

Syllabus	AM_IK_07, EN_IK_06, EN_IK_07
Topic	Laser for laryngeal surgery

a)
 What does the acronym LASER stand for? (1 mark)

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b)
 List 3 different types of laser that can be used for surgery, and include an example for each. (3 marks)

	Type of laser	Example
1)
2)
3)

c)
 What measures would you take to protect the staff when a laser is in use? (3 marks)

- 1)
- 2)
- 3)

d)
 How can the risk of an airway fire be minimised? (3 marks)

- 1)
- 2)
- 3)

During the operation, a fire starts in the operative field. You have activated the fire alarm, called for help and asked the theatre assistant to obtain a CO₂ fire extinguisher.

e)

List 5 immediate steps you would take to specifically manage the fire and airway. (5 marks)

1)

2)

3)

4)

5)

f)

What anaesthetic techniques can be used to allow a tubeless field for laryngeal surgery? (5 marks)

1)

2)

3)

4)

5)

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	Answer	Marks	Guidance
a)	<ul style="list-style-type: none"> • Light Amplification by Stimulated Emission of Radiation 	1	All words must be correct for mark.
b)	<ul style="list-style-type: none"> • Gas e.g. CO₂, argon, helium-neon • Liquid e.g Organic dyes in liquid solution • Semi-conductor laser e.g. Gallium arsenide • Solid state e.g. Nd-YAG, Ruby 	1 mark for each (Max. 3)	Must have example to gain mark.
c)	<ul style="list-style-type: none"> • Teaching and training • Laser protection officer • Locks on doors • Signs on doors • Eye protection 	1 mark for each (Max. 3)	
d)	<ul style="list-style-type: none"> • Laser resistant endotracheal tube • Saline filled endotracheal cuffs • Minimal FiO₂ used whilst laser in use • Avoid N₂O • Saline soaked gauze around operative site 	1 mark for each (Max. 3)	Double cuffs protect airway but not minimise risk of fire
e)	<ul style="list-style-type: none"> • Stop laser surgery/diathermy • Flood operative area with saline • Remove endotracheal tube • Discontinue ventilation and FGF • Ventilate and oxygenate with air and bag/valve mask • Minimise O₂/stop N₂O 	1 mark for each (Max. 5)	
f)	<ul style="list-style-type: none"> • <u>Jet ventilation</u> <ul style="list-style-type: none"> ○ Supraglottic jet ventilation ○ Subglottic jet ventilation ○ Transtracheal jet ventilation • <u>Spontaneous ventilation</u> • <u>Apnoeic oxygenation</u> • <u>High flow nasal oxygenation</u> 	1 mark for each (Max. 5)	

References

1) Pearson KL, McGuire BE. Anaesthesia for laryngo-tracheal surgery, including tubeless field techniques. BJA Education (2017) 17(7)242–248

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3) Association of Anaesthetists. Patient Fire. [online] Available at:

https://anaesthetists.org/Portals/0/PDFs/QRH/QRH_3-7_Patient_fire_v1.pdf?ver=2018-07-25-112714-097