Describe the anatomy of the neck and trachea relevant to the insertion of a tracheostomy

Tracheostomy – insertion of a tube through the anterior portion of the neck into the trachea to facilitate ventilation

**Trachea Course:**
- Larynx connects to the superior part of the trachea at C6 into the thorax and terminates at the level of the sternal angle, where it divides into the right and left mainstem bronchi.
- Initially anterior, then moves posteriorly as it descends to move behind the sternal notch

**Tracheal Structure:**
- A fibrocartilaginous tube 10cm long, approx 5cm in neck
- Supported by incomplete cartilaginous tracheal rings, which keep the trachea patent.
- The tracheal rings are joined by fibroelastic tissue.
- They are deficient posteriorly where the trachea lies anterior to the oesophagus; the posterior gap is spanned by the involuntary smooth trachealis muscle

**Relationships:**
- Lateral - carotid sheaths (common carotid arteries, vagus and internal jugular veins), thyroid lobes, inferior thyroid arteries, recurrent laryngeal nerves
- Inferior to the isthmus of the thyroid gland are the inferior thyroid veins
- Posterior – oesophagus, vertebral column

**Relevant surface anatomy (in midline of neck):**
- Hyoid bone (at level of C3)
- Thyroid cartilage
- Cricothyroid membrane
- Cricoid cartilage (at level of C6)
- Thyroid gland
- Sternohyoid muscle just lateral to midline structures, overlies sternothyroid and thyrohyoid muscles

**Layers of dissection in tracheostomy:**
- Skin
- Subcutaneous tissue
- Fat
- Pretracheal fascia (superficial and deep)
- Passage through the fibroelastic tissue in between the 1st and 2nd rings (common in perc trache) or 2nd /3rd or 3rd/4th (surgical trache)
Examiners Comments

For a good answer candidates were expected to mention surface anatomy of the anterior of the neck from the superior to inferior aspects (e.g. hyoid bone, thyroid cartilage, cricothyroid ligament, cricoid cartilage and thyroid gland with sternohyoid muscle just lateral to the midline structures, the pathway of the trachea from anterior at level of larynx to more posterior as it enters the chest behind the sternal notch, nature of the tracheal rings (C shaped cartilages (first cartilage is bigger than the others in the cervical trachea) joined vertically by fibro-elastic tissue and connected posteriorly by the trachealis muscle, layers of dissection for tracheostomy (e.g. skin, subcutaneous tissue, fat, pre-tracheal fascia (superficial and deep), trachea and the relationship of thyroid to the trachea and surrounding vessels. There were some good answers amongst the successful candidates, whereas those who failed to pass this question did so because of a lack of detailed knowledge and relational anatomy. Candidates were not asked, and thus did not receive marks for, describing how to perform a tracheostomy.