

Respiratory System – Midterm 2012-2013

1. Which of the following is the most common cause of sore throat in children?

- (a) Group A streptococci**
 - (b) Haemophilus influenzae type b
 - (c) Streptococcus pneumoniae
 - (d) Corynebacterium diphtheriae
 - (e) Group B streptococci
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2. Haemophilus influenzae type b is associated with:

- (a) Highly susceptible to cold temperatures and dryness
 - (b) Not a major causative agent of meningitis nowadays in Jordan
 - (c) Has a capsule
 - (d) A + B
 - (e) All of the above**
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3. All of the following are associated with Group A streptococci EXCEPT:

- (a) Necrotizing fasciitis
 - (b) Impetigo
 - (c) Resistance to penicillin**
 - (d) Erysipelas
 - (e) Cellulitis
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4. All of the following are associated with Streptococcus pneumoniae EXCEPT:

- (a) Streptococcal toxic shock syndrome**
 - (b) Several serotypes
 - (c) Capsulated
 - (d) A causative agent of meningitis in children
 - (e) Healthy carriers
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5. All of the following are characteristics of viral respiratory tract infections EXCEPT:

- (a) High prevalence of such type of infections
 - (b) Large number of infectious agents
 - (c) Immunity is type-specific and long-lasting**
 - (d) Low dose is required to establish infection
 - (e) Short incubation period
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6. Rhinoviruses:

- (a) Cause no lower respiratory tract infections
 - (b) Cause infections year-round with no seasonal variation
 - (c) Exacerbates cases of asthma if infected early in life
 - (d) Have a low attack rate
 - (e) Mostly transmitted by contaminated objects**
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7. A man suffering from an acute respiratory disease following a training camp, has developed viral pneumonia and other associated reparatory manifestations. Which of the following is probably the causative agent:

- (a) RSV
 - (b) Parainfluenza virus
 - (c) Adenovirus 7**
 - (d) Rhinovirus
 - (e) Coronavirus
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8. All of the following regarding influenza viruses are correct EXCEPT:

- (a) Ciliated columnar epithelium disappear after 3 days from the onset of the disease
 - (b) Submucosal edema and hyperemia occurs along with an infiltration of mononuclear cells
 - (c) There is no correlation between the amount of cellular destruction and severity of the disease**
 - (d) Reparative and destructive processes can occur spontaneously
 - (e) Edema and inflammation are seen throughout the infection
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9. The new coronavirus HCoV-EMC that has caused fatal infections in the Gulf, Jordan and other several countries differs from the other coronaviruses by:

- (a) Ability to survive in various cell cultures**
 - (b) Causing lower respiratory tract infections
 - (c) Replicating slowly and so having a longer incubation period than other coronaviruses
 - (d) Ability to acquire some genes from influenza virus C
 - (e) Causing infections in children and elderly but not adults
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10. All of the following are characteristics of seasonal influenza EXCEPT:

- (a) Epidemics occur every year
 - (b) Peaks quickly in 2-3 weeks
 - (c) Absenteeism is an early indicator of the flu**
 - (d) Abrupt onset in the population
 - (e) Lasts for 5-6 weeks
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11. Pandemic flu differs from a seasonal flu in all of the following EXCEPT:

- (a) Type of antigenic change that takes place
 - (b) Level of mortality
 - (c) Interval between two successive waves
 - (d) Occurrence of cases outside the natural season and availability of vaccines
 - (e) Clinical spectrum**
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12. Avian influenza type H5N1 is associated with all of the following EXCEPT:

- (a) Primary viral pneumonia
 - (b) High mortality rate
 - (c) No person-to-person cases have been documented**
 - (d) Mostly affects the young and healthy individuals
 - (e) Infection requires intimate relationship between humans and birds
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13. Parainfluenza viruses share all of the following with RSV EXCEPT:

- (a) Taxonomy
 - (b) Age group
 - (c) Pathogenesis
 - (d) Clinical spectrum
 - (e) Attack rate and epidemics**
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14. A 2 year old suffers from respiratory insufficiency and shows several clinical signs such as bark-like cough, stridor and hoarseness of the voice. The probable cause of infection is:

- (a) Adenovirus
 - (b) RSV
 - (c) Parainfluenza virus 1**
 - (d) Rhinovirus
 - (e) Bocavirus
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15. All of the following are associated with a setting of viral pneumonia occurring in a four month old infant EXCEPT:

- (a) Dyspnea
 - (b) Respiratory rate >42 breaths/min**
 - (c) Grunting
 - (d) Retractions of the chest
 - (e) Severe distress
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16. All of the following are associated with diagnosis of influenza EXCEPT:

- (a) Viral isolation in cell culture
 - (b) Antigen detection using immunofluorescence technique
 - (c) Molecular methods like RT-PCR
 - (d) Hemagglutination and hemagglutination inhibition
 - (e) Detection of antibodies**
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17. In suprasternal tracheostomy, all of the following structures are liable to injury EXCEPT:

- (a) Inferior thyroid vein
 - (b) Inferior thyroid artery**
 - (c) Inferior jugular vein
 - (d) Jugular arch
 - (e) Thyroid Ima artery
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18. All of the following nerves supply the lateral wall of the nasal cavity EXCEPT:

- (a) Anterior ethmoidal nerve
 - (b) Posterior ethmoidal nerve**
 - (c) Anterior palatine nerve
 - (d) Posterior superior lateral nasal nerve
 - (e) Anterior superior alveolar
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19. Type II alveolar cells are associated with all of the following EXCEPT:

- (a) They form 16% of the interalveolar septum
 - (b) They form 8% of the alveolar wall**
 - (c) They contain in their cytoplasm lamellar bodies
 - (d) They have the ability to regenerate their own type as well as type I cells
 - (e) They are connected to type I alveolar cells by occluding junctions and desmosomes
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20. The laryngotracheal groove is formed during:

- (a) 2nd week of pregnancy
 - (b) 4th week of pregnancy**
 - (c) 6th week of pregnancy
 - (d) 5th week of pregnancy
 - (e) 7th week of pregnancy
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21. Which of the following structures is least likely to be damaged during the removal of a tumor in the root of the right lung:

- (a) Phrenic nerve
 - (b) Pulmonary artery
 - (c) Azygous arch
 - (d) Vagus nerve
 - (e) Recurrent laryngeal nerve**
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22. Following a thyroidectomy of a 30 year old man, the surgeon noticed that he had a weak voice and that the right vocal cord was slack. What possibly could the surgeon have tied together:

- (a) Internal laryngeal nerve with the superior laryngeal artery
 - (b) Internal laryngeal nerve with the inferior laryngeal artery
 - (c) External laryngeal nerve with the superior thyroid artery**
 - (d) Recurrent laryngeal nerve with the inferior thyroid artery
 - (e) Recurrent laryngeal nerve with the inferior laryngeal artery
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23. A dentist accidentally dropped a tooth and it fell down the respiratory tract. Which of the following is the most possible final destination of the tooth:

- (a) Left lung, upper lobe, anterior segment
 - (b) Left lung, lower lobe, posterior segment
 - (c) Right lung, middle lobe, medial segment
 - (d) Right lung, lower lobe, apicobasal segment**
 - (e) Right lung, lower lobe, posterior segment
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24. All of the following regarding the pterygopalatine fossa are correct EXCEPT:

- (a) The maxillary artery enters it through the pterygomaxillary fissure
 - (b) The maxillary nerve enters it through foramen rotundum
 - (c) The parasympathetic ganglia receives preganglionic parasympathetic nerve fibers from the facial nerve
 - (d) The parasympathetic ganglia receives postganglionic sympathetic nerve fibers through the lesser petrosal nerve**
 - (e) It communicates with the oral cavity below through the palatine canal
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25. All of the following regarding the quadrangular membrane are correct EXCEPT:

- (a) Its upper free margin thickens to form the aryepiglottic folds
 - (b) It's an intrinsic membrane
 - (c) Is innervated by the recurrent laryngeal nerve**
 - (d) Its lower free margin thickens to form the false vocal cords
 - (e) Attaches posteriorly to the arytenoid cartilage
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26. All of the following cells are located in the olfactory region of the nose EXCEPT:

- (a) Pseudostratified ciliated columnar epithelium
 - (b) Sustentacular cells
 - (c) Olfactory cells
 - (d) Bowman's gland
 - (e) Goblet cells**
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27. All of the following regarding the maxillary air sinuses are correct EXCEPT:

- (a) They open into the middle meatus of the nasal cavity
 - (b) Located posteriorly to the pterygopalatine fossa**
 - (c) Innervated by branches of the maxillary nerve
 - (d) Extraction of an upper molar tooth can result in formation of a fistula
 - (e) Has a bad drainage especially in chronic sinusitis
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28. Which of the following conditions are associated with oligohydramnios:

- (a) Laryngeal atresia
 - (b) Tracheoesophageal fistula
 - (c) Congenital cyst of the lung
 - (d) Ectopic lung lobe
 - (e) Pulmonary hypoplasia**
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29. The muscle that forms part of the true vocal cord is:

- (a) Thyro-arytenoid**
 - (b) Cricothyroid
 - (c) Thyrohyoid
 - (d) Transverse arytenoid
 - (e) Oblique arytenoid
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30. Which of the following structures is posterior to the apex of the lung:

- (a) Bronchial vessels
 - (b) Stellate ganglion**
 - (c) Subclavian vessels
 - (d) Scalene muscle
 - (e) Segmental Vein
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31. An x-ray was done to a child one day after birth. The x-ray showed peripheral opaque areas in the lung. What is the most common cause of such a condition:

- (a) Collapsed lung due to traumatic delivery
 - (b) Congenital absence of surfactant
 - (c) Congenital absence of the alveoli
 - (d) Obstruction of the distal airways
 - (e) This is a normal condition, where the alveoli will inflate several days after delivery**
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32. Blood flow to the right lung has been stopped due to a pulmonary embolus. Which of the following is probably the most common location from where the embolus was dislodged:

- (a) Left atrium
 - (b) Left ventricle
 - (c) Pulmonary vein
 - (d) Saphenous vein** (saphenous vein has been considered the correct answer although superficial veins rarely cause embolism)
 - (e) Portal vein
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33. All of the following regarding emphysema are correct EXCEPT:

- (a) Centriacinar emphysema is the most common type of emphysema
 - (b) Obstructive overinflation is due to total obstruction of the lumen**
 - (c) Bullous emphysema is associated with formation of enlarged air spaces larger than 1 cm in diameter
 - (d) Mediastinal emphysema may be due to fracture of a rib
 - (e) Compensatory emphysema is not a true type of emphysema
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34. All of the following regarding emphysema are correct EXCEPT:

- (a) High levels of MMP-9 and MMP-12 are seen
 - (b) Mesenchymal cell response to TGF- β signaling is increased**
 - (c) Distal acinar emphysema is the most common cause of spontaneous pneumothorax
 - (d) Loss of mesenchymal cells which impairs healing of damaged tissue
 - (e) Inflated air spaces without the presence of fibrosis
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35. Regarding ARDS, which of the following is CORRECT:

- (a) Neutrophils play a minimal role in the pathogenesis of the disease
 - (b) Hyaline membrane is formed during the organizing stage
 - (c) The most common direct cause is atypical pneumonia**
 - (d) Mortality has reached 70% now with supportive care
 - (e) Adult RDS is due to decreased amount of surfactant
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36. All of the following regarding chronic bronchitis is correct EXCEPT:

- (a) Is associated with small airway disease
 - (b) There is goblet cell metaplasia in the small bronchioles
 - (c) Characterized mainly by mucus hypersecretion
 - (d) Coexistent emphysema causes early and relatively mild airflow obstruction**
 - (e) Patients with such a disease are called 'blue bloaters'
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37. If the respiratory minute ventilation and the CO₂ production are constant, what can be increased to cause the PCO₂ to decrease:

- (a) FRC
 - (b) Fraction of inspired air
 - (c) Respiration frequency
 - (d) Tidal volume**
 - (e) Local temperature
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38. When will be happen to the partial pressures of O₂ and CO₂ when ascending to high altitude:

- (a) PO₂ increases, and PCO₂ increases
 - (b) PO₂ increases, and PCO₂ decreases
 - (c) PO₂ decreases, and PCO₂ increases
 - (d) PO₂ increases, and PCO₂ doesn't change
 - (e) PO₂ decreases, and PCO₂ decreases**
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39. All of the following are associated with ARDS EXCEPT:

- (a) $\Delta P_{O_2}/F_{iO_2} < 200$
 - (b) Bilateral infiltrate on chest x-ray
 - (c) Pulmonary capillary wedge pressure > 18 mmHg**
 - (d) High mortality
 - (e) Death from pulmonary edema
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40. During CO poisoning, all of the following are false, EXCEPT:

- (a) Increase in $P_a\text{CO}_2$
 - (b) Decrease in $P_a\text{O}_2$
 - (c) Decrease in O_2 saturation**
 - (d) Decrease in pH
 - (e) Should not be considered dangerous unless CO is < 1 mmHg
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41. Which of the following is higher at the basal alveoli than in the apical ones at FRC:

- (a) Ventilation-perfusion ratio
 - (b) $P_a\text{O}_2$
 - (c) Physiological dead space
 - (d) $P_a\text{CO}_2$**
 - (e) Size of alveoli
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42. From the following data, calculate the cellular O_2 consumption (VO_2):

Mean pulmonary capillary oxygen content = 19 ml O_2 /dl

Arterial oxygen content = 18 ml O_2 /dl

Venous oxygen content = 14 ml O_2 /dl

Cardiac output = 6L/min

- (a) 200 ml/min
 - (b) 220 ml/min
 - (c) 230 ml/min
 - (d) 240 ml/min**
 - (e) 250 ml/min
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43. From the following data, calculate the physiological dead space:

Tidal volume = 600 ml

Alveolar ventilation 4.3L/min

$P_a\text{CO}_2 = 40$ mmHg

$P_e\text{CO}_2 = 28$ mmHg

- (a) 100 ml
 - (b) 150 ml
 - (c) 180 ml**
 - (d) 200 ml
 - (e) Cannot be calculated from the given data
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44. The following set of data is for a person ventilation at sea level. Which of the following lines contains an error:

	P_aO_2	P_aCO_2
(a) Renal venous blood	>40	<45
(b) High ventilation/perfusion ratio	>100	<40
(c) Mild exercise	95	40
(d) Interstitial fluid of carotid bodies	>40	<45
(e) Last portion of expired air	>100	<40

45. Which of the following regarding RV is CORRECT:

- (a) It is the volume that remains in the lung after tidal volume
 - (b) It is the resting volume of the lung
 - (c) It decreases with COPD
 - (d) It decreases with fibrosis**
 - (e) It remains the same during the entire life of a human being
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46. A gas-blood technician took an arterial blood sample from a patient. Before he measures the arterial pressures of oxygen and carbon dioxide, he pulls the syringe and draws a little amount of atmospheric air into the syringe. What will the readings of this patient be:

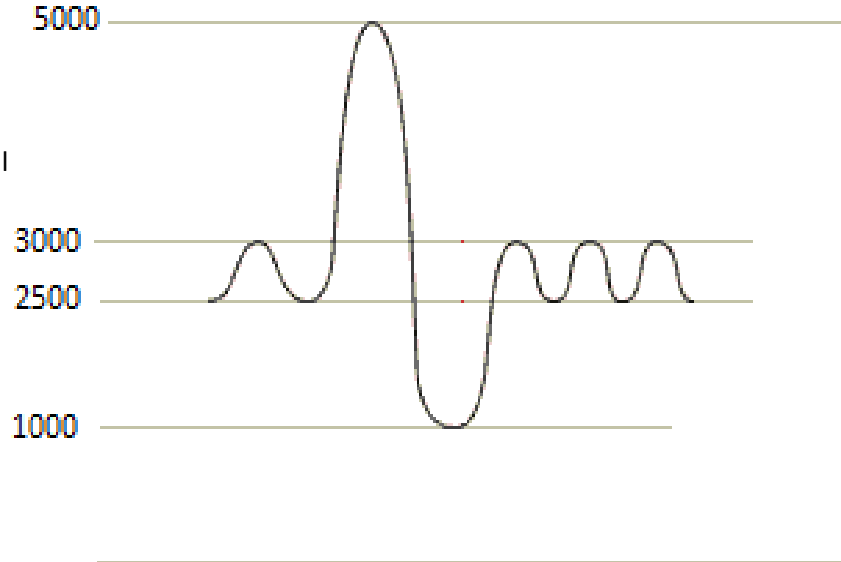
- (a) Higher than normal PO_2 , and higher than normal PCO_2
 - (b) Lower than normal PO_2 , and lower than normal PCO_2
 - (c) Higher than normal PO_2 , and lower than normal PCO_2**
 - (d) Lower than normal PO_2 , and higher than normal PCO_2
 - (e) Normal value of PO_2 , and normal value of PCO_2
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47. Pulmonary edema due to CHF (congestive heart failure) is due to:

- (a) Increased pulmonary capillary hydrostatic pressure**
 - (b) Increased pulmonary colloidal osmotic pressure
 - (c) Decreased pulmonary interstitial hydrostatic pressure
 - (d) Decreased pulmonary interstitial osmotic pressure
 - (e) Increased pulmonary interstitial hydrostatic pressure
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48. Which of the following statements is CORRECT:

- (a) VC can't be calculated
- (b) This person has a very large physiological dead space
- (c) This person has fibrosis
- (d) This person has COPD
- (e) This person could be normal**



49. Regarding the O₂-dissociation curve, a shift of the curve of the LEFT:

- (a) Increases the P₅₀O₂
- (b) Decreases affinity of Hb for oxygen
- (c) Less oxygen passes from the blood to the tissues**
- (d) Occurs during exercise
- (e) Caused by high temperature

50. A person carried out a few tests and found out that the O₂ saturation in the blood has decreased while the P_aO₂ remained normal. This might be due to:

- (a) Anemia
- (b) CO poisoning**
- (c) Hypoventilation
- (d) Fibrosis
- (e) Exercise

51. Which of the following regarding IRDS is FALSE:

- (a) Increased RR 'tachypnea'
 - (b) Cyanosis
 - (c) Grunting
 - (d) Left-right shunt
 - (e) Decreased inflation pressure**
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52. Increasing the alveolar ventilation voluntarily 3X the normal level will cause:

- (a) Increase in plasma pH**
 - (b) Decrease in plasma pH
 - (c) Activation of chemosensitive area
 - (d) Collapse of peripheral alveoli
 - (e) Loss of consciousness
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