

X-rays

In 1895 the announcement appeared that a German professor, Wilhelm Rontgen, had discovered a new kind of invisible rays which could pass through clothes, skin and flesh and cast the shadow of the bones themselves on a photographic plate.

One day Rontgen was working in his laboratory with the Crookes tube. Crookes had discovered that when he sealed two electric wires in a glass tube, pumped as much air as possible out of it and connected the wires to opposite electric poles, a stream of electric particles emerged out of the cathode, i.e., the negative electric pole.

Rontgen was interested in the fact that these cathode rays, as they were then called, caused certain chemicals to glow in the dark when they were brought within a few inches of the window the rays were emerging through.

On this particular day Rontgen, who was working in his darkened laboratory, enclosed his Crookes tube in a box made of thin black cardboard.

To make sure that this black box was lightproof Rontgen switched on the current to his tube to check that no light came through the box. No light did come through the box, but to his puzzlement, Rontgen noticed a strange glow at the far corner of his laboratory bench. He thought that that glow was merely his imagination and switched on the current again. He saw the glow at the far end of his bench again. Still puzzled he drew back the curtain of the laboratory window and found that the glow had come from a small fluorescent screen that was lying at the far end of the bench.

When Rontgen had found that the newly discovered rays that he called X-rays were able to penetrate the air much more strongly than the cathode rays, and even came through his cardboard box, he placed all sorts of opaque materials between the source of his X-rays and the fluorescent screen. He found that those rays passed through wood, thin sheets of aluminum, the flesh of his own hand and some other materials; but they were completely stopped by thin lead plates and partially stopped by the bones of his hand. When he had tested their effect on photographic plates, he saw that they were darkened on exposure to the X-rays.

Rontgen was sure that his discovery would contribute much to the benefit of science, and indeed medicine was quick to realize the importance of Rontgen's discovery. Yet the medical exploitation of X-rays is not the only field of their application, X-rays are increasingly used in industry as well.

VOCABULARY

1. invisible - невидимий
2. a plate – пластина, фотопластина
3. to pump - викачувати

4. ray - промінь
5. a stream - потік
6. to emerge – з'являтися, виникати
7. to glow - світитися
8. cardboard - картон
9. lightproof – світлонепроникний, темний
10. current - струм
11. puzzlement - сконфужений
12. merely - тільки
13. fluorescent screen - люмінесцентний екран
14. to penetrate – проникати (через)
15. wood - деревина
16. lead - свинець
17. partially - частково
18. opaque - непрозорий, матовий
19. benefit - користь, вигода
20. realize - розуміти, здійснювати
21. exploitation - використання, вживання
22. application - застосування
23. increasingly - все більш і більш
24. as well - також

TASK 1

Choose the one word or phrase that best keeps the meaning of the original sentence if it is substituted for the underlined word or phrase.

1. There are obvious disadvantages to this plan.
a) well-known **b) serious** c) clear d) fundamental
2. He employed the one basic technique.
a) process b) procedure **c) task** d) objective
3. Several approaches have emerged in recent years.
a) appeared b) formed c) disappeared d) lost importance
4. It's rather complicated to explain.
a) easy b) boring **c) difficult** d) interesting
5. This fact is impossible to verify.
a) to corroborate b) to overestimate c) to understand d) **to accept**
6. They've accomplished a great deal in the last few weeks.
a) acquired b) advertised **c) achieved** d) finished
7. Inventors do combine patience, skill and pragmatism.
a) finally b) now c) jointly **d) really**
8. We didn't realize that fact.
a) demonstrate **b) understand** c) foresee d) follow. **?????**
9. Your version of the report doesn't seem to agree with the facts.
a) project b) aspect c) **correlation** d) interpretation
10. Technology acts as a catalyst to bring about changes that energize learning environments.
a) believe in **b) cause** c) carry out d) foresee

TASK 2

Choose the answer (A, B, C or D) that best fits each space.

I'm sure that many people in this lecture hall have, at some time, attempted to open up an image file in order to (1)..... their photos onto a social (2)..... site, only to find the file has been (3)..... You find there's no way to (4)..... your digital memories as you've already (5).... the photos from your memory card. Worse is the realization that your entire hard drive has (6)..... and that you never made back-up copies of your dissertation, years of research, and so on. Right now, I'm afraid, there's no guarantee that any of our data will survive in the (7)..... currently available. You see, manufacturers want to (8) the speed and capacity of drives, but aren't worried about long-term stability. Flash memory drives are not a reliable alternative as they have an estimated (9)..... lifespan of ten years. Top-end CDs with the gold and the phthalocyanine dye layers will (10)..... The other issue of course, is that technology is constantly becoming (11).....

Many of your parents will have video cassettes at home but unless you have a video player still in (12)..... you are unlikely to ever view the content. The same goes for any documents saved floppy disks; no modern PC comes with a (13)..... drive. It's ironic, of course, that paper, the old (14)..... of transferring information, is actually more durable than its modern equivalents.

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|----|---|-------------|---|------------|---|------------|---|------------|
| 1 | A | upload | B | paste | C | share | D | display |
| 2 | A | meeting | B | discussion | C | networking | D | |
| | | | | | | | | chatroom |
| 3 | A | disturbed | B | disrupted | C | spoilt | D | corrupted |
| 4 | A | retrieve | B | return | C | retrace | D | |
| | | | | | | | | reform |
| 5 | A | rubbed | B | cancelled | C | withdrawn | D | |
| | | | | | | | | erased |
| 6 | A | collapsed | B | crashed | C | fallen | D | broken |
| 7 | A | formats | B | shapes | C | means | D | |
| | | | | | | | | types |
| 8 | A | excel | B | build | C | boost | D | uplift |
| 9 | A | top | B | maximum | C | peak | D | upper |
| 10 | A | spend | B | act | C | produce | D | last |
| 11 | A | terminal | B | obsolete | C | expired | D | |
| | | | | | | | | invalid |
| 12 | A | operation | B | order | C | function | D | |
| | | | | | | | | occupation |
| 13 | A | fitting | B | required | C | compatible | D | matched |
| 14 | A | opportunity | B | medium | C | source | D | technology |