

Reading sub-test

Part A – Text booklet

Sample Test

You must record your answers for **Part A** in the **Part A – Answer booklet** using **pen or pencil**.

Please print in **BLOCK LETTERS**

Candidate number - -

Family name _____

Other name(s) _____

City _____

Date of test _____

Candidate's signature _____

YOU MUST NOT REMOVE OET MATERIAL FROM THE TEST ROOM

Reading: Part A – Text booklet

Instructions

TIME LIMIT: 15 MINUTES

- Complete the summary on pages 1 and 2 of **Part A – Answer booklet** using the information in the four texts (A1–A4) below.
- You **do not** need to read each text from beginning to end to complete the task. You should scan the texts to find the information you need.
- Gaps may require **1, 2 or 3 words**. Answer **ALL** questions. Marks are **NOT** deducted for incorrect answers.
- You should write your answers next to the appropriate number in the **right-hand column**.
- Please use **correct spelling** in your responses. **Do not** use abbreviations unless they appear in the texts.

Exposure to radiation from medical procedures: Texts

Text A1

Radiation is all around us

Although doctors do worry about exposing people repeatedly to X-rays, and there's no doubt that too much exposure to this form of radiation can be harmful, it's important to keep the risks of X-rays in perspective. We're constantly being exposed to natural radiation from the environment around us – from the earth, through cosmic rays from outer space, even from the food we eat.

The dose from chest X-rays is very small

The dose of radiation you receive each time you have a chest X-ray is very small, especially given this background of natural radiation. It's certainly many thousands of times smaller than the dose of radiation needed to cause skin burns or radiation sickness. The only risk that needs to be considered is the risk of causing cancer but this is also very small.

X-rays compared with other risks

This means that even if you had chest X-rays taken every week, the increased risk wouldn't be very much. And these risks have to be put into the perspective not just of the benefits of doctors being able to keep an eye on your lungs but also of other risks we choose to expose ourselves to, such as from sports, driving or smoking (which is very risky indeed).

Text A2

Which types of diagnostic imaging procedures use radiation?

- In X-ray procedures, X-rays pass through the body to form pictures on a computer or television monitor, which are viewed by a radiologist. If you have an X-ray, it will be performed with a standard X-ray machine or with a more sophisticated X-ray machine called a computerised tomography machine.
- In nuclear medicine procedures, a small amount of radioactive material is inhaled, injected, or swallowed by the patient. If you have a nuclear medicine procedure, a special camera will be used to detect energy given off by the radioactive material in your body and form a picture of your organs and their level of function on a computer monitor. A nuclear medicine physician views these pictures. The radioactive material typically disappears from your body within a few hours or days.

Text A3

Risk of cancer from diagnostic X-rays

BACKGROUND	Diagnostic X-rays are the largest man-made source of radiation exposure to the general population, contributing about 14% of the total annual exposure worldwide from all sources. Although diagnostic X-rays provide great benefits, that their use involves some small risk of developing cancer is generally accepted. Our aim was to estimate the extent of this risk on the basis of the annual number of diagnostic X-rays undertaken in the UK and in 14 other developed countries.
METHODS	We combined data on the frequency of diagnostic X-ray use, estimated radiation doses from X-rays to individual body organs, and risk models, based mainly on the Japanese atomic bomb survivors, with population-based cancer incidence rates and mortality rates for all causes of death, using life table methods.
FINDINGS	Our results indicate that in the UK about 0.6% of the cumulative risk of cancer to age 75 years could be attributable to diagnostic X-rays. This percentage is equivalent to about 700 cases of cancer per year. In 13 other developed countries, estimates of the attributable risk ranged from 0.6% to 1.8%, whereas in Japan, which had the highest estimated annual exposure frequency in the world, it was more than 3%.
INTERPRETATION	We provide detailed estimates of the cancer risk from diagnostic X-rays. The calculations involved a number of assumptions and so are inevitably subject to considerable uncertainty. The possibility that we have overestimated the risks cannot be ruled out, but that we have underestimated them substantially seems unlikely.

Text A4

Question

I am pregnant. What are the risks to my baby from dental, mammogram, chest, extremity, head, or computerized tomography exams that don't directly expose my abdomen?

Answer

The risks to the baby are minimal, if any, when X-rays are taken of areas other than the abdomen. This is because the X-ray beam is focused only on the area of interest to minimize doses to other areas of the body. When you receive a diagnostic X-ray study of your head, teeth, chest, arms, or legs at a qualified facility, the X-ray exposure is not to your baby. The "scatter" radiation that might reach the baby would be extremely small and would not represent an increased risk for birth defects or miscarriage.

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ASSESSOR NO.	
ASSESSOR NO.	



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Candidate number

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Family name

Other name(s)

City

Date of test

Candidate's signature

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Reading: Part A - Answer booklet

Instructions

TIME LIMIT: 15 MINUTES

- Complete the following summary using the information in the four texts, A1-A4, provided on pages 2 and 3 of the Text booklet.
- You **do not** need to read each text from beginning to end to complete the task. You should scan the texts to find the information you need.
- Gaps may require **1, 2 or 3 words**. You will **not** receive any marks if you write **more than 3 words**.
- You should write your answers next to the appropriate number in the **right-hand column**.
- Please use **correct spelling** in your responses. **Do not** use abbreviations unless they appear in the texts.

Summary	Answers
<p>Exposure to radiation from medical procedures</p> <p>Two types of procedure using radiation for diagnostic imaging are described in the texts: X-ray procedures and(1).... procedures. In the former, the(2).... is created by passing X-rays through the body using either a standard machine or a more(3).... one called a(4).... machine; in the latter, it is generated using a camera that detects(5).... emitted from(6).... material introduced into the body. This material can be breathed in, taken orally or(7).... and may remain in the body for up to a few(8)....</p> <p>The environment always has naturally occurring radiation – from the earth, the food people eat, and rays from(9).... Diagnostic X-rays make up about(10).... of the total annual(11).... exposure to radiation for humans, and are the biggest(12).... source for the(13).... population. Nevertheless, the amount of radiation in one X-ray procedure of a person’s chest is still tiny in comparison to the background of natural radiation.</p> <p>[Continued on next page]</p>	1.
	2.
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	13.

Summary	Answers
<p>The texts stress the safety and benefits of X-rays. Any risks are compared with those that people take voluntarily, perhaps when they(14).... or, in particular,(15).... Even in pregnancy, it is only(16).... exposure of a woman's(17).... to X-rays that is seen as carrying some risk. Any so-called(18).... radiation from X-rays of other areas of the body will not make(19).... any more likely.</p> <p>However, there is a minor risk of X-rays causing cancer. Researchers sought to estimate the extent of this using data from a total of(20).... developed countries. The study considered radiation exposure for each country based on the(21).... of use of diagnostic X-rays and on the doses needed to take X-rays of different body(22).... This was combined with the rate of incidence of(23).... and overall(24).... rates for each country. While the findings are somewhat uncertain due to several(25).... made in the calculations, they indicate that over 3% of the risk of cancer could be attributed to X-rays in(26).... This was approximately five times greater than the same risk in(27)....</p>	14.
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27.	

Reading sub-test

Part A – Answer key

Exposure to radiation from medical procedures

Sample Test

The following conventions have been followed in preparing the key:

/ indicates an acceptable alternative within an answer

OR indicates an acceptable (complete) alternative answer

() words, figures, or ideas in brackets are not essential to the answer – they are also not a sufficient substitute on their own for the main idea

NOT indicates an unacceptable answer or part of an answer

No other answers except those included in the key will be considered acceptable. Responses that have been incorrectly spelt will not be awarded any marks, neither will answers that contain more than three words.

Reading sub-test

Part A: Exposure to radiation from medical procedures

Answer key

Total of 27 questions

- 1 nuclear medicine
- 2 (X(-)ray/x(-)ray/X ray/x ray) image/picture
- 3 sophisticated **OR** advanced **OR** complex
- 4 computerised/computerized tomography **NOT** CT
- 5 (the) energy
- 6 (a/some) radioactive
- 7 injected
- 8 (hours or) days
- 9 (outer/deep) space **OR** the cosmos
- 10 14% **OR** fourteen percent/per cent
- 11 world(-)wide **OR** global
- 12 man(-)made
- 13 general
- 14 play/do/participate in sports **OR** drive **OR** play/do sports, drive
- 15 smoke (cigarettes) **OR** if/when they smoke
- 16 direct
- 17 abdomen
- 18 ("scatter")
- 19 birth defects/abnormalities **OR** a birth defect/abnormality **OR** (a) miscarriage **OR** defects/abnormalities or miscarriage
OR miscarriage or defects/abnormalities
- 20 15 **OR** fifteen
- 21 frequency
- 22 organs
- 23 cancer
- 24 death **OR** mortality
- 25 assumptions
- 26 Japan
- 27 (the) UK **OR** (the) United Kingdom **OR** GB **OR** (Great) Britain

END OF KEY