Code : 310202

2nd Year Paramedical (PMDC) Exam., 2024

(BACHELOR OF RADIO-IMAGING TECHNOLOGY)

RADIATION PHYSICS

Time : 1½ hours   *Full Marks* : 35

Instructions :

(i) The marks are indicated in the right-hand margin.

(ii) There are three Groups, namely A, B and C.

(iii) Group—A contains **SIX** questions, Group—B contains **THREE** questions and Group—C contains **TWO** questions.

(iv) The students are asked to answer **FIVE** questions from Group—A, **TWO** questions from Group—B and **ONE** question from Group—C.

GROUP—A

Answer any *five* of the following in *one* or *two* line(s) :   2×5=10

1. What is coherent scattering?

2. Mention any two end products of photoelectric effect.

3. What is inverse square law of radiation?

4. Mention any one characteristic feature of monochromatic radiation.

5. What do you mean by the term filtration of diagnostic X-rays?

6. Write any two examples of K-edge filters.

GROUP—B

Answer any *two* of the following :   7×2=14

7. How is radiographic film used as dosimeter?

8. Describe the factors affecting scatter radiation.

9. Write a short note on the application of photoelectric effect in diagnostic radiology.

GROUP—C

Answer any *one* of the following :   11

10. What do you mean by the term attenuation of X-rays? Describe various factors affecting attenuation. Mention the role of attenuation in diagnostic radiology.

11. Write elaborately about the various dosimetric quantities with their units.

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2nd Year Paramedical (PMDC) Exam., 2024

(BACHELOR IN RADIO-IMAGING TECHNOLOGY)

RADIATION BIOLOGY AND RADIATION PROTECTION

Time : 3 hours   *Full Marks* : 70

Instructions :

(i) *The marks are indicated in the right-hand margin.*

(ii) *There are three Groups, namely A, B and C.*

(iii) *Group—A contains* **TWELVE** *questions, Group—B contains* **SIX** *questions and Group—C contains* **THREE** *questions.*

(iv) *The students are asked to answer* **TEN** *questions from Group—A,* **FOUR** *questions from Group—B and* **TWO** *questions from Group—C.*

GROUP—A

Answer in *one* or *two* lines (any *ten*) :   2×10=20

1. Define radiobiology.

2. What is cell cycle?

3. What is DNA?

4. What is a gonadal shield?

AK25/**256**   (*Turn Over*)

5. What is a free radicle?

6. What is sievert?

7. What is equivalent dose?

8. Mention any two highly sensitive cell types.

9. Expand ALARA.

10. Define oxygen effect in radiobiology.

11. Mention any two effect of radiation on skin.

12. Define stochastic effect of radiation.

GROUP—B

Answer/Write in short of the following (any *four*) :

$$7 \times 4 = 28$$

13. Describe tumor lethal dose and tissue tolerance dose.

14. Describe the role of protein in human body.

15. Write the differentiating features between mitosis and meiosis.

16. Describe the radiographic protection features.

(Continued)

17. Discuss the effect on radiation on gonads.

18. Describe the multiple target theory.

GROUP—C

Answer any *two* long answer-type questions :

$$11 \times 2 = 22$$

19. Discuss radiation hazards under the following headings :

Definition, Evaluation and Control

20. Describe in detail the radiation induced malignancy.

21. Discuss in detail :

(a) Radiation protection for the radiographer

(b) Radiation protection to the patient

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2nd Year Paramedical (PMDC) Exam., 2024

PUBLIC HEALTH

(Common Paper)

Time : 1½ hours   *Full Marks* : 20

Instructions :

(i) *The marks are indicated in the right-hand margin.*

(ii) *There are two Groups, namely A and B.*

(iii) *Group—A contains* **TWELVE** *questions, Group—B contains* **SIX** *questions.*

(iv) *The students are asked to answer* **TEN** *questions from Group—A,* **FIVE** *questions from Group—B.*

GROUP—A

Choose the correct option (any *ten*) :   1×10=10

1. Who is considered as the first true epidemiologist in the history of public health?

    (a) John Snow

    (b) John Graunt

    (c) James Lind

    (d) Hippocrates

AK25/**244**   (*Turn Over*)

(2)

2. ICDS stands for

   (a) Integrated Child Development Scheme

   (b) Indian Child Development Scheme

   (c) Integrating Child Development Support

   (d) None of the above

3. The National Population Policy of India was enacted in which year?

   (a) 2001

   (b) 2005

   (c) 2012

   (d) 2000

4. The number of deaths per one thousand people per year means

   (a) birthrate

   (b) IMR

   (c) death rate

   (d) None of the above

5. RSBY stands for

   (a) Rashtriya Swasthya Bima Yojana

   (b) Rashtriya Swasthya Beneficiary Youth

   (c) Rashtriya Self-Beneficiary Youth

   (d) None of the above

(3)

6. An example of lifestyle diseases is

   (a) cancer

   (b) malaria

   (c) chikungunya

   (d) fever

7. An example of communicable diseases is

   (a) heart attack

   (b) diabetes

   (c) blood pressure

   (d) dengue

8. 'The state of being free from illness or injury' means

   (a) happiness

   (b) fitness

   (c) disease

   (d) health

9. Which is a specialized consultative health care?

   (a) Primary care

   (b) Secondary care

   (c) Urgent care

   (d) Tertiary care

10. Which infection in early intrauterine period causes miscarriage?

    (a) Measles

    (b) Varicella-zoster

    (c) Rubella

    (d) Toxoplasmosis

(4)

11. The milk which is produced after colostrum is
    (a) preterm milk
    (b) mature milk
    (c) transitional milk
    (d) foremilk

12. At what age birth weight doubles?
    (a) 24 months
    (b) 30 months
    (c) 36 months
    (d) 48 months

GROUP—B

Answer any *five* of the following (Short answer-type questions) : 2×5=10

13. Write the full form of ASHA.

14. Expand NRHM.

15. What is nutrient?

16. Define demography.

17. Write the elements of communication.

18. Enlist the National Health Programmes in India.

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(2)

2. Which of the following is a main function of CPU?

(a) Storing data   (b) Networking

(c) Executing instruction   (d) Input

3. Which of the following is a primary storage device of a computer?

(a) Hard disc   (b) RAM

(c) ROM   (d) CD-ROM

4. What does restarting an operating system do?

(a) Restarts all the processes

(b) Shuts down the operating system completely

(c) Terminates all running programmes completely

(d) All of the above

5. Which of the following is used for quick access to commonly used commands of tools?

(a) Status bar   (b) Tool bar

(c) Menu bar   (d) Title bar

6. Putting files to the server from the computer is called

(a) downloading   (b) uploading

(c) transferring   (d) trashing

AK25/245   (Continued)

(3)

7. The ability to combine names and addresses with a standard document is called

(a) document formatting

(b) database management

(c) mail merge

(d) form letters

8. Spelling checker is also called

(a) electronic encyclopedia

(b) electronic thesaurus

(c) electronic dictionary

(d) None of the above

9. Which of the following is not an essential function of a Word processing software package?

(a) Indexing   (b) Saving

(c) Editing   (d) Formatting

10. In MS-Excel, to add numeric values in column D, from row D_{10} to D_{15}, the formula that should be used is

(a) = SUM (D_{10}, D_{15})

(b) COUNT (D_{10}, D_{15})

(c) = SUM $(D_{10} : D_{15})$

(d) Both (a) and (c)

AK25/245   (Turn Over)

11. Each table appears as a spreadsheet grid is called

    (a) record   *(b)* datasheet

    (c) quaries   *(d)* tables

12. Excel is a program that is used to prepare a

    (a) slide presentation

    (b) spreadsheet

    (c) text document

    (d) database

GROUP—B

Answer any *five* of the following questions : 2×5=10

13. Discuss about output device.

14. Differentiate between hardware and software.

15. Discuss the uses of IECT.

16. Describe the steps used in viewing the file, folder and directory.

17. Discuss the steps used in formatting the text and printing the Word document.

18. Describe basics and editing of a spreadsheet.

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Code : 310201

2nd Year Paramedical (PMDC) Exam., 2024

(BACHELOR OF RADIO-IMAGING TECHNOLOGY)

PHYSICS AND ELECTRONICS IN RADIOLOGY

Time : 1½ hours   *Full Marks* : 35

Instructions :

  (i) *The marks are indicated in the right-hand margin.*

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(iv) *The students are asked to answer* **FIVE** *questions from Group—A,* **TWO** *questions from Group—B and* **ONE** *question from Group—C.*

GROUP—A

Answer any *five* of the following in *one* or *two* line(s) :   2×5=10

1. Define atomic number.

2. What is ionization?

3. Who discovered periodic table?

4. What is cathode in an X-ray tube?

5. What is focal spot in an X-ray tube?

6. What is the SI unit of electric potential?

GROUP—B

Answer any *two* of the following :   7×2=14

7. Write a short note on General radiation or Bremsstrahlung.

8. What is X-ray beam restrictor? Mention the types and write a short note on any one of them.

9. Describe the structure of an atomic nucleus.

GROUP—C

Answer any *one* of the following :   11

10. Describe the construction and working of an X-ray tube with the help of a diagram. What are the factors affecting the intensity and quality of X-rays?

11. Describe the basic structure of grid with the material used in grid. What is grid ratio? Discuss the evaluation of grid performance.

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