands |
|  | (C) | Release of renin from the kidney |
|  | (D) | Stimulation of α2 receptors in the sinoatrial node |
|  | (E) | Stimulation of β1 receptors in the ventricles |
|  |  |  |
| **Correct Response: E** | | |

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| Question 42: | A 50 year old man presents to the Emergency Department with acute chest and epigastric pain. An electrocardiogram is performed which reveals pathological Q waves and ST segment elevation in leads II, III and aVF.  Which of the following is the most likely location of his acute myocardial infarction? | |
|  |  | |
|  | (A) | Anterior wall of left ventricle |
|  | (B) | Inferior wall of left ventricle |
|  | (C) | Lateral wall of left ventricle |
|  | (D) | Left atrium |
|  | (E) | Right ventricle |
|  |  |  |
| **Correct Response: B** | | |

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| Question 43: | A healthy 30 year old woman is running in a 10 km street race. Her heart rate is at 140 beats per minute, respiratory rate at 30 breaths per minute and blood pressure at 140/75 mmHg.  What is the underlying physiological mechanism for her tachypnoea? | |
|  | (A) | Her central chemoreceptors are responding to high PaCO2 |
|  | (B) | Her central chemoreceptors are responding to low blood pH |
|  | (C) | Her central chemoreceptors are responding to low PaO2 |
|  | (D) | Her peripheral chemoreceptors are responding to high blood pH |
|  | (E) | Her peripheral chemoreceptors are responding to low PaO2 |
|  |  |  |
| **Correct Response: A** | | |

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| Question 44: | A pathologist is looking through a light microscope at a transbronchial lung biopsy specimen.  Which of the following airway cells seen in the specimen will be ciliated? | |
|  |  | |
|  | (A) | Epithelial lining cells |
|  | (B) | Fibroblasts |
|  | (C) | Goblet cells |
|  | (D) | Smooth muscle cells |
|  | (E) | Vascular endothelial cells |
|  |  |  |
| **Correct Response: A** | | |

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| Question 45: | The following diagram shows the pressure-volume loop of the left ventricle in a healthy 20 year old man.    Which line represents the end-systolic volume of the left ventricle? | |
|  |  | |
|  | (A) | AB |
|  | (B) | BC |
|  | (C) | CD |
|  | (D) | DA |
|  | (E) | EF |
|  |  |  |
| **Correct Response: D** | | |

|  |  |  |
| --- | --- | --- |
| Question 46: | A healthy 20 year old man is sitting upright in a chair and breathing into a spirometer as part of a research study.    At which lung volume will the collapsing pressure of the lung be equally balanced by the expanding pressure of the chest wall? | |
|  |  | |
|  | (A) | A |
|  | (B) | B |
|  | (C) | C |
|  | (D) | D |
|  | (E) | E |
|  |  |  |
| **Correct Response: D** | | |

|  |  |  |
| --- | --- | --- |
| Question 47: | A healthy 30 year old man visits his doctor with complaints of pain and swelling in his elbow after playing tennis the day before. He is prescribed a pain killer but has an allergic response to the medication and develops acute swelling and redness of the skin on his face and arms.  What is the underlying physiological mechanism of his skin oedema? | |
|  | (A) | Increased capillary hydrostatic pressure |
|  | (B) | Increased capillary permeability |
|  | (C) | Increased interstitial hydrostatic pressure |
|  | (D) | Increased mean arterial pressure |
|  | (E) | Increased venous pressure |
|  |  |  |
| **Correct Response: B** | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question 48: | A 60 year old woman presents to the pulmonary clinic with progressive shortness of breath for the past three years. The results of the pulmonary function test are shown:   |  |  |  | | --- | --- | --- | |  | Actual | Predicted | | FVC | 1.60 | 2.79 | | FEV1 | 0.90 | 2.04 | | FEV1/FVC | 56% | 73% | | DLCO | 9.2 | 17.1 |   Which of the following pulmonary conditions does she most likely have? | |
|  |  | |
|  | (A) | Bronchial asthma |
|  | (B) | Bronchogenic carcinoma |
|  | (C) | Emphysema |
|  | (D) | Pulmonary fibrosis |
|  | (E) | Pulmonary tuberculosis |
|  |  |  |
| **Correct Response: C** | | |

|  |  |  |
| --- | --- | --- |
| Question 49: | A 65 year old woman complains of worsening dyspnoea on exertion associated with occasional chest pain that is relieved by rest. On auscultation, a harsh, crescendo-decrescendo systolic murmur that radiates up to her carotid arteries is heard.  What cardiac valvular disorder is she most likely to have? | |
|  |  | |
|  | (A) | Aortic regurgitation |
|  | (B) | Aortic stenosis |
|  | (C) | Mitral regurgitation |
|  | (D) | Mitral stenosis |
|  | (E) | Tricuspid regurgitation |
|  |  |  |
| **Correct Response: B** | | |

Question 50 is deleted.