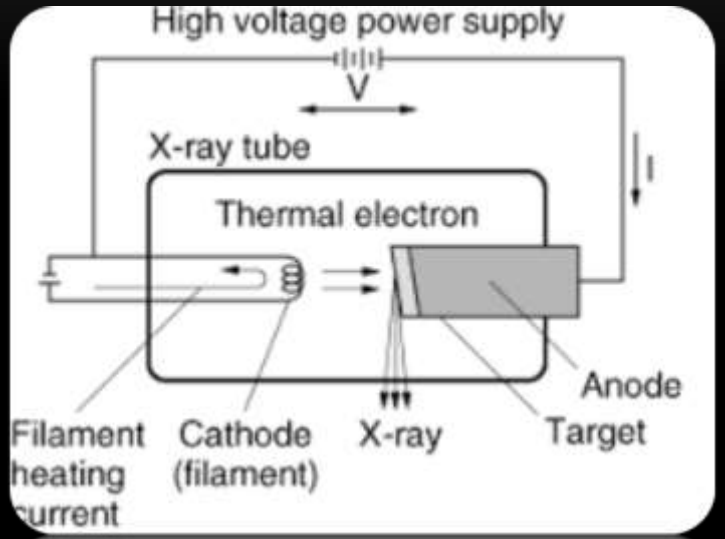
Red tech official for radiographer

10 MCQS
X-RAY TUBE CONSTRUCTION & WORKING

1. What is the typical material used for the filament in an X-ray tube?

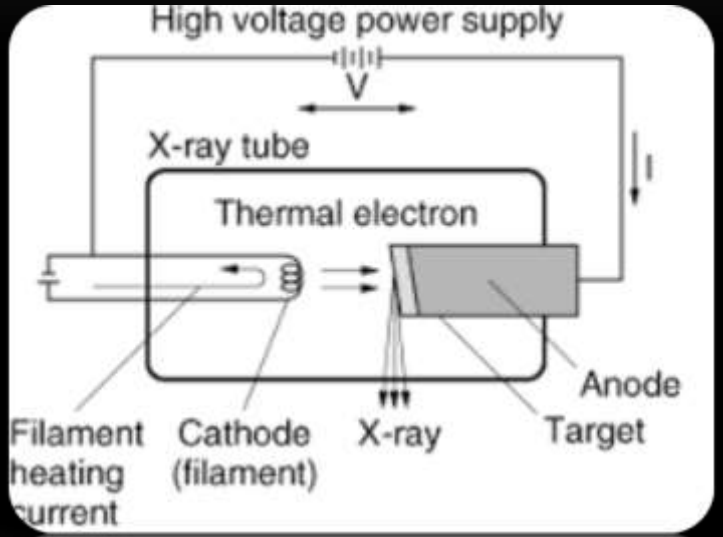
A. Copper
B. Molybdenum
C. Tungsten
D. Lead



Correct answer: C. Tungsten

2. **Which part of the X-ray tube rotates to dissipate heat?**

A. Filament
B. Focusing cup
C. Anode disk
D. Cathode cup



Correct answer: : C. Anode disk

3. **The angle of the anode target in most general-purpose X-ray tubes is:**

A. 5°

B. 10–20°

C. 30–40°

D. 45–60°

Correct answer: B. 10–20°

4. **The line focus principle is used in X-ray tubes to:**

A. Increase anode rotation speed

B. Produce a smaller effective focal spot

C. Improve beam filtration

D. Prevent tube arcing

Correct answer: B. Produce a smaller effective focal spot

5. **The envelope of the X-ray tube is usually made of:**

A. Plastic

B. Steel

C. Lead

D. Pyrex glass or metal

Correct answer: D. Pyrex glass or metal

6. **Which component allows rotation of the anode?**

A. Rotor and stator assembly

B. Filament transformer

C. Grid circuit

D. Cathode bias unit

Correct answer: A. Rotor and stator assembly

7. **The term “space charge effect” refers to:**

A. Anode overheating

B. X-ray beam hardening

C. Electron cloud repelling further emission

D. Incomplete beam collimation

Correct answer: C. Electron cloud repelling further emission

8. **The primary cause of X-ray tube failure is:**

A. Grid failure

B. Filament evaporation

C. Window cracking

D. Focusing cup distortion

Correct answer: B. Filament evaporation

9. **The purpose of the tube housing is:**

A. Focus the electron beam

B. Generate the X-rays

C. Limit leakage radiation and support cooling

D. Vacuum regulation

Correct answer: C. Limit leakage radiation and support cooling

10. **Dual-focus X-ray tubes are designed to:**

A. Use two rotating anodes

B. Provide large and small focal spots

C. Operate at higher kVp

D. Allow dual-energy CT

Correct answer: B. Provide large and small focal spots