

Book Preface

Welcome to the comprehensive guidebook for the Odisha OSSSC Radiographer Exam! This book has been meticulously crafted to provide aspiring candidates like you with the essential knowledge and resources needed to excel in these competitive exams. Whether you are a beginner or have prior experience, this book aims to equip you with the necessary skills and confidence to tackle the challenges of the examination.

The Odisha OSSSC Radiographer Exam are highly sought-after and require a deep understanding of various subjects such as general knowledge, current affairs, mathematics, reasoning, and English. Our team of experienced educators and subject matter experts have worked diligently to compile relevant study material, practice questions, and valuable tips to enhance your exam preparation.

In this book, you will find a well-structured and comprehensive coverage of the syllabus, ensuring that you grasp the core concepts and develop a strong foundation in each subject. We have included numerous practice exercises, sample question papers, and model answers to help you assess your progress and identify areas for improvement.

We understand that the journey to success in the Odisha OSSSC Radiographer Exam can be challenging, but with dedicated effort and the right resources, you can achieve your goals. This guidebook is designed to be your constant companion throughout your preparation, providing you with the necessary guidance and support to navigate the exam confidently.

We would like to express our heartfelt gratitude to the team of experts, researchers, and contributors who have poured their knowledge and expertise into making this book a valuable resource. We hope that it serves as a steppingstone towards your success in the Odisha OSSSC Radiographer Exams.

Remember, success comes to those who persevere and approach their preparation with determination. Use this book as your roadmap, embrace the knowledge it offers, and practice diligently. We believe in your potential and wish you the very best in your exam endeavours.

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If you come across any mistakes or errors in the book, we encourage you to reach out to us via email at [odiabookstore@gmail.com]. Your feedback is valuable to us, and we appreciate your assistance in ensuring the accuracy and quality of our content.

We strive to provide the best possible study material for your exam preparation, and we are committed to promptly addressing any concerns or issues that may arise. Our team will carefully review your message and take the necessary steps to correct and rectify any errors.

We want to assure you that we are dedicated to delivering reliable and up-to-date information. Your input will help us improve the book and provide a better learning experience for all students. Thank you for your support and cooperation.

Best regards,

[Dillip Sir] [DigitalOdisha.Org/OdiaGuide.in/]

I. Anatomy: The Study of Body Structure

1. **Definition of Anatomy:** Anatomy is the branch of biology that focuses on the study of the structure and organization of living organisms. In human anatomy, it specifically deals with the structure of the human body.
2. **Levels of Structural Organization:**
 - **Chemical Level:** Examines the smallest building blocks of the body, such as atoms and molecules.
 - **Cellular Level:** Studies the basic structural and functional unit of the body, the cell.
 - **Tissue Level:** Analyzes groups of similar cells that work together to perform specific functions.
 - **Organ Level:** Investigates the structure and function of organs composed of different types of tissues.
 - **System Level:** Explores how organs work together to form functional systems, like the circulatory or respiratory system.
3. **Branches of Anatomy:**
 - **Gross Anatomy:** Examines structures visible to the naked eye, including organs and tissues.
 - **Microscopic Anatomy:** Studies structures that require a microscope, such as cells and tissues.
 - **Developmental Anatomy:** Focuses on the changes in structure that occur from conception through adulthood.
 - **Comparative Anatomy:** Compares anatomical structures across different species.
 - **Clinical Anatomy:** Applies anatomical knowledge to medical practice.

II. Physiology: The Study of Body Function

1. **Definition of Physiology:** Physiology is the branch of biology that investigates how living organisms, including humans, function and carry out their vital processes.
2. **Key Physiological Processes:**
 - **Homeostasis:** The body's ability to maintain a stable internal environment.
 - **Cellular Metabolism:** The chemical processes that occur within cells to sustain life.
 - **Neurophysiology:** The study of how the nervous system controls bodily functions.
 - **Cardiovascular Physiology:** The study of the heart and blood vessels.
 - **Respiratory Physiology:** Focuses on the function of the respiratory system.
 - **Digestive Physiology:** Examines the processes of digestion and nutrient absorption.
 - **Endocrine Physiology:** Investigates hormone production and their effects on the body.

III. Pathology: The Study of Disease

1. **Definition of Pathology:** Pathology is the branch of medicine that deals with the study of diseases, their causes, mechanisms, and effects on the body.
2. **Key Areas in Pathology:**
 - **Anatomical Pathology:** Involves the examination of tissues, organs, and cells to diagnose diseases.
 - **Clinical Pathology:** Focuses on laboratory tests and the analysis of bodily fluids to diagnose diseases.
 - **Forensic Pathology:** Applies pathology to legal investigations, particularly in cases of sudden or unexplained deaths.
 - **Surgical Pathology:** Analyzes tissue samples obtained during surgery to determine the nature of diseases.
 - **Cytopathology:** Specializes in the study of individual cells to diagnose diseases.

IV. Topographic Terms and Body Description

1. **Topographic Terms:** These terms are used to describe the location of structures within the body or their relationship to one another.
 - **Anterior (ventral):** Towards the front of the body.
 - **Posterior (dorsal):** Towards the back of the body.
 - **Superior:** Above or higher in position.
 - **Inferior:** Below or lower in position.
 - **Proximal:** Nearer to the point of reference or attachment.
 - **Distal:** Farther from the point of reference or attachment.
 - **Medial:** Closer to the midline of the body.
 - **Lateral:** Farther from the midline of the body.
 - **Superficial:** Close to the surface.
 - **Deep:** Farther from the surface.

Structure of the Body: Basic Units - Cells and Tissues

I. Cells: The Fundamental Building Blocks

1. **Definition of Cells:** Cells are the basic structural and functional units of all living organisms. They are the smallest entities that can carry out the processes necessary for life.
2. **Cell Structure:**

Which chemical carcinogen is commonly found in smoked and grilled foods and is associated with an increased risk of cancer?

- a) Benzene
- b) Formaldehyde
- c) Polycyclic aromatic hydrocarbons (PAHs)
- d) Acrylamide

Answer: c) Polycyclic aromatic hydrocarbons (PAHs)

Which of the following is a well-known physical carcinogen associated with lung cancer?

- a) Radon gas
- b) Lead exposure
- c) Pesticides
- d) Hair dyes

Answer: a) Radon gas

Chronic exposure to which chemical carcinogen is linked to the development of liver cancer?

- a) Arsenic
- b) Asbestos
- c) Benzene
- d) Formaldehyde

Answer: a) Arsenic

Which type of radiation exposure is associated with an increased risk of skin cancer?

- a) X-rays
- b) Gamma rays
- c) Ultraviolet (UV) radiation
- d) Infrared radiation

Answer: c) Ultraviolet (UV) radiation

Which of the following is NOT a common source of ionizing radiation?

- a) X-ray machines
- b) Microwave ovens
- c) Nuclear reactors
- d) Radon gas

Answer: b) Microwave ovens

-

Which chemical carcinogen is commonly found in tobacco smoke and is a major cause of lung cancer?

- a) Benzene
- b) Formaldehyde
- c) Nicotine
- d) Polycyclic aromatic hydrocarbons (PAHs)

Answer: d) Polycyclic aromatic hydrocarbons (PAHs)

What is the primary mode of action of chemical carcinogens?

- a) Directly damaging DNA
- b) Promoting DNA repair
- c) Inhibiting cell division
- d) Enhancing immune function

Answer: a) Directly damaging DNA

Which of the following is a method to reduce the risk of cancer associated with physical carcinogens?

- a) Smoking cessation
- b) Avoiding excessive alcohol consumption
- c) Increasing red meat consumption
- d) Exercising less

Answer: a) Smoking cessation

Which of the following is NOT a recommended strategy for reducing cancer risk associated with chemical carcinogens?

- a) Eating a balanced diet
- b) Limiting exposure to toxic chemicals
- c) Using protective equipment in hazardous environments
- d) Increasing exposure to known carcinogens

Answer: d) Increasing exposure to known carcinogens

Which of the following is a protective factor against cancer?

- a) Family history of cancer

- b) Exposure to ionizing radiation
 - c) Regular physical activity
 - d) High alcohol consumption
- Answer: c) Regular physical activity

Which carcinogen is often associated with secondhand smoke and is linked to lung cancer in non-smokers?

- a) Benzene
- b) Radon gas
- c) Formaldehyde
- d) Tobacco-specific nitrosamines

Answer: d) Tobacco-specific nitrosamines

Which type of neoplasm is more likely to undergo metastasis?

- a) Benign
- b) Malignant
- c) Precancerous
- d) Dysplastic

Answer: b) Malignant

What is the term for a non-invasive, precancerous neoplasm that has the potential to become malignant?

- a) Carcinoma in situ
- b) Metastatic carcinoma
- c) Adenoma
- d) Fibroma

Answer: a) Carcinoma in situ

Which of the following is a well-known chemical carcinogen found in tobacco smoke?

- a) Lead
- b) Mercury
- c) Cadmium
- d) Iron

Answer: c) Cadmium

What is the primary function of the p53 tumor suppressor gene?

- a) Promoting cell division

-

- b) Repairing DNA damage
 - c) Inhibiting apoptosis
 - d) Stimulating angiogenesis
- Answer: b) Repairing DNA damage

Which type of radiation is used for medical imaging, such as X-rays and CT scans, and can increase cancer risk with excessive exposure?

- a) Ultraviolet (UV) radiation
- b) Gamma rays
- c) Ionizing radiation
- d) Infrared radiation

Answer: c) Ionizing radiation

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Which of the following is the most common oral neoplasm?

- A) Fibroma
- B) Squamous cell carcinoma
- C) Ameloblastoma
- D) Odontoma

Answer: B) Squamous cell carcinoma

What is the most common site for oropharyngeal cancer?

- A) Palate
- B) Tonsils
- C) Tongue
- D) Cheek

Answer: B) Tonsils

Which type of laryngeal cancer is associated with tobacco and alcohol use?

- A) Adenocarcinoma
- B) Sarcoma
- C) Squamous cell carcinoma
- D) Lymphoma

Answer: C) Squamous cell carcinoma

The majority of gastrointestinal tract cancers occur in which organ?

- A) Liver

- B) Stomach
- C) Colon
- D) Pancreas

Answer: C) Colon

Which neoplasm is characterized by uncontrolled growth of cells in the breast tissue?

- A) Leukemia
- B) Lymphoma
- C) Fibroadenoma
- D) Carcinoid tumor

Answer: C) Fibroadenoma

Human papillomavirus (HPV) infection is a major risk factor for cancer of which organ?

- A) Cervix
- B) Liver
- C) Pancreas
- D) Lung

Answer: A) Cervix

Osteosarcoma is a malignant tumor that primarily affects which part of the body?

- A) Brain
- B) Lung
- C) Bone
- D) Kidney

Answer: C) Bone

What is the most common soft tissue sarcoma in adults?

- A) Rhabdomyosarcoma
- B) Liposarcoma
- C) Osteosarcoma
- D) Ewing sarcoma

Answer: B) Liposarcoma

Penile cancer is most often associated with which risk factor?

- A) Smoking
- B) Human papillomavirus (HPV) infection

-

- C) Alcohol consumption
- D) Obesity

Answer: B) Human papillomavirus (HPV) infection

Which type of lymphoma originates in the lymph nodes?

- A) Hodgkin lymphoma
- B) Non-Hodgkin lymphoma
- C) Leukemia
- D) Multiple myeloma

Answer: A) Hodgkin lymphoma

Chronic myeloid leukemia (CML) is characterized by the presence of which genetic abnormality?

- A) BRCA1 mutation
- B) BCR-ABL fusion gene
- C) TP53 mutation
- D) HER2 amplification

Answer: B) BCR-ABL fusion gene

Which of the following is NOT a common symptom of breast cancer?

- A) Breast pain
- B) Nipple discharge
- C) Unexplained weight loss
- D) Skin dimpling

Answer: C) Unexplained weight loss

What is the most common site of metastasis for many cancers, including breast and lung cancer?

- A) Liver
- B) Brain
- C) Lungs
- D) Bone

Answer: A) Liver

Which of the following is a primary bone tumor that occurs primarily in children and adolescents?

- A) Chondrosarcoma
- B) Ewing sarcoma
- C) Osteosarcoma
- D) Multiple myeloma

Answer: B) Ewing sarcoma

Which soft tissue sarcoma is associated with long-term radiation exposure?

- A) Rhabdomyosarcoma
- B) Liposarcoma
- C) Angiosarcoma
- D) Leiomyosarcoma

Answer: C) Angiosarcoma

Which type of cervical cancer is most strongly linked to human papillomavirus (HPV) infection?

- A) Squamous cell carcinoma
- B) Adenocarcinoma
- C) Small cell carcinoma
- D) Melanoma

Answer: A) Squamous cell carcinoma

Burkitt's lymphoma is a type of:

- A) Hodgkin lymphoma
- B) Non-Hodgkin lymphoma
- C) Leukemia
- D) Myeloma

Answer: B) Non-Hodgkin lymphoma

Which leukemia is characterized by an excess of mature lymphocytes in the blood?

- A) Acute lymphoblastic leukemia (ALL)
- B) Chronic lymphocytic leukemia (CLL)
- C) Acute myeloid leukemia (AML)
- D) Chronic myeloid leukemia (CML)

Answer: B) Chronic lymphocytic leukemia (CLL)

Which of the following is a common treatment for leukemia?

- A) Surgery

-

- B) Radiation therapy
- C) Chemotherapy
- D) Hormone therapy

Answer: C) Chemotherapy

Which of the following is NOT a common risk factor for soft tissue sarcoma?

- A) Exposure to ionizing radiation
- B) Genetic predisposition
- C) Smoking
- D) Previous chemotherapy

Answer: C) Smoking

Which neoplasm is associated with the overproduction of abnormal white blood cells?

- A) Melanoma
- B) Lymphoma
- C) Leukemia
- D) Glioma

Answer: C) Leukemia

The Philadelphia chromosome is associated with which type of leukemia?

- A) Acute lymphoblastic leukemia (ALL)
- B) Chronic lymphocytic leukemia (CLL)
- C) Acute myeloid leukemia (AML)
- D) Chronic myeloid leukemia (CML)

Answer: D) Chronic myeloid leukemia (CML)

Which of the following is NOT a common site for lymphoma development?

- A) Spleen
- B) Lymph nodes
- C) Liver
- D) Bone marrow

Answer: C) Liver

Which gastrointestinal tract cancer is often linked to chronic inflammation and is most common in the ileum?

- A) Colorectal carcinoma
- B) Pancreatic cancer

- C) Gastric adenocarcinoma
 - D) Small bowel adenocarcinoma
- Answer: D) Small bowel adenocarcinoma

- What is the primary cause of oral squamous cell carcinoma?
- A) Human papillomavirus (HPV) infection
 - B) Tobacco and alcohol use
 - C) Genetic mutation
 - D) Chronic gum disease
- Answer: B) Tobacco and alcohol use

- *-----*-----

What is a fracture?
- A) A joint injury
 - B) A bone break or crack
 - C) A muscle tear
 - D) A ligament sprain
- Answer: B

- Which type of fracture is characterized by the bone breaking into multiple fragments?
- A) Greenstick fracture
 - B) Comminuted fracture
 - C) Transverse fracture
 - D) Stress fracture
- Answer: B

- In a greenstick fracture, the bone:
- A) Breaks cleanly into two pieces
 - B) Splinters into multiple fragments
 - C) Bends but does not break completely
 - D) Dislocates from its joint
- Answer: C

- A transverse fracture occurs when the bone:
- A) Breaks at an angle
 - B) Breaks into multiple pieces
 - C) Breaks straight across the shaft
 - D) Breaks due to repeated stress
- Answer: C

- Which type of fracture is common in children due to their more flexible bones?
- A) Spiral fracture
 - B) Oblique fracture
 - C) Greenstick fracture
 - D) Impacted fracture
- Answer: C

- Which of the following is NOT a phase of fracture healing?
- A) Inflammatory phase
 - B) Remodeling phase
 - C) Proliferative phase
 - D) Observation phase
- Answer: D

- During the inflammatory phase of fracture healing, what happens at the fracture site?
- A) Bone remodeling occurs
 - B) Callus formation begins
 - C) Blood clotting and inflammation take place
 - D) The fractured bone fuses together
- Answer: C

- Which type of joint injury involves the displacement of bones from their normal positions?
- A) Sprain
 - B) Fracture
 - C) Dislocation
 - D) Strain
- Answer: C

- What is the medical term for a partial dislocation of a joint?
- A) Fracture
 - B) Subluxation
 - C) Sprain
 - D) Strain
- Answer: B

- C) 7 months
D) 8 months
E) None of these
Option B

Solution:

$$12000 \times 12 : 8000 \times (12-x) = 3:1$$

solve x= 6 months

A starts a business with Rs 25000. After few months B join him with Rs 20000. If the ratio of their profit after 1 year is 15:8 find after how many months B joined A?

A 25000 ଟଙ୍କାରେ ବ୍ୟବସାୟ ଆରମ୍ଭ କରନ୍ତି । କିଛି ମାସ ପରେ B ତାଙ୍କ ସହ 20000 ଟଙ୍କା ନେଇ ଯୋଗ ଦେଇଥିଲେ। ଯଦି 1 ବର୍ଷ ପରେ ସେମାନଙ୍କର ଲାଭର ଅନୁପାତ 15:8 ହୁଏ ତେବେ ବି କେତେ ମାସ ପରେ A ରେ ଯୋଗ ଦେଇଛି ତାହା ଜାଣନ୍ତୁ?

- A) 2 months
B) 6 months
C) 4 months
D) 8 months
E) None of these

Solution:

$$25000 \times 12 : 20000(12-x)$$

15 : 8

solve and get x=4 months

A invests with B some rupees and B invested Rs 25,000. After 4 months A increase his investment with Rs 6000. If at the end of the year A and B have a profit of Rs 2400 and Rs 2500 respectively, find the sum invested by A.

A, B ସହିତ କିଛି ଟଙ୍କା ନିବେଶ କରେ ଏବଂ B 25000 ଟଙ୍କା ବିନିଯୋଗ କରେ । ୪ ମାସ ପରେ A ତାଙ୍କ ନିବେଶକୁ 6000 ଟଙ୍କାରେ ବଢ଼ାଇଦେଲି । ଯଦି ବର୍ଷ ଶେଷରେ A ଏବଂ B ଯଥାକ୍ରମେ 2400 ଏବଂ 2500 ଟଙ୍କା ଲାଭ କରନ୍ତି, ତେବେ A ଦ୍ଵାରା ବିନିଯୋଗ କରାଯାଇଥିବା ରାଶି ନିର୍ଦ୍ଧାରଣ କରନ୍ତୁ।

- A) Rs 15000
B) Rs 30000
C) Rs 25000
D) Rs 20000
E) None of these
Option D

Solution:

$$[x \times 4 + (x+6000) \times 8] / (25000 \times 12) = 24/25$$

solve and get x= Rs 20000

In a partnership A invest 1/6 of the capital for 1/6 of the time. B invest 1/3 capital for 1/3 time and C invest the remaining capital for whole time. If at the end of the year the profit earned is Rs 23000, Then what will be the share of B? ଏକ ଭାଗିଦାରୀରେ A 1/6 ସମୟ ପାଇଁ ପୁଞ୍ଜିର 1/6 ବିନିଯୋଗ କରେ । B 1/3 ପୁଞ୍ଜିକୁ 1/3 ସମୟ ପାଇଁ ବିନିଯୋଗ କରେ ଏବଂ C ବାକି ପୁଞ୍ଜିକୁ ପୁରା ସମୟ ପାଇଁ ବିନିଯୋଗ କରେ । ଯଦି ବର୍ଷ ଶେଷରେ ଅର୍ଜିତ ଲାଭ ୨୩୦୦୦ ଟଙ୍କା, ତେବେ B ର ଅଂଶ କେତେ ହେବ?

- A) Rs 4000
B) Rs 5000
C) Rs 6000
D) Rs 4500
Option A

Solution:

$$\text{Let total capital} = 18$$

$$A = 1/6 \times 18 \times 1/6 \times 12 = 6$$

$$B = 1/3 \times 18 \times 1/3 \times 12 = 24$$

$$C = 9 \times 12 = 108$$

$$A:B:C = 1:4:18$$

$$B = 4/23 \times 23000 = 4000$$

A and B invested Rs 1200 and Rs 1500 respectively in a business. After 8 months A withdrew his entire money and C joined them with Rs 2000. If after a year, a total of Rs 1780 is obtained as a profit, find the total share of B and C?

A ଓ B ଗୋଟିଏ ବ୍ୟବସାୟରେ ଯଥାକ୍ରମେ ୧୨୦୦ ଓ ୧୫୦୦ ଟଙ୍କା ନିବେଶ କରିଥିଲେ। ୮ ମାସ ପରେ A ତାଙ୍କର ସମ୍ପୂର୍ଣ୍ଣ ଟଙ୍କା ପ୍ରତ୍ୟାହାର କରିନେଲେ ଏବଂ C 2000 ଟଙ୍କା ସହିତ ସେମାନଙ୍କ ସହିତ ଯୋଗ ଦେଲେ। ଯଦି ଗୋଟିଏ ବର୍ଷ ପରେ, ସମୁଦାୟ 1780 ଟଙ୍କା ଲାଭ ଭାବରେ ପ୍ରାପ୍ତ ହୁଏ, ତେବେ B ଏବଂ C ର ସମୁଦାୟ ଅଂଶ କ'ଣ?

- A) Rs 1300
B) Rs 1280
C) Rs 880
D) Rs 980
E) None of these
Option A

Solution:

A : B : C
1200*8 : 1500*12 : 2000*4
= 24:45:20
B+C=65/89*1780

Shikha and Shreya invested in the ratio 7 : 8 in a business. They got an annual profit of Rs 34,450. If Shikha withdrew her entire money at the end of 9 years, then what is the difference between their shares of profit?

ଶିକ୍ଷା ଏବଂ ଶ୍ରେୟା ଏକ ବ୍ୟବସାୟରେ ୭ : ୮ ଅନୁପାତରେ ନିବେଶ କରିଥିଲେ । ସେମାନେ ବାର୍ଷିକ ୩୪,୪୫୦ ଟଙ୍କା ଲାଭ ପାଇଥିଲେ । ଯଦି ଶିକ୍ଷା ୯ ବର୍ଷ ଶେଷରେ ନିଜର ସମ୍ପୂର୍ଣ୍ଣ ଟଙ୍କା ଉଠାଇନେଲେ, ତେବେ ସେମାନଙ୍କ ଲାଭର ଅଂଶ ମଧ୍ୟରେ ପାର୍ଥକ୍ୟ କ'ଣ?

- A) Rs 7570
B) Rs 6400
C) Rs 7560
D) Rs 7150
E) Rs 8180
Option D

Solution:
Ratio of shares of profit of Shikha : Shreya is
7*9 : 8*12
21 : 32
So difference in shares = (32-21)/(21+32) *
34450 = Rs 7150

Tiya and Piya invested Rs 1350 and Rs 1800 respectively in a business. After 9 months Piya withdrew her entire money and Riya and Siya joined the business by investing Rs 3000 and Rs 2700 respectively. If after a year, a total of Rs 13,750 is obtained as profit, find the total share of Piya and Riya together out of total profit.

ଟିଆ ଓ ପିଆ ଯଥାକ୍ରମେ ୧୩୫୦ ଓ ୧୮୦୦ ଟଙ୍କା ବ୍ୟବସାୟରେ ନିବେଶ କରିଥିଲେ । ୯ ମାସ ପରେ ପିଆ ନିଜର ସମ୍ପୂର୍ଣ୍ଣ ଟଙ୍କା ଉଠାଇ ନେଇଥିଲେ ଏବଂ ରିୟା ଏବଂ ସିଆ ଯଥାକ୍ରମେ ୩୦୦୦ ଏବଂ ୨୭୦୦ ଟଙ୍କା ନିବେଶ କରି ବ୍ୟବସାୟରେ ଯୋଗ ଦେଇଥିଲେ । ଯଦି ଗୋଟିଏ ବର୍ଷ ପରେ ସମୁଦାୟ ୧୩,୭୫୦ ଟଙ୍କା ଲାଭ ଆକାରରେ ମିଳେ, ତେବେ ମୋଟ ଲାଭରୁ ପିଆ ଓ ରିୟାଙ୍କ ସମୁଦାୟ ଅଂଶକୁ ମିଶାଇ ନିଅନ୍ତୁ ।

- A) Rs 6000

- B) Rs 8000
C) Rs 7000
D) Rs 6500
E) Rs 7500
Option C

Solution:
Ratio of shares of Tiya : Piya : Riya : Siya is
1350*12 : 1800*9 : 3000*3 : 2700*3
18 : 18 : 10 : 9
So (B+C) got = (18+10)/(18+18+10+9) *
13750 = Rs 7000

A invested Rs 5000 in a business. After 4 months B joined him by investing Rs 4800. After a further of 2 months, C joined them with Rs 5200. If after the end of year, they earned a total profit if Rs 14,400, then what is the difference between the shares of A and B?

ଜଣେ ବ୍ୟବସାୟରେ ୫୦୦୦ ଟଙ୍କା ନିବେଶ କରିଥିଲେ । ୪ ମାସ ପରେ ବି ୪୮୦୦ ଟଙ୍କା ବିନିଯୋଗ କରି ତାଙ୍କ ସହ ଯୋଗ ଦେଇଥିଲେ । ଆଉ ୨ ମାସ ପରେ ସି ୫୨୦୦ ଟଙ୍କା ନେଇ ସେମାନଙ୍କ ସହ ଯୋଗ ଦେଇଥିଲେ । ଯଦି ବର୍ଷ ଶେଷ ପରେ ସେମାନେ ମୋଟ ୧୪,୪୦୦ ଟଙ୍କା ଲାଭ କରନ୍ତି, ତେବେ ଏ ଏବଂ ବିର ସେୟାର ମଧ୍ୟରେ ପାର୍ଥକ୍ୟ କ'ଣ?

- A) Rs 2570
B) Rs 2400
C) Rs 2560
D) Rs 2500
E) Rs 2000
Option B

Solution:
Ratio of shares of profit of A : B : C is
5000*12 : 4800*8 : 5200*6
50*12 : 48*8 : 52*6
25 : 16 : 13
So difference in shares of A and B = (25-
16)/(25+16+13) * 14400 = Rs 2400

In a business A and B invested Rs 5,000 and Rs 6,000 respectively. After 9 months from start of business, C invested Rs 12000 and A and B both withdrew Rs 1,000 each from their investments. If at the end of year B and C

together got Rs 12,250 from the total profit, then what is the total profit?

((34)

A) Rs 18,900

B) Rs 13,600

C) Rs 15,100

D) Rs 15,300

E) Rs 16,300

Option A

Solution:

Ratio of shares A : B : C is

$5000 \times 9 + 4000 \times 3 : 6000 \times 9 + 5000 \times 3 : 12000 \times 3$

19 : 23 : 12

Let x is the total profit

So $[(23+12)/54] \times x = 12,250$

Solve, x = Rs 18,900

ଯଦି ଏକ ସଂଖ୍ୟାର ଅଙ୍କଗୁଡ଼ିକର ଯୋଗ 3 ଦ୍ୱାରା

ବିଭାଜିତ ହୁଏ, ତେବେ ସଂଖ୍ୟା 3 ଦ୍ୱାରା ବିଭାଜିତ ହୁଏ ।

For example, 234 is divisible by 3

because $2 + 3 + 4 = 9$, which is divisible by 3.

Divisibility by 4: If the last two digits of a number are divisible by 4, then the number is divisible by 4.

ଯଦି ଏକ ସଂଖ୍ୟାର ଶେଷ ଦୁଇଟି ଅଙ୍କ 4 ଦ୍ୱାରା ବିଭାଜିତ

ହୁଏ, ତେବେ ସଂଖ୍ୟା 4 ଦ୍ୱାରା ବିଭାଜିତ ହୁଏ ।

For example, 268 is divisible by 4

because 68 is divisible by 4.

Divisibility by 5: If the last digit of a number is either 0 or 5, then the number is divisible by 5.

ଯଦି ଏକ ସଂଖ୍ୟାର ଶେଷ ଅଙ୍କ 0 କିମ୍ବା 5 ଅଟେ,

ତେବେ ସଂଖ୍ୟା 5 ଦ୍ୱାରା ବିଭାଜିତ ହୁଏ ।

For example, 375 is divisible by 5

because the last digit is 5.

Divisibility by 6: If a number is divisible by both 2 and 3, then it is divisible by 6.

ଯଦି କୌଣସି ସଂଖ୍ୟା ଉଭୟ 2 ଏବଂ 3 ଦ୍ୱାରା ବିଭାଜିତ

ହୁଏ, ତେବେ ତାହା 6 ଦ୍ୱାରା ବିଭାଜିତ ହୁଏ ।

For example, 102 is divisible by both 2 and 3, so it is divisible by 6.

Divisibility by 9: If the sum of the digits of a number is divisible by 9, then the number is divisible by 9.

ଯଦି ଏକ ସଂଖ୍ୟାର ଅଙ୍କଗୁଡ଼ିକର ଯୋଗ 9 ଦ୍ୱାରା

ବିଭାଜିତ ହୁଏ, ତେବେ ସଂଖ୍ୟା 9 ଦ୍ୱାରା ବିଭାଜିତ ହୁଏ ।

NUMBER SYSTEM

Divisibility by 2: If the last digit of a number is even (0, 2, 4, 6, or 8), then it is divisible by 2.

ଯଦି ଏକ ସଂଖ୍ୟାର ଶେଷ ଅଙ୍କ ସମାନ (0, 2, 4, 6,

କିମ୍ବା 8), ତେବେ ଏହା 2 ଦ୍ୱାରା ବିଭାଜିତ ହୁଏ ।

For example, 126 is divisible by 2 because the last digit is 6, which is even.

Divisibility by 3: If the sum of the digits of a number is divisible by 3, then the number is divisible by 3.