

私立臺北醫學院八十九學年度第二學期期中考試(命題)題紙

系級	科目	授課教師	考試日期	學號	姓名
牙3	牙科放射線學	彭建倫	90年6月12日第5節		

*①請注意本試題共 6 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
 ②每張試題卷務必填寫(學號)、(姓名)。

以下試題答案請寫在最後一頁空白處。

一. (12%)

二. (12%)

1. 高速X光片之寬容度 (Latitude)較 (寬, 窄), 高速X 光片之寬容度 (Latitude)較 (寬, 窄)

2. X-光底片中, silver halide crystals 有那幾處在製作過程中特意做成非完整晶格 (intentional made imperfect) 3%

3. Processing of X-ray film 基本之四個步驟為 : 2%

4. 顯影液主成份中顯出對比 (contrast) 但是對溫度敏感者為 _____
 顯出 gray shades 者為 _____

5. Developing solution 中 restrainer 為 _____, 主要作用是 antifog .

6. X 光照射時, x-ray photons 主由 _____ ions 吸收, 並放出 recoil electron ,此 electrons 移走至 latent image site, 並可吸附 _____ ions, 形成 latent image .

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系級	科目	授課教師	考試日期	學號	姓名
牙3	牙科放射線學	彭建倫	90年6月(二)日第 150 節 3500		
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三. (25%)

Instruction: Select the most correct answer for each question.

- The x-ray beam is directed toward the patient's face with the
 - Tube.
 - Cone.
 - Collimator.
 - Transformer.
- X rays are produced in the _____ of the dental x-ray unit.
 - Tube.
 - Cone.
 - Collimator.
 - Transformer.
- The x-ray beam collimator is usually constructed of:
 - Copper.
 - Aluminum.
 - Lead.
 - Plastic.
- X-ray beam filters used in dental radiology are most often made of:
 - Plastic.
 - Aluminum.
 - Copper.
 - Lead.
- In normal dental diagnostic procedures, the principal hazard to the operator is produced by:
 - Gamma radiation.
 - Primary radiation.
 - Secondary radiation.
 - None of the above.
- Which of the following is least effective in reducing patient radiation dose?
 - Fast films.
 - Higher kilovoltage.
 - Proper collimation.
 - Increased filtration.

私立臺北醫學院 八十九 學年度第 二 學期 期中 考試 命 題紙

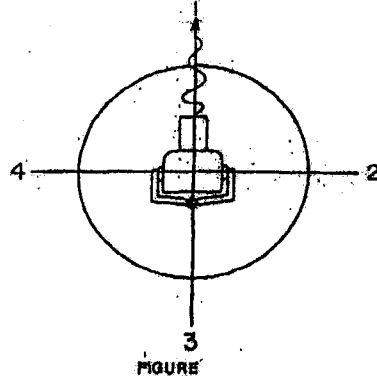
系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙 3	牙科放射線學	彭建倫	90年6月12日第 1-50 節 3500		
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7. The operator should NOT hold the:
- Film during exposure.
 - Tube during exposure.
 - Patient during exposure.
 - All of the above.

8. Lead aprons are used:
- Only on pregnant women.
 - To reassure patients.
 - To reduce scatter to the film.
 - On all patients.

9. Figure illustrates the x-ray tube head form above with the central ray located as shown. During exposure of x-ray, the safest operator position is at:

- 3.
 - 2 or 4.
 - Halfway between 2 and 3.
 - Halfway between 3 and 4.
- 1.
 - 2.
 - 1 and 2.
 - 3 and 4.



10. Secondary radiation is:
- Less when kVp is increased.
 - Most detrimental to the patient.
 - Less deeply penetrating than primary radiation.
 - Proportional to the square of the distance the operator stands from the patient.
- 1, 2, and 3.
 - 1, 3, and 4.
 - 2, 3, and 4.
 - All of the above.

私立臺北醫學院 八十九學年度第 二 學期 期中 考試 命 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙 3	牙科放射線學	彭建綸	90年6月12日 第 1-50 節		

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11. The chief hazards to the operator in roentgenographic work are:

- (1) Exposure to the radiation coming directly from the x-ray cones.
 - (2) Exposure to tube-head leakage.
 - (3) Exposure to secondary radiation emitted from the patient during an exposure.
 - (4) Radiation coming from an adjacent room.
- A. 1, 2, and 3.
 B. 1, 3, and 4.
 C. 2, 3, and 4.
 D. All of the above.

12. Some of the most effective means of controlling secondary radiation are:

- (1) Shielding.
 - (2) Increasing kVp.
 - (3) Using filters.
 - (4) Decreasing film speed.
- A. 1 and 3.
 B. 2 and 3.
 C. 1, 2, and 3.
 D. 2, 3, and 4.

13. Cell sensitivity to radiation is more pronounced :

- (1) During mitosis.
 - (2) During periods of increased metabolism.
 - (3) During embryonic development.
 - (4) In muscle cells.
 - (5) In nerve cells.
- A. 1, 2, and 3.
 B. 1, 2, and 5.
 C. 1, 3, and 5.
 D. 2, 3, and 4.
 E. 2, 3, and 5.

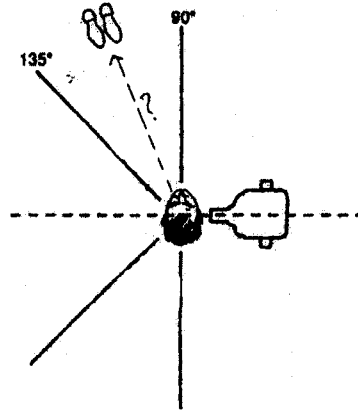
私立臺北醫學院八十九學年度第二學期期中考試(試)命題紙

系級	科目	授課教師	考試日期	學號	姓名
牙	牙科放射線學	彭建倫	90年6月12日第1-50節		

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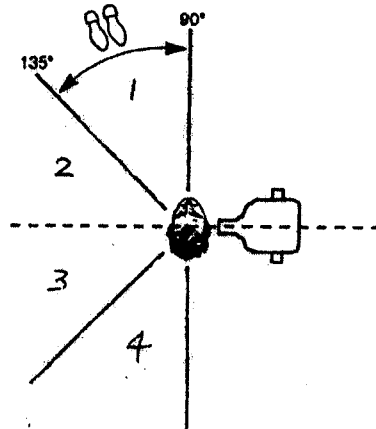
14. If no barrier is available, the operator should stand at least _____ feet from the patient.

- A. 2 feet
- B. 4 feet
- C. 6 feet
- D. 8 feet



15. If no barrier is available, the operator should stand at which area to reduce secondary radiation.

- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 1 and 4



私立臺北醫學院八十九學年度第 二 學期 期中 考試 (試) 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙	牙科放射線學	彭建綸	90年6月12日第 1-5 節 3:00		

※①請注意本試題共 6 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
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四. (50%)

- In all atoms except hydrogen, the nucleus consists of two primary subatomic particles _____ and _____.
- Beta and cathode rays are both high-speed _____ rays are emitted by radioactive nuclei, and _____ rays are produced by manufactured devices.
- Electromagnetic radiation is the movement of energy through space as a combination of _____ and _____ fields.
- Photons used in dental radiography have a wavelength of _____ to _____ nm.
- In X-ray tube, the _____ of cathode serves as a source of electrons, and the power supply for it to emit electrons is a _____ - voltage current.
- The anode of X-ray tube consists of a _____ target embedded in a _____ stem.
- Only a small amount of the kinetic energy of electrons coming from the filament generates X-ray photons, with more than 99% of the electron kinetic energy converting to heat, the requirement for a high _____ of target is clear.
- Typically the target is inclined about _____ degree to the central ray of the X-ray beam. This causes the effective focal spot to be almost 1x1mm, as opposed to the actual focal spot, which is about _____ mm.
- Another method of dissipating the heat from a small focal spot is to use a rotating anode. In this case the tungsten target is in the form of a beveled _____ that rotates when the tube is in operation.
- When an X-ray tube is powered with 60-cycle AC, 60 pulses of X-rays are generated each second, each having a duration of _____ second.
- Bremsstrahlung interactions generate X-ray photons with a _____ spectrum of energy.
- A X-ray machine operating at 10mA for 1 second produces the same quantity of radiation when operated at 20mA for _____ second.
- _____ film, be used to show larger areas of maxilla or mandible, is held in position by having the patient bite lightly on it.
- All _____ dental film intended to be exposed by X-ray is called direct exposure film.
- Bitewing films are useful for detecting interproximal _____ and evaluating the height of _____.
- Positioning the tube head to direct the beam downward from the horizontal, in the vertical plane, is termed _____ vertical angulation.

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系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙 子	牙科放射線學	彭建綸	90年6月12日第 1:50 節 3:00		
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一、

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| 1. | 2. | 3. |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | 11. | 12. |

二、

- 1.
- 2.
- 3.
4. _____、_____
5. _____
6. _____、_____

三、

1.	2.	3.	4.	5.	6.	7.
8.	9.	10.	11.	12.	13.	14.
15.						

四、

1. _____、_____
2. _____、_____
3. _____、_____
4. _____、_____
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6. _____、_____
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11. _____
12. _____
13. _____
14. _____
15. _____、_____
16. _____