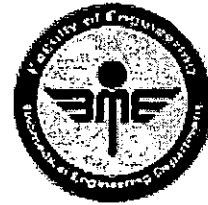




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1-Write true or false. (Score 15)

- 1) The purchase contract document is prepared by the financial department and reviewed by TAWG.
- 2) Medical technology life cycle is subdivided into two sub-cycles acquisition and maintenance.
- 3) In medium clinical engineering department, the head of the department is BMET.
- 4) Clinical engineer interacts with doctors in medical requirements.
- 5) The role of PSC committee is to ensure standards compliance of the products.
- 6) The main advantage of service contract modality is immediate response.
- 7) Each medical device should be identified and tracked by its control number.
- 8) Color code of the vacuum is the blue color.
- 9) Oxygen gas is supplied either from bulk tanks or cylinders.
- 10) A common failure mode of assistive devices is lack of user training.
- 11) Calibration is a significant element of corrective maintenance.
- 12) Replacement policy based on the expected life time of medical equipment follows capital budget cycle.
- 13) Negligence is one form of misuse of medical equipment.
- 14) Aggregate indicator threshold should set to be zero.
- 15) FDA standards should be considered for medical equipment management.

2- Choose the most correct answer (Score 10)

- 1- A request for proposal should include
 - a) The prices of equipment
 - b) The name of the manufacturer
 - c) The specifications
- 2- Verification of accessories and electrical safety test are examples of activities that should take place in
 - a) Planning
 - b) Incoming inspection
 - c) Maintenance
- 3- Clinical performance, ease of use, and disinfecting are examples of items that should be considered in
 - a) Technical evaluation
 - b) Clinical evaluation



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- c) Financial evaluation
- 4- The name of the device, brand, model, and payment method must be in
- Purchase contract
 - Request for proposal
 - General specifications
- 5- Comparing program indicators with those that are used in other facilities. This process presents
- Measure internal operation
 - Quality improvement
 - External benchmarking
- 6- The scrapping of medical equipment should be highly considered when
- The reliability is consistent
 - Safety issues are unresolved
 - The downtime is low
- 7- Medical air manifold consists of 40 cylinders, means
- 4 banks of 10 cylinders each
 - 2 banks of 20 cylinders each
 - 8 banks of 5 cylinders each
- 8- A common failure mode of diagnostic medical devices is
- Inaccurate information provision
 - Lack of indication
 - Inappropriate therapy delivery
- 9- Non providing free software upgrading for medical devices is a disadvantage of
- Full service contract
 - In house service
 - Insurance company
- 10- The surgical tools are derived using
- Medical air 4
 - Medical air 7
 - Vacuum



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3- Answer the following questions (Score 25)

1. What are possible usages of scrapped medical equipment? (6)
2. What are the types of service contract? (4)
3. List six items that should be regarded in the service manual. (6)
4. Draw flowchart that depicts an indicator management process. (5)
5. The following list is specifications of a neonatal phototherapy unit.
Specify the general specifications and the specific requirements (4).
 - a) It should be compact florescent lamp based phototherapy unit used for clinical management of neonatal hyperbilirubinemia.
 - b) It should be FDA or CE approved product.
 - c) Irradiance at 430 – 480 nm effective to the baby of at least 18 mw/cm/nm at 45 cm from the lamp.
 - d) 100 bulbs should be supplied along with each unit.
 - e) The unit should be capable of operating continuously in ambient temperature of 0-50 °C and relative humidity of 15-90%.
 - f) Power input to be 220-240 VAC, 50 Hz.
 - g) Manufacturer/supplier should provide 2 years' warranty.
 - h) User and service manuals must be supplied in English.