1. Modes of ventilation that are considered to be pressure-limited include:

a. Pressure Control
b. Pressure Support
c. Volume Control
*d. A and B

2. SIMV with pressure control and pressure support:

a. Is considered to be purely spontaneous
*b. Will have only pressure-limited breaths
c. Will have flow-limited mandatory breaths
d. Cannot have assist-type breaths

3. Increased airway resistance in volume control will manifest with:

*a. Increased PIPs
b. Increased Pplat
c. Decreased time constants
d. A and C

4. While ventilating a patient in pressure control, you notice the flow scalar returns to zero during the inspiratory phase of the breath. This suggests:

a. Static compliance can be determined
b. PIP is reflective of alveolar pressure
c. Auto-peep is present
*d. A and B
e. A, B, and C

5. Direct contributors to type I respiratory failure include:

*a. Diffusion impairment
b. Poor ventilatory drive
c. Respiratory muscle fatigue
d. Increased work of breathing

6. Patient populations in which a longer expiratory time should be considered include:

a. COPD
b. Head injury
c. Asthma
*d. A and C

7. Influences on PIP in volume control include:

a. PEEP level
b. Static Compliance
c. Flow setting
d. A and B
*e. A, B, and C

8. Mean airway pressure can be increased by:

*a. Increasing PEEP
b. Decreasing the I:E ratio
c. Reducing the respiratory rate
d. A and C

9. Modes that attempt to guarantee a tidal volume include:

a. VC
b. PRVC
c. APRV
*d. A and B

10. Reducing the tidal volume setting in volume control will:

a. Increase Vd
*b. Increase Vd/Vt
c. Decrease V/Q mismatch
d. Improve alveolar ventilation

11. The difference between a mandatory breath and an assisted breath is the:

a. Limit
b. Cycle
*c. Trigger
d. Baseline

12. The difference between a spontaneous breath and a mandatory breath is/are:

a. Limit
b. Cycle
c. Trigger
*d. B and C

13. The expected pattern of flow resulting from a mandatory pressure-control breath is:

a. Constant

*b. Logarithmic decay or decelerating

c. Sinusoidal

d. Square

14. Pressure-support is a mode that normally cycles via:

a. Time

b. Pressure

c. Volume

*d. Flow

15. Mode(s) which permit spontaneous breath types include:

a. IMV

b. MMV

c. PSV

*d. All of the above

16. In volume control, parameters that are indirectly controlled by setting flow and tidal volume is (are):

a. RR

b. Ti

c. PIP

*d. B and C

17. Which statement is true regarding PRVC?

a. PIP level modifies the Vt target

*b. Vt target modifies the PIP level

c. PIP and Vt are independent

d. PIP is constant while Vt is variable

18. Volume support:

a. Is a dual-control mode

b. Is a spontaneous mode

c. Tries to guarantee a target tidal volume

*d. All of the above

19. Using Pressure, flow, and volume scalars, draw the expected waveform patterns for the following modes:

a. Pressure control

b. Volume control (Constant flow)

20. Positive pressure ventilation tends to:

*a. Increase PCWP

b. Decrease PAP

c. Increase left ventricular afterload

d. A and B

21. Oxygenation indices for weaning and ventilator discontinuation include:

a. pH

b. f/Vt ratio

*c. P/F ratio

d. P0.1

22. Effective alveolar ventilation is best assessed via:

a. Pulse oximetry

b. End tidal CO_2

c. Lactate levels

*d. Arterial blood gas

23. Harmful effects of mechanical ventilation include:

a. Potential pneumothorax

b. Decreased venous return

c. Promotion of fluid retention

*d. All of the above

24. Techniques to improve oxygenation include:

a. Increase mean airway pressure

b. Prone positioning

c. Adequate bronchial hygiene

*d. All of the above

25. Minimizing harmful effects of ventilation include:

*a. Ensuring Pplat is < 35 cmH_2O

b. Ensuring FiO_2 > 0.60

c. Ensuring the flow scalar does not approach 0 on exhalation

d. Ensuring cardiac output varies inversely with mean airway pressure

26. Which weaning parameter supports the likelihood of successful ventilator discontinuation?

a. FiO_2 of 0.60

*b. f/Vt ratio of 70

c. VC of 5 cc/kg

d. B and C

27. The single most important criterion to consider when evaluating a patient for ventilator discontinuation is:

a. FiO_2

b. F/Vt ratio

*c. Significant reversal of disease state/condition

d. Ventilatory workload

28. Goals of Non-Invasive Positive Pressure Ventilation (NIPPV) include:

a. Avoiding intubation

b. Enhancing gas exchange

c. Improve quality of life

d. A and B

*e. A, B and C

29. Complications associated with a properly sized mask with NIPPV ventilation include(s):

a. Leak

b. Pressure sores

c. Corneal abrasions

*d. All of the above

30. Indicators that suggest successful weaning include(s):

a. Urine output of 100mL/day

*b. pH of 7.38

c. K+ 7.0 mEq/L

d. A and B

31. Modes associated with weaning include:

*a. Pressure support

b. Pressure control

c. Pressure-regulated volume control

d. A and C

32. Components/settings that prevent the rebreathing of CO_2 in NIPPV circuits include:

a. Exhalation valve

b. Baseline (EPAP) pressure set above the manufacturer's suggested minimum

c. Appropriately sized mask

*d. A and B

33. Using the pressure scalar, draw the expected waveform patterns for the following modes:

[50.0000] a. SIMV (volume control) with pressure support

[50.0000] b. SIMV (pressure control) with pressure support

c. SIMV (pressure control) without pressure support

d. APRV

34. Use the case presented below for this question:

You are getting ready to receive a multiple gunshot wound trauma (none to thorax) into Emergency. She is a 52 kg female named Lisbeth Salander. She is intubated with a 7.0 ETT, secured at 22 cm at the lip. What would be an appropriate tidal volume to start her on?

a. 255 mls
b. 300 mls
c. 355 mls
d. 440 mls
e. 515 mls

You choose your other ventilator settings as follows:
PRVC mode
RR 15
FiO2 50%
PEEP 5
Ti 1.30 seconds

Question: Twelve hours after the initiation of weaning you calculate a rapid shallow breathing index of 98. This would indicate:

a. That you should continue weaning trials

b. That she is weaned and no longer needs ventilatory support

*c. That she should be trached

d. That her level of PEEP is inadequate

e. That her FiO_2 could be further weaned

35. Use the case presented below for this question:

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PRVC mode
RR 15
FiO2 50%
PEEP 5
Ti 1.30 seconds

Question: Her PIP is 33 and her Pplat is 24. From this information you conclude that:

*a. She is at risk for volutrauma

b. She is at risk for barotrauma

c. Her Ti is to short

d. These are safe ventilating parameter

e. She is ready to be extubated

36. Use the case presented below for this question:

You are getting ready to receive a multiple gunshot wound trauma (none to thorax) into Emergency. She is a 52 kg female named Lisbeth Salander. She is intubated with a 7.0 ETT, secured at 22 cm at the lip. What would be an appropriate tidal volume to start her on?

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PRVC mode
RR 15
FiO2 50%
PEEP 5
Ti 1.30 seconds

Question: For reasons unknown, the oncall resident asks you to decrease her Ti to 0.80 seconds. When you attempt to do this, you notice that her peak airway pressure alarm is sounding with each breath. The most likely cause of this is:

a. The resistance of the airways and ETT to flow

b. You are overdistending the alveoli

*c. You are ventilating below the lower inflection point

d. There has been a change in patient compliance

e. The patient is now making spontaneous inspiratory efforts

37. Use the case presented below for this question:

You are getting ready to receive a multiple gunshot wound trauma (none to thorax) into Emergency. She is a 52 kg female named Lisbeth Salander. She is intubated with a 7.0 ETT, secured at 22 cm at the lip. What would be an appropriate tidal volume to start her on?

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PRVC mode
RR 15
FiO2 50%
PEEP 5
Ti 1.30 seconds

Question: You receive a blood gas back 30 minutes after admission. The results are: pH 7.52, $PaCO_2$ 29, PaO_2 84, Bicarb 23.5, SaO_2 96%
Which of the following changes would be appropriate?

a. Decrease PEEP

*b. Increase Tidal Volume

c. Decrease RR

d. Increase FiO_2

e. Increase Ti

38. Use the case presented below for this question:

You are getting ready to receive a multiple gunshot wound trauma (none to thorax) into Emergency. She is a 52 kg female named Lisbeth Salander. She is intubated with a 7.0 ETT, secured at 22 cm at the lip. What would be an appropriate tidal volume to start her on?

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e. 515 mls

You choose your other ventilator settings as follows:
PRVC mode
RR 15
FiO2 50%
PEEP 5
Ti 1.30 seconds

Question: Ms. Salander is now awake, and is ready to attempt weaning. Your first choice for weaning would be:

*a. Attempt plugging trials

b. Start on moderate level of PSV

c. Extubate to Bipap

d. Start on SIMV with a set rate of 18

e. Start on volume support with a tidal volume of 550 mls

39. Which of the following modes will adjust RR and support level to try and target an ideal MV, RR, and Vt?

*a. ASV

b. NAVA

c. PAV

d. PSV

e. SIMV

40. A mode that allows completely spontaneous breathing while still guaranteeing a set level of ventilation if a patient were to go apneic would be:

a. MMV

b. PAV

*c. PSV

d. TC

e. VS

41. Which of the following flow waveforms can be chosen when using CMV with Autoflow OFF on the Evita XL?

a. Accelerating

b. Decelerating

*c. Square

d. All of the above

e. B and C only

42. On the Evita XL, when ventilating in CMV with Autoflow OFF, what would happen to Ti if you increased your flow (without changing tidal volume)?

a. Would decrease

*b. Would increase

c. Would be unchanged

d. Would be determined by the patient

43. The Evita XL ventilator gives the clinician which of the following options?

*a. Built-in ultrasonic nebulizer

b. Intrinsic PEEP measurement

c. Volume support ventilation

d. Air compressor

e. All of the above

44. Your patient is in PCV+/Assist on the Evita XL. If you increase your set PEEP, what will most likely happen to your tidal volume?

a. Will decrease

*b. Will increase

c. Will be unchanged

45. Which of the following information is needed by Smartcare before it can be started?

a. Patient's height

b. Patient's weight

*c. Patient's sex

d. Smoking history

e. All of the above

46. The LTV 1200 ventilator can be used in all the following ways EXCEPT:

a. For non-invasive ventilation

b. To perform spontaneous breathing trials

*c. To ventilate with a PRVC-type mode

d. To calculate autopeep

e. To transport a patient using an oxygen cylinder

47. The LTV 1200 ventilator incorporates which of the following features?

a. MDI port built into the circuit

*b. Oxygen concentrator

c. Air compressor

d. Low-flow P/V loop measurement

e. All of the above

48. Which of the following ventilators does NOT have an active/open expiratory valve?

a. Evita XL

*b. Hamilton G5

c. PB 840

d. Servo I

49. Which of the following modes does NOT function in a similar fashion to the others?

a. APV-CMV

b. ASV

*c. CMV with Autoflow

d. PRVC

e. VC+

50. Using low-tidal volumes can protect the lung from injury. What would be the problem with using a tidal volume that is too small?

a. It can lead to volutrauma

*b. It can lead to barotrauma

c. There would be too much deadspace ventilation compared to alveolar ventilation

d. There would not be enough volume to splint the airways open

e. The patient would have a harder time triggering the ventilator

51. While ventilating your patient on NAVA, you notice that your Edi has climbed from 10 at initiation up to 28 where it is now staying. This would likely indicate that:

a. Your patient is successfully weaned

b. Your patient is tiring out

c. You should be turning the NAVA level down

*d. You should be increasing the PEEP

e. You should be changing to another mode

52. An advantage of using NAVA compared to PSV could be:

a. It will give a prolonged Ti compared to PSV

b. NAVA will automatically wean your patient

*c. NAVA will adjust the FiO_2 if SpO_2 starts to deteriorate

d. NAVA triggering would be unaffected by autopeep

e. All of the above

53. What negative effects could keeping a patient on a control mode of ventilation for an extended period of time have?

*a. Further worsening of Autopeep

b. Progressively increased CO_2 tolerance

c. Diaphragm muscle atrophy

d. Hypoxic drive response will become stronger

e. Hypertrophy of intercostal acessory muscles

54. Which of the following would be TRUE of percutaneous trachesotomy compared to surgical?

a. Percutaneous must be visualized with a bronchoscope

b. In percutaneous you must dissect through the outer tissue until the trachea is fully visualized

c. Percutaneous is more likely to use cautery

*d. Percutaneous is the preferred method for patients with abnormal neck anatomy

55. A general rule for determining when a patient should be trached would be:

a. A patient should be trached if they have an RSBI of greater than 80 after being on PSV for 24 hours

b. A patient not currently breathing spontaneously should be considered for tracheostomy

*c. Tracheostomy should be considered if a patient fails extubation more than 5 times

d. You should consider tracheostomy if you haven't weaned the patient off the ventilator within 2 weeks

e. If the patient is not on a support mode of ventilation, you should consider tracheostomy

56. There is less work of breathing imposed by a trach tube compared to an ETT because:

a. Inner cannula of trach tube causes less turbulent flow

b. Trach tubes usually have a larger internal diameter

*c. Trach tubes are shorter

d. You can use different ventilator modes with a trach tube

57. Benefits of tracheostomy compared to ETT could include:

a. Tracheosomy is less invasive

b. Tracheostomy is a faster airway to establish

c. Trachesotomy tube has lower resistance

*d. Trachesotomy has fewer high-risk complications

e. All of the above

58. Which of the following trach weaning methods would impose the least work of breathing for a patient?

a. Plugging, cuff down

b. Plugging, cuff up

c. Speaking valve

*d. T-piece over trach

59. You are trying to wean a trached patient using plugging trials. Immediately after initiating your first trial, you audibly hear stridor without needing to use a stethescope. The most likely cause of this would be:

*a. A buildup of secretions in the airway

b. Bronchospasm

c. Loss of PEEP has caused small airway collapse

d. The trach tube is occluding too much of the patient's trachea

e. Vocal cord paralysis

60. You are getting ready to receive a multiple gunshot wound trauma (none to thorax) into Emergency. She is a 52 kg female named Lisbeth Salander. She is intubated with a 7.0 ETT, secured at 22 cm at the lip. What would be an appropriate tidal volume to start her on?

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c. 355 mls
d. 440 mls
e. 515 mls

You choose your other ventilator settings as follows:
PRVC mode
RR 15
FiO_2 50%
PEEP 5
Ti 1.30 seconds

a. a)

b. b)

*c. c)

d. d)

e. e)

61. Use the following case for this question:

You are getting ready to receive a multiple gunshot wound trauma (none to thorax) into Emergency. She is a 52 kg female named Lisbeth Salander. She is intubated with a 7.0 ETT, secured at 22 cm at the lip. What would be an appropriate tidal volume to start her on?

a. 255 mls
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d. 440 mls
e. 515 mls

You choose your other ventilator settings as follows:
PRVC mode
RR 15
FiO2 50%
PEEP 5
Ti 1.30 seconds

Question: What would be her approximate I:E ratio?

a. 1:2

b. 1:3

c. 1:4

*d. 1:5

62. Which of the following will most likely be affected if you are running an external nebulizer into your ventilator circuit? They are currently sedated and on traditional VC.

*a. Inspiratory time

b. PEEP

c. Tidal volume

d. Respiratory rate

63. Running an external neb into a ventilator circuit may have all of the following effects, EXCEPT:

*a. Decrease your level of peep

b. Increase your FiO_2

c. Make it harder to trigger a breath

d. Increase the measured minute volume

64. When ventilating your patient in PSV, which of the following alarms would you consider to be the most important?

a. High RR

b. High Vt

*c. High PIP

d. High MV

e. Low MV

65. Increasing your Ti while in volume control ventilation will have what effect on minute ventilation?

*a. Increase it

b. Decrease it

c. No change

66. Lung injury caused by collapsed alveoli being re-expanded and then recollapsing repeatedly would be called:

a. Atelectrauma

b. Barotrauma

c. Biotrauma

d. Expansion trauma

*e. Volutrauma

67. A general guideline for minimizing ventilator-induced lung injury would be:
a. Preventing oxygen toxicity is the primary concern, tissue hypoxia would be secondary

a. Preventing oxygen toxicity is the primary concern, tissue hypoxia would be secondary

*b. A plateau pressure of >30 is safe as long as PEEP is set appropriately

c. High PIP is more likely to injure than high-plateau pressures

d. Finding the ideal Ti is more important than finding the ideal peep

e. Peep should be set slightly above the lower inflection point

68. A general guideline to provide safe suctioning via ETT would be:

*a. The patient should always be instilled prior to any suctioning attempt

b. Patient should be pre-oxygenated, oxygenated during, and post-oxygenated with 100% FiO2

c. Suction level should be increased until a level is reached where all secretions can be easily aspirated through the catheter

d. Sterile open suction should be tried first before a closed suction system is used

e. A recruitment manoeuvre should always be performed prior to suctioning

69. An expiratory hold is used primarily to:

a. Assess previously undetected pressure in the lung

*b. Assess strength of patient inspiratory effort

c. Evaluate effective tidal volume

d. Calculate volume lost to tubing compliance

e. Assist in setting slope

70. All of the following are indications for performing a recruitment manoeuvre, **EXCEPT:**

a. Diffuse atelectatic pattern on chest X-ray

b. Elevated $PaCO_2$

c. Low PaO_2 on high levels of FiO_2

*d. Patient has been hypoventilated for a prolonged period during surgery

e. Unresolving ARDS

71. When determining optimal peep, which of the following should be assessed?

a. Change in compliance

b. PaO_2 or SpO_2

c. Cardiac status

d. All of the above

*e. A and B only

72. Which of the following situations may contra-indicate performing a recruitment manoeuvre on a patient?

a. Patient has a recent closed head injury

b. Patient is in ventricular tachycardia

c. Patient has a pneumothorax of increasing size

*d. Patient has a foreign body aspiration causing mainstem occlusion

e. All of the above

73. The purpose of a lung recruitment manoeuvre is to:

a. Open up airways that may be bronchospastic

b. Improve perfusion to non-ventilated lung regions

*c. Find the ideal ventilating tidal volume

d. Open up collapsed alveoli

e. Decrease surfactant production in non-ventilated lung regions

74. Your patient is being ventilated on a Servo 300 in PRVC mode. Your Phigh alarm is set at 30, and the ventilator needs a high pressure of 28 to deliver the set tidal volume. What will occur?

a. The ventilator will deliver the full tidal volume at the Phigh pressure of 28 but will alarm to make you aware there is a problem

b. The high-pressure alarm will activate and the breath will be cycled early into exhalation

c. The upper pressure will be limited to 25, and the tidal volume will be lower than set

d. The ventilator will decrease flow and lengthen Ti to ensure the full tidal volume is delivered

*e. The ventilator will deliver a smaller tidal volume but will increase the RR to maintain minute ventilation

75. Apnea backup for pressure support ventilation on the Servo 300 ventilator is:

a. Pressure Control

*b. Pressure-Regulated Volume Control

c. Volume Control

d. Volume Support

e. There is none

76. If you are ventilating your patient in PRVC on the Servo 300 ventilator and you decrease your RR, what will happen?

a. Minute volume will decrease

b. Tidal volume will increase

*c. Ti will decrease

d. PEEP will increase

77. The Servo 300 has all of the following features **EXCEPT:**

a. Neonatal and pediatric ventilation ability

*b. Abiltiy to set how fast inspiratory pressure will rise to the set value

c. Adjust cycle from inspiration into expiration in PSV

d. Ultra-sonic nebulizer

e. Flow triggering

78. For a humidifier to properly function when attached to an invasive ventilator circuit, which of the following must occur?

a. The humidifier should be set to 49 degrees Celsius

*b. The gas in the circuit should be hotter than it is in the humidifier

c. The humidifier should be placed just before the patient wye on the inspiratory limbThe humidifier should be placed just before the patient wye on the inspiratory limb

d. Inspiratory flow must NOT be allowed to exceed 30 lpm

e. All of the above

79. Which of the following would be TRUE regarding HME use?

a. Deliver higher levels of humidity compared to humidifiers

b. Usually have built-in bacterial filtering capability

c. First choice for humidification in patients with excessive secretion levels

d. Can be used simultaneously with conventional humidifier to increase humidity to patient

*e. All of the above

80. A mode that will adjust pressure support to target a set tidal volume would be:

*a. Airway Pressure Release Ventilation

b. Adaptive Support Ventilation

c. Proportonal Assist Ventilation

d. Pressure-Regulated Volume Control

e. Volume Support

81. The oxygen concentration alarms on the PB 840 are:

*a. Set by the ventilator

b. Set by the clinician

c. Only active during spontaneous breathing

d. Only active when FiO_2 is less than 50%

e. Only active when FiO_2 is greater than 50%

82. What does Dsens on the PB 840 ventilator do?

a. Sets a percentage of volume loss acceptable prior to declaring disconnect

*b. Sets a percentage of peak flow at which the ventilator will cycle from inspiration into expiration

c. Sets a time that the ventilator will take to reach maximal pressure in pressure modes

d. Sets a percentage of bias flow a patient must draw in before a breath will be triggered

83. Which of the following is TRUE of the mode TC on the PB 840?

a. Automatically adjusts for volume lost to tubing compliance in all available modes

b. Adjusts the pressure delivered to keep carinal pressure the same as PEEP

c. Adjusts pressure delivered on a breath-by-breath basis to target a set tidal volume

*d. Works best for weaning patients with severe compliance disorders

e. Works best for weaning patients with resistance obstructive disorders

84. Which of the following supportive ventilation modes are available on the PB 840 ventilator?

a. ASV

*b. MMV

c. NAVA

d. VS

e. All of the above

85. To perform a static compliance manoeuvre on the PB 840 ventilator, the clinician must do:

a. An expiratory hold

b. An inspiratory hold

c. Both A and B

*d. No holds are necessary on this ventilator

86. Which of the following ventilators does NOT compensate for volume lost to tubing compliance?

a. Evita XL

b. Hamilton G5

c. Servo I

d. Servo 300

*e. All of the above

87. A mode that gives a set number of control breaths per minute while also allowing your patient to spontaneously breath would be:

a. APV-CMV

b. NAVA

*c. NIV-Bilevel

d. PAV

e. SIMV-PC

88. You are ventilating a patient with the following parameters:
Mode PCV
RR 16
Measured exp Vt 550 mls
Ti 1.10 seconds
Peep 7
PIP measured at 32
Pplat measured at 29
What would this patient's Cstat be? (Pick the closest value)

a. 16

b. 19

c. 25

*d. 31

e. 37

89. Calculate RSBI based on the following information (Pick the closest value):
SpO_2 97%

$PaCO_2$ 45
BP 155/87
HR 142
RR 27
Vt 445

a. 5

b. 29

c. 52

d. 61

*e. 115

90. Which of the following changes would likely lead to an increase in PaO_2?

*a. Increasing RR

b. Decreasing Ti

c. Increasing Te

d. Increasing Peep

e. Decreasing Pplat

91. Autopeep is most likely occuring when which of the following are occuring?

a. Expiratory flow is still seen when the next control breath is initiated

b. “Duck billing” is seen on a low-flow PV loop

c. A definite lower inflection point can be seen on a PV loop

*d. A square inspiratory pressure waveform is seen

e. A variable, decelerating flow waveform is seen on inspiration

92. When looking at a volume-time graphic on the ventilator, which of the following can be diagnosed?

*a. Pulmonary edema

b. Pulmonary embolism

c. Pneumothorax

d. Circuit leak

93. Flow volume loops can be of benefit when assessing:

*a. Response to bronchodilator administration

b. Changes in patient compliance following recruitment

c. Ability of the patient to trigger a breath

d. If the patient is ready for extubation

94. Automode on the Servo i has what function?

a. Changes from a control to a support mode if the patient starts spontaneously breathing

b. Converts volume control from a fixed flow pattern to a PRVC-type mode

c. Weans the level of support the patient receives as the diaphragm becomes stronger

*d. Increases the RR the patient receives so that they reach a set minimum minute ventilation

95. Which of the following functions are available on the Servo i ventilator?

a. Built-in ultrasonic nebulizer

b. Removable battery packs

*c. NIV ability

d. Open lung trending tool

e. All of the above

96. When pressing the "O_2 breaths" button on the Servo i, the patient will receive a FiO_2 of 100% for how long?

a. Until SpO_2 improves

b. For 50 breaths

*c. For 1 minute

d. For 4 minutes

e. Until it is turned off

97. Non-invasive ventilation has been proven to be beneficial in the treatment of which of these disease states?

a. Pulmonary embolism

b. Central sleep apnea

c. Congestive heart failure

*d. Postoperative hypoventilation

e. All of the above

98. Non-invasive ventilation is associated with lower mortality rates compared to intubation because:

a. It is easier to give inhaled medications through NIV machines

b. You can use higher levels of sedation with NIV patients

*c. The clinician has better control of ventilation when using NIV

d. There is a lower risk of nosocomial infection when using NIV

e. Patients can maintain a regular diet while on NIV ventilation

99. Which of the following statements would be TRUE regarding NIV therapy?

a. Will provide higher levels of humidification than invasive ventilation
Zb. Is ineffective when used to treat hypoxemic respiratory failure

b. COPD patients extubated early to NIV have better survival rates than those weaned on PSV

c. Requires less communication and patient coaching in the setup phase than invasive ventilation does

*d. When applying the mask, it should be tightened until there are absolutely no leaks around it

100. Common complications of NIV therapy could likely include:

*a. Gastric insufflation

b. Patient-ventilator dyssynchrony

c. Eye irritation

d. Facial ulceration

e. All of the above

101. NIV via a nasal pillow interface would be best indicated for which of the following conditions?

a. Home nocturnal OSA

b. Short-term COPD exacerbations in ER

*c. Short-term ventilation for postoperative facial reconstruction

d. Acute SOB in CHF patient

102. Which of the following features can be found on the respironics vision?

*a. Patient can be transported while being ventilated because of the built-in battery

b. Has a built-in oxygen concentrator

c. Can be run off of high-pressure oxygen source

d. Can monitor end-tidal CO_2

e. All of the above

103. When using S/T on the vision, which of the following would be **TRUE?**

a. FiO_2 can be set by the clinician

b. RR should be set slightly above patient's spontaneous rate

c. There are no parameters the clinician can modify to influence $PaCO_2$

*d. EPAP should always be set slightly higher than IPAP

e. Can only be used if the patient is using a nasal mask

104. You are ventilating a patient non-invasively with the Vision on S/T. If you increase the IPAP, what would most likely occur?

*a. Patient's SpO_2 will decrease

b. Patient's $PaCO_2$ will decrease

c. Patient's RR will decrease

d. Patient's tidal volume will decrease

e. Patient's work of breathing will decrease

105. Which of the following would be TRUE regarding PAV on the Vision?

*a. Has customized options for patients with compliance or resistance issues

b. Will increase the respiratory rate if minute volume is too low

c. Will automatically wean the level of support as the patient's muscle strength improves

d. Should be the first mode tried if the patient has lost their drive to breathe

e. Can automatically adjust FiO2 as patient condition changes

106. The mode DuoPAP on the Hamilton G5 ventilator functions in a similar fashion as which other mode?

a. APRV

*b. MMV

c. NAVA

d. PCV

e. PRVC

107. The “tightness” check on the Hamilton G5 ventilator is designed to test what?

*a. The tightness of the connection where the circuit is joined to the ETT

b. For leaks in the circuit

c. The function of the proximal flow sensor

d. That the expiratory valve is properly seated

e. That the air and O_2 high-pressure hoses are tightly connected to the wall

108. If you increase the respiratory rate on the Hamilotn G5, what would happen to your Ti?

*a. Decrease

b. Increase

c. No change

109. Which of the following extra features are available on the Hamilton G5 ventilator?

a. The ability to measure an auxillary pressure

b. Sigh breath feature

*c. Proximal flow sensor

d. Low-flow P/V loop

e. All of the above

110. Which of the following would be TRUE regarding the mode ASV?

*a. It is the Hamilton G5's version of the mode PRVC

b. Patient must be spontaneously breathing to be on this mode

c. The patient's height and gender must be set

d. Will automatically adjust FiO_2 to decrease work of breathing

e. Should be the first mode chosen in the status asthmaticus patient

111. A low-flow PV loop would be useful in determining:

a. Ideal PEEP

*b. Ideal Ti

c. Spontaneous RR

d. Readiness to extubate

e. Ideal FiO_2

112. You are ventilating a patient using APRV. If you shorten your Ti (but leave Te the same), which of the following would likely occur?

a. Mean airway pressure would increase

b. Respiratory rate would increase

*c. Spontaneous breathing would increase

d. Tidal volume would increase

e. None of the above

113. Potential side effects from using APRV (rather than conventional) ventilation could be?

a. Increased risk of barotrauma

b. Patient unable to spontaneously breathe

c. Increase cerebral pressure from impeded venous return

d. Development of atelectasis

*e. All of the above

114. Which of the following patients would most likely benefit from isoflurane therapy?

*a. COPD exacerbation

b. Cystic fibrous with retained secretions

c. Acute ARDS

d. Early onset sepsis

e. Asthmatic exacerbation unresponsive to conventional therapy

115. Advantages of isoflurane therapy would be:

a. Allows bronchdilators to reach lower into the airway

b. Loosens secretions, making clearance easier

c. Has bronchdilating effects that last for an extended time once isoflurane has been discontinued

*d. Has a lower resistance coefficient than air, allowing easier ventilation

e. Your patient will be awake, but won't trigger the ventilator while you use it

116. Which of the following would be **TRUE** regarding proportional assist ventilation?

a. It uses a pressure-support breath targeted to a set tidal volume

b. It will use both control and supported breaths

c. It will automatically wean the support the patient receives

d. It will amplify the effort the patient makes to breathe

*e. All of the above

117. A PAV mode is available on which of the following ventilators?

a. Hamilton G5

b. PB 840

*c. Vision

d. All of the above

e. B and C only

118. Which of the following ventilators can you currently run isoflurane through?

a. Evita XL

b. PB 840

c. Servo 900c

*d. Servo i

e. Both C and D

119. Which of the following safety concerns should be taken when ventilating with isoflurane?

a. The patient should always be in PSV so that they can control their I:E ratio

b. A scavaging system should be incorporated if using a MAC greater than 3

c. As hypertension is common, BP should be monitored

*d. End tidal CO2 should be tracked as an early detector for malignant hyperthermia

120. When ventilating your patient in volume control, which of the following alarms is most important to set?

*a. Low MV

b. Low RR

c. High FiO_2

d. High Vt

e. High PIP