

Exam Questions BMT II SS22

24 questions from 8 lectures with only single choice

Robotic surgery

1. Well-documented advantage of robotic systems compared to open surgery
 1. **reduced blood loss**
 2. better oncologic results
 3. shorter OP time
 4. less cost
 - 5.

2. Most notable development in the last 2 years for laparoscopic robotically surgery
 1. broader range due to smaller portable systems
 2. cost reduction
 3. **ending monopoly**
 4. completely autonom robots
 5. ...

3. In addition to laparoscopic procedures small procedures like bronchoscopy, prostatectomy....are conducted with a robot. Which statement is not correct?
 1. **The robotic system react more easily to changes in the patient's position**
 2. different systems are required
 3. more detailed working possible
 - 4.

Virtual reality in medicine

4. What is an advantage of robotic surgery compared to laparoscopy?
 1. less blood loss
 2. smaller incision
 3. smaller scars

- 4. **Movement the surgeon can't do**
 - 5. Magnification
5. What VR technique uses reality with additional computer generated features?
- 1. virtual endoscopy
 - 2. **augmented reality**
 - 3. robot-assisted surgery
 - 4. virtual training
 - 5. 3D-imaging
6. What component is NOT necessary for surgical navigation setting?
- 1. 3D camera
 - 2. position information of the patient
 - 3. position information of the instrument
 - 4. image data
 - 5. **position information of the surgeon**

Hygiene in Biomedicine

7. Which of the following microorganisms is not eliminated by disinfectants?
- 1. vegetative bacteria
 - 2. enveloped viruses
 - 3. **bacterial spores**
 - 4. funghi
 - 5. yeast
8. Which material can NOT be sterilized with humid heat in steam sterilization (autoclave)?
- 1. cotton
 - 2. metals
 - 3. thermo-stable plastics/polymers
 - 4. **electrical systems (e.g. cameras)**
 - 5. glas
9. How are measles transmitted?
- 1. contact (direct)
 - 2. surfaces

3. **air-borne (aerosol)**
4. parenteral (body fluids)
5. vector based (mosquito)

Life Support machines

10. Which statement is correct regarding heart-lung machines (HLM)?
 1. standard cannulation is from left ventricle to right ventricle
 2. HLM are not used anymore
 3. **standard cannulation is from right atrium to aorta**
 4. HLM has no risk
11. Which statement is correct?
 1. ECLS and ECMO are the same
 2. ECLS is only replacing the lung
 3. ECLS is implanted by an open surgery
 4. are not used in medicine anymore
 5. **ECLS is a device which temporarily replaces heart and lung function**
12. LVAD which statement is correct?
 1. in significantly less patients than patients that have transplanted heart
 2. **implantation via thoracotomy and only small device on outside**
 3. pumps just a small amount of blood?
 4. pumps the blood from the left ventricle to the right?
 5. device is not really helpful

Surgical Microscopes

13. Which optical component is not a part of telescope microscope?
 1. Pair of telescope lenses
 2. vario objective lens
 3. **pair of main objectives**
 4. pair of tube lenses
 5. pair of eyepieces

14. Where do lines of site left/right stereoscopic imaging path cross?

1. **within the depth of focus area**
2. fundus in observer eye
3. on retina
4. in focus in tube system
5. at focus of magnification system

15. What is a component/module of microscopes in neuro-surgery?

1. have a xxx loupe
2. have a fundus system
3. **have excitation filter**
4. have a OCT imaging part
5. have a fixed focus objective lens

Thermofusion

16. What is **not** an advantage of electrosurgery/vessel sealing?

1. **damage of lateral tissue**
2. less bleeding
3. less remaining material in the body
4. more easy to apply than suturing and knots tying
5. ...

17. Which statement about vessel sealing is correct?

1. Is an umbrella term for all electronic coagulation techniques
2. Is conducted with a conductive clip which remains in the body
3. used for small vessels
4. **reliable fusion of larger vessels**
5. Is conducted using a monopolar electrode

18. Which statement about bipolar coagulation is correct?

1. used for larger vessels
2. **used for capillaries and smaller vessels**
3. Circulatory anastomosis to reduce bleeding (something like that)
4. Is used to replace clips
5. Is used to temporarily reduce the perfusion of selective organs

Electrosurgery

19. Why use high frequency alternating current in electrosurgery

1. **no electric shock in electrosurgery**
2. to avoid burns

20. What is correct about sparks in electrosurgery?

1. are protecting from ...
2. are only possible in monopolar surgery
3. **lead to high current density what is used for cutting tissue**
4. high alternating current frequency needed
5. are unwanted during surgery

21. Purpose of neutral electrode in electrosurgery

1. grounding of the patient
2. **close electric circuit (monopolar electrosurgery)**
3. that patient gets no electric shock
4. avoids unwanted burns
5. compensates the current

Hemopurification systems

22. Which excretory function of the kidney does a dialysis system replace?

1. blood pressure (renin)
2. blood components (EPO)
3. **Acid-base level**
4. mass-xxx ratio
5. calcium uptake

23. What needs a lot of fluid and combines convective and diffusive transport for optimal cleaning of uremic toxins?

1. HF
2. HD
3. HDHD

4. HAF

5. HDF

24. Dialysis Membranes Regulatory, what is wrong?

1. bio-in-compatible membrane can lead to inflammation

2. **validation can be done by visual inspection only**

3. in vitro tests are essential

4. ISO norm for regulation

5. regulations are important