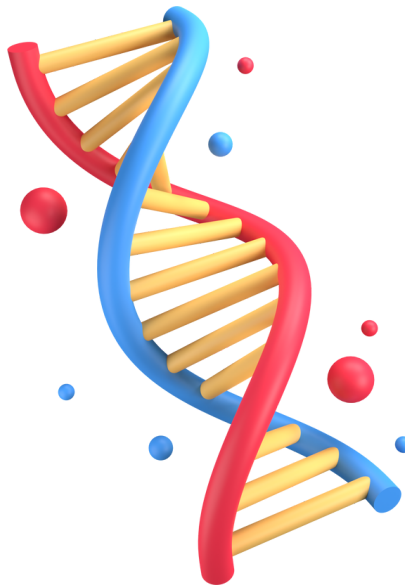


# ZOOLOGY

ENTHUSIAST | LEADER | ACHIEVER



## **EXERCISE**

Locomotion and movement  
(Skeletal system)

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ENGLISH MEDIUM

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**EXERCISE-I (Conceptual Questions)**
**Build Up Your Understanding**
**AXIAL SKELETON**

1. Cranium of human is made up of  
 (1) 8 bones (2) 12 bones  
 (3) 16 bones (4) 14 bones  
**SM0010**
2. The number of floating ribs and true ribs in human body  
 (1) 6 pairs, 8 pairs (2) 5 pairs, 4 pairs  
 (3) 3 pairs, 2 pairs (4) 2 pairs, 7 pairs  
**SM0012**
3. How many bones are present in human skull ?  
 (1) 32 (2) 22 (3) 12 (4) 42  
**SM0013**
4. Number of cervical and thoracic vertebrae in human are  
 (1) 7, 12 (2) 7, 10 (3) 7, 11 (4) 7, 14  
**SM0015**
5. Body of vertebrae is called  
 (1) Centrum (2) Process  
 (3) Center (4) Spine  
**SM0016**
6. Cranial bone related to ear is  
 (1) Occipital (2) Frontal  
 (3) Nasal (4) Temporal  
**SM0023**
7. These facial bones are unpaired  
 (1) Lacrimal, Vomer  
 (2) Vomer, Mandible  
 (3) Nasal, Vomer  
 (4) Palatine, Mandible  
**SM0024**
8. In human beings the cranium is formed by  
 (1) Ten bones of which two are paired  
 (2) Eight bones of which two are paired  
 (3) Fourteen bones of which six are paired  
 (4) Twelve bones of which four are paired  
**SM0027**

9. Which of the following is wrong statement about hyoid bone?  
 (1) one in number  
 (2) U-shaped  
 (3) Not attached with any other bone of the body  
 (4) Present at the top of the buccal cavity  
**SM0028**
10. Largest, Heaviest mammalian vertebra is :-  
 (1) Thoracic (2) Sacral  
 (3) Lumbar (4) Cervical  
**SM0031**
11. Demifacets present at:-  
 (1) Thoracic vertebra  
 (2) Lumbar vertebra  
 (3) Sacral vertebra  
 (4) Cervical vertebra except C<sub>7</sub>  
**SM0037**
12. Which of the following vertebrae are fused?  
 (1) Cervical, Thoracic  
 (2) Cervical, Sacrum  
 (3) Sacrum, Coccyx  
 (4) Thoracic, coccyx  
**SM0038**
13. Vertebro-arterial canal occurs in :  
 (1) Cervical vertebrae  
 (2) Lumbar vertebrae  
 (3) Thoracic vertebrae  
 (4) Sacral vertebrae  
**SM0041**
14. In human beings, the second cervical vertebra helps in rotatory movements of head through knob-like process called :  
 (1) Prezygapophysis  
 (2) Postzygapophysis  
 (3) Olecranon process  
 (4) Odontoid process  
**SM0042**

**APPENDICULAR SKELETON**

15. Part of pectoral girdle is:-  
 (1) Ilium (2) Glenoid cavity  
 (3) Acetabulum (4) Sternum

SM0002

16. Scapula and clavicle form  
 (1) Pelvic girdle (2) Pectoral girdle  
 (3) Skull (4) Vertebral column

SM0003

17. Pectoral girdle, pelvic girdle and limb bones constitute :  
 (1) Visceral skeleton  
 (2) Outer skeleton  
 (3) Axial skeleton  
 (4) Appendicular skeleton

SM0005

18. Glenoid cavity is found in :  
 (1) Pelvic girdle (2) Skull  
 (3) Pectoral girdle (4) Sternum

SM0006

19. Acromion process is part of :  
 (1) Vertebral column (2) Pelvic girdle  
 (3) Femur (4) Pectoral girdle

SM0007

20. Pelvic girdle consists of :  
 (1) Ilium  
 (2) Ilium and ischium  
 (3) Ilium, ischium and pubis  
 (4) Ischium and pubis

SM0008

21. Which of the following is a sesamoid bone?  
 (1) Pelvic (2) Patella  
 (3) Axis (4) Pectoral girdle

SM0011

22. Number of bones in thumb of right forelimb of man are  
 (1) 5 (2) 4  
 (3) 3 (4) 2

SM0019

23. The clavicle articulates with \_\_\_\_\_ of scapula

- (1) Acromion process  
 (2) Glenoid cavity  
 (3) Acetabulum cavity  
 (4) Ball and socket joint

SM0029

24. Which one is a flat bone ?

- (1) Scapula (2) Carpal  
 (3) Patella (4) Tarsals

SM0030

25. Digital formula of foot of Human is :-

- (1) 03332 (2) 03333  
 (3) 03322 (4) 23333

SM0034

26. Presence of obturator foramen is feature of:-

- (1) Pectoral girdle (2) Vertebrae  
 (3) Pelvic girdle (4) Occipital bone

SM0040

27. The other name for knee cap is

- (1) Clavicle (2) Patella  
 (3) Radius (4) Femur

SM0043

28. An acromion process is characteristically found in the:-

- (1) Pectoral girdle of mammals  
 (2) Scapula of mammals  
 (3) Pelvic girdle of mammals  
 (4) Skull of frog

SM0045

**JOINTS AND DISORDERS**

29. Study of joints known as:-

- (1) Osteology (2) Arthrology  
 (3) Craniology (4) Kinesiology

SM0004

30. Saddle joint occurs between

- (1) Carpal and first metacarpal of thumb  
 (2) Femur and pelvic girdle  
 (3) All the vertebrae  
 (4) Phalanges

SM0017

31. Joints between phalanges are  
 (1) Ball and socket joints  
 (2) Gliding joints  
 (3) Hinge joints  
 (4) Pivot joints

SM0020

32. It is an outcome of irregularities in metabolism of nitrogenous waste  
 (1) Osteoporosis  
 (2) Osteo-arthritis  
 (3) Gouty arthritis  
 (4) Rheumatoid arthritis

SM0025

33. Which of the following is correct for the given assertion (A) and reason (R)?  
 Assertion (A) : Knee joint is hinge joint type joint.  
 Reason (R) : Femur , patella and fibula are associated with knee joint.  
 (1) Both (A) and (R) are true but (R) is the correct explanation of (A)  
 (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)  
 (3) (A) is true statement but (R) is false.  
 (4) Both (A) and (R) are false

SM0026

34. Synovial fluid is secreted by :  
 (1) Blood  
 (2) Cartilage  
 (3) Bone  
 (4) Synovial membrane

SM0033

35. A joint between humerus and radio ulna is:-  
 (1) Ball & socket (2) Pivot  
 (3) Gliding (4) Hinge

SM0036

36. The number of saddle joints in human beings is :-  
 (1) 4 (2) 8  
 (3) 2 (4) 10

SM0039

37. Which one of the following is the *correct description* of a certain part of a normal human skeleton ?  
 (1) First vertebra is axis which articulates with the occipital condyles.  
 (2) The 9<sup>th</sup> and 10<sup>th</sup> pairs of ribs are called the floating ribs.  
 (3) Glenoid cavity is a depression to which the thigh bone articulates.  
 (4) Parietal bone and the temporal bone of the skull are joined by fibrous joint.

SM0044

EXERCISE-I (Conceptual Questions)

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	4	2	1	1	4	2	2	4	3	1	3	1	4	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	4	3	4	3	2	4	1	1	4	3	2	1	2	1
Que.	31	32	33	34	35	36	37								
Ans.	3	3	3	4	4	3	4								

## EXERCISE-II (Previous Year Questions)

## AIPMT/NEET

## AIPMT 2008

1. Which one of the following items gives its **correct total** number ?
- (1) Types of diabetes – 3
  - (2) Cervical vertebrae in humans – 8
  - (3) Floating ribs in humans – 4
  - (4) Amino acids found in proteins – 16

SM0046

## AIPMT 2009

2. Elbow joint is an example of :-
- (1) Ball and socket joint
  - (2) Pivot joint
  - (3) Hinge joint
  - (4) Gliding joint

SM0047

## AIPMT 2011

3. Three of the following pairs of human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the nonmatching pair

Pair of skeletal parts	Category
(1) Malleus and stapes	Ear ossicles
(2) Sternum and ribs	Axial skeleton
(3) Clavicle and glenoid cavity	Pelvic girdle
(4) Humerus and ulna	Appendicular skeleton

SM0048

## AIPMT Pre.-2012

4. Select the correct statement regarding the specific disorder of muscular or skeletal system :-
- (1) Myasthenia gravis-Auto immune disorder which inhibits sliding of myosin filaments

- (2) Gout inflammation of joints due to extra deposition of calcium
- (3) Muscular dystrophy - age related shortening of muscles
- (4) Osteoporosis-decrease in bone mass and higher chances of fractures with advancing age

SM0049

## NEET-UG 2013

5. Select the correct statement with respect to locomotion in humans:
- (1) The joint between adjacent vertebrae is a fibrous joint
  - (2) A decreased level of progesterone causes osteoporosis in old people
  - (3) Accumulation of uric acid crystals in joints causes their inflammation
  - (4) The vertebral column has 10 thoracic vertebrae

SM0050

## AIPMT 2014

6. Select the correct matching of the type of the joint with the example in human skeletal system :

	Type of joint	Example
(1)	Cartilaginous joint	between frontal and parietal
(2)	Pivot joint	between third and fourth cervical vertebrae
(3)	Hinge joint	between humerus and pectoral girdle
(4)	Gliding joint	between carpals

SM0051

**AIPMT 2015**

7. Glenoid cavity articulates :-

- (1) Scapula with acromion
- (2) Clavicle with scapula
- (3) Humerus with scapula
- (4) Clavicle with acromion

**SM0053**

**Re-AIPMT 2015**

8. Which of the following is **not** a function of the skeletal system?

- (1) Locomotion
- (2) Production of erythrocytes
- (3) Storage of minerals
- (4) Production of body heat

**SM0054**

9. Which of the following joints would allow no movement ?

- (1) Ball and Socket joint
- (2) Fibrous joint
- (3) Cartilaginous joint
- (4) Synovial joint

**SM0055**

**NEET-II 2016**

10. Osteoporosis, an age-related disease of skeletal system, may occur due to :-

- (1) Decreased level of estrogen
- (2) Accumulation of uric acid leading to inflammation of joints.
- (3) Immune disorder affecting neuro-muscular junction leading to fatigue.
- (4) High concentration of  $\text{Ca}^{++}$  and  $\text{Na}^+$ .

**SM0056**

**NEET(UG) 2017**

11. Out of 'X' pairs of ribs in humans only 'Y' pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation:

- (1) X = 12, Y = 5 True ribs are attached dorsally to vertebral column and sternum on the two ends.

(2) X = 24, Y = 7

True ribs are dorsally attached to vertebral column but are free on ventral side.

(3) X = 24, Y = 12

True ribs are dorsally attached to vertebral column but are free on ventral side.

(4) X = 12, Y = 7

True ribs are attached dorsally to vertebral column and ventrally to the sternum.

**SM0058**

12. The pivot joint between atlas and axis is a type of :

- (1) Cartilaginous joint
- (2) Synovial joint
- (3) Saddle joint
- (4) Fibrous joint

**SM0059**

**NEET(UG) 2019**

13. Select the **correct** option .

- (1) 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> pairs of ribs articulate directly with the sternum.
- (2) 11<sup>th</sup> and 12<sup>th</sup> pairs of ribs are connected to the sternum with the help of hyaline cartilage.
- (3) Each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.
- (4) There are seven pairs of vertebrosteral, three pairs of vertebrochondral and two pairs of vertebral ribs.

**SM0118**

**NEET(UG) 2019 (Odisha)**

14. Match the following joints with the bones involved:

- (a) Gliding joint (i) Between carpal and metacarpal of thumb  
 (b) Hinge joint (ii) Between Atlas and Axis  
 (c) Pivot joint (iii) Between the carpals  
 (d) Saddle joint (iv) Between humerus and Ulna.

Select the correct option from the following:

- (1) (a)-(iii), (b)-(iv), (c)-(ii), d-(i)  
 (2) (a)-(iv), (b)-(i), (c)-(ii), d-(iii)  
 (3) (a)-(iv), (b)-(ii), (c)-(iii), d-(i)  
 (4) (a)-(i), (b)-(iii), (c)-(ii), d-(iv)

SM0119

**NEET(UG) 2020**

15. Match the following columns and select the correct option.

- | Column - I         | Column - II                                 |
|--------------------|---|
| (a) Floating Ribs  | (i) Located between second and seventh ribs |
| (b) Acromion       | (ii) Head of the Humerus                    |
| (c) Scapula        | (iii) Clavicle                              |
| (d) Glenoid cavity | (iv) Do not connect with the sternum        |

- | (a)       | (b)   | (c)  | (d)   |
|-----------|-------|------|-------|
| (1) (iv)  | (iii) | (i)  | (ii)  |
| (2) (ii)  | (iv)  | (i)  | (iii) |
| (3) (i)   | (iii) | (ii) | (iv)  |
| (4) (iii) | (ii)  | (iv) | (i)   |

SM0209

**NEET(UG) 2021**

16. Match List - I with List - II.

List-I		List-II	
(a)	Scapula	(i)	Cartilaginous joints
(b)	Cranium	(ii)	Flat bone
(c)	Sternum	(iii)	Fibrous joints
(d)	Vertebral column	(iv)	Triangular flat bone

Choose the correct answer from the options given below.

- | (a)      | (b)   | (c)   | (d)  |
|----------|-------|-------|------|
| (1) (i)  | (iii) | (ii)  | (iv) |
| (2) (ii) | (iii) | (iv)  | (i)  |
| (3) (iv) | (ii)  | (iii) | (i)  |
| (4) (iv) | (iii) | (ii)  | (i)  |

SM0210

**NEET(UG) 2021 (Paper-2)**

17. Match the columns I and II, and choose the correct combination from the options given.

- | Column I                 | Column II                                 |
|--------------------------|---|
| a. Ball and socket joint | i. Between carpal and metacarpal of thumb |
| b. Hinge joint           | ii. Between humerus and pectoral girdle   |
| c. Pivot joint           | iii. Between atlas and axis               |
| d. Saddle joint          | iv. Knee joint                            |
- (1) a-iv, b-i, c-ii, d-iii  
 (2) a-ii, b-iv, c-iii, d-i  
 (3) a-iii, b-iv, c-i, d-ii  
 (4) a-iii, b-i, c-ii, d-iv

SM0214

18. Ribs are called bicephalic because it has two articulation surfaces on its

- (1) Dorsal end  
 (2) Ventral end  
 (3) Lateral end  
 (4) Ventrolateral end

SM0215



NEET(UG) 2022

19. Given below are two statements: one is labelled as

**Assertion (A)** and the other is labelled as **Reason (R).**

**Assertion (A):**

Osteoporosis is characterised by decreased bone mass and increased chances of fractures.

**Reason (R):**

Common cause of osteoporosis is increased levels of estrogen.

In the light of the above statements, choose the **most appropriate** answer from the options given below:

- (1) Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**
- (2) **(A)** is correct but **(R)** is not correct
- (3) **(A)** is not correct but **(R)** is correct
- (4) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

SM0216

NEET(UG) 2022 (OVERSEAS)

20. Gout is a type of disorder which leads to:

- (1) Inflammation of joints due to accumulation of uric acid crystals
- (2) Weakening of bones due to decreased bone mass
- (3) Inflammation of joints due to cartilage degeneration
- (4) Weakening of bones due to low calcium level

SM0217

EXERCISE-II (Previous Year Questions)

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	3	3	4	3	4	3	4	2	1	4	2	4	1	1
Que.	16	17	18	19	20										
Ans.	4	2	1	2	1										



## EXERCISE-III

## Master Your Understanding

## EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Match the columns and pick out the correct answer :-

Column-A	Column-B
(i) Atlas/axis	(a) Saddle joint
(ii) Carpal/metacarpal of thumb	(b) Hinge joint
(iii) Between phalanges	(c) Fibrous joint
(iv) Femur / acetabulum	(d) Ball and socket joint
(v) Between cranial bones	(e) Pivot joint

(i)	(ii)	(iii)	(iv)	(v)
(1) e	a	b	c	d
(2) e	a	b	d	c
(3) e	a	d	b	c
(4) e	a	d	c	b

SM0060

2. Joint between pubic bones in the pelvis girdle is

- (1) Cartilaginous joint  
 (2) Fibrous joint  
 (3) Hinge joint  
 (4) Ball and socket joint

SM0061

3. 11th and 12th pairs of ribs are called

- (1) True ribs  
 (2) False ribs  
 (3) Vertebrochondral ribs  
 (4) Floating ribs

SM0062

4. The number of phalanges in both fore limbs of human is :-

- (1) 14      (2) 28      (3) 12      (4) 24

SM0064

5. Identify the correct and wrong statements :-

- (a) Human skeleton has 206 bones  
 (b) There are 12 pairs of ribs in human  
 (c) Sternum is present on the dorsal side of the body.  
 (d) All mammals (except of few) have 8 cervical vertebrae.  
 (e) Ribs are bicephalic

correct

wrong

- (1) a, b, c      d, e  
 (2) a, b, d      c, e  
 (3) a, b, e      c, d  
 (4) a, c, d      b, e

SM0065

6. Which of the following is **wrong** match for each limb?

- (1) Wrist bones → 8 in number  
 (2) Palm bones → 5 in number  
 (3) Ankle bones → 7 in number  
 (4) Digits → 12 in number

SM0066

7. Each coxal bone is formed by fusion of three bones?

- (1) Ilium, ischium, pubis  
 (2) Ilium, sacrum, pubis  
 (3) Ilium, sacrum, coccyx  
 (4) Ilium sacrum, ischium

SM0067

8. Which of the following is wrong statement about hyoid bone?

- (1) Only one in number  
 (2) U-shaped bone  
 (3) Present at the top of the buccal cavity  
 (4) Not attached with any other bone of the body

SM0068

9. This bone is a large triangular flat bone situated in the dorsal part of the thorax between the second and the seventh ribs. Identify this bone :-

(1) Femur (2) Hip bone  
(3) Scapula (4) Sacrum

**SM0069**

10. \_\_\_\_\_ are characterised by the presence of a fluid filled synovial cavity between the articulating surfaces of the two bones :-

(1) Fibrous joints  
(2) Synovial joints  
(3) Cartilagenous joints  
(4) Hinge joints

**SM0070**

11. Inflammation of joints due to accumulation of uric acid crystals is called :-

(1) Osteoporosis  
(2) Gout  
(3) Arthritis  
(4) Tetany

**SM0071**

12. \_\_\_\_\_ and \_\_\_\_\_ constitute our skeletal system.

(1) Bones and blood  
(2) Blood and lymph  
(3) Bones and cartilages  
(4) Bones and nervous

**SM0072**

13. Which of the following type of joint allows considerable movements and therefore, play a significant role in locomotion?

(1) Synovial joints  
(2) Fibrous joints  
(3) Cartilagenous joints  
(4) All of the above

**SM0073**

14. Match the columns

Column-A		Column-B	
(a) Ribs		(i) 26	
(b) Vertebrae		(ii) 14	
(c) Phalanges		(iii) 1	
(d) Sternum		(iv) 24	
(a)	(b)	(c)	(d)
(1) iv	i	iii	ii
(2) iv	iii	ii	i
(3) iv	i	ii	iii
(4) iv	iii	i	ii

**SM0074**

15. Match the List-1 with List-2 correct and find your answer from the code given below :-

List-1		List-2	
(i) Palm bones		(A) 14 in number	
(ii) Wrist bones		(B) 5 in number	
(iii) Ankle bones		(C) 8 in number	
(iv) Phalanges		(D) 7 in number	

Code :

(1) (i) A	(ii) B	(iii) C	(iv) D
(2) (i) B	(ii) C	(iii) D	(iv) A
(3) (i) A	(ii) C	(iii) D	(iv) B
(4) (i) C	(ii) D	(iii) B	(iv) A

**SM0075**

16. Between humerus and pectoral girdle which type of joint is present :-

(1) Pivot joint  
(2) Hinge joint  
(3) Ball & socket joints  
(4) Gliding joints

**SM0076**

17. Find out incorrect statements :-

(1) Brain box is formed of 8 bones  
(2) In skull the frontal bone is single  
(3) A single U-shaped bone present at the base of the buccal cavity is quadrate  
(4) Hyoid bone is the part of skull

**SM0077**

**EXERCISE-III(B) (ANALYTICAL QUESTIONS)**

18. Pelvic girdle of man consists of :-

- (1) Ilium, ischium and pubis
- (2) Ilium, ischium and coracoid
- (3) Coracoid, scapula and clavicle
- (4) Ilium, coracoid and scapula

SM0079

19. Hinge joint is present between :-

- (1) Femur and ulna
- (2) Humerus and ulna
- (3) Femur and pectoral girdle
- (4) Femur and pelvic girdle

SM0083

20. Thoracic cage in Human is made up of :-

- (1) Ribs, vertebral column and diaphragm
- (2) Ribs, diaphragm
- (3) Vertebral column, diaphragm and sternum
- (4) Ribs, vertebral column and sternum

SM0084

21. In which one of the following bones acromian process is found :-

- (1) Femur
- (2) Coxal bones
- (3) Atlas
- (4) Scapula

SM0085

22. Foramen magnum is present in

- (1) Base of medulla
- (2) Base of skull
- (3) Apex of vertebral column
- (4) Base of brain

SM0087

23. Which of the following is a pair of sesamoid bone ?

- (1) Ilium and Patella
- (2) Patella and Pisciform
- (3) Pterigoid and Patella
- (4) Pectoral girdle and Patella

SM0089

24. The number of floating ribs in human body

- (1) 6 pairs
- (2) 5 pairs
- (3) 3 pairs
- (4) 2 pairs

SM0090

25. Pivot joint occurs at

- (1) The hip and shoulder joint
- (2) Between the atlas and the odontoid process of axis
- (3) Sternoclavicular joint
- (4) Temporomandibular joint

SM0091

26. Axial skeletal is made up of

- (1) Vertebral column complete
- (2) Skull
- (3) Sternum
- (4) All of the above

SM0092

27. The shoulder and hip joints are

- (1) Pivot joint
- (2) Hinge joint
- (3) Ellipsoid joint
- (4) Ball and socket joint

SM0093

28. Bones become fragile in

- (1) Gout
- (2) Osteoporosis
- (3) Arthritis
- (4) None of these

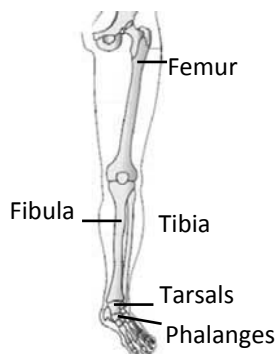
SM0094

29. Part of mammalian body has single pairs of bones

- (1) Pelvic girdle
- (2) External ear
- (3) Lower jaw
- (4) All of the above

SM0095

30. Given below is a diagram of the bones of the left human hind limb as seen from front. It has certain mistakes in labelling.



Two of the wrongly labelled bones are :-

- (1) Tibia and tarsals
- (2) Femur and fibula
- (3) Fibula and phalanges
- (4) Tarsals and femur

SM0096

EXERCISE-III

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	1	4	2	3	4	1	3	3	2	2	3	1	3	2
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	3	1	2	4	4	2	2	4	2	4	4	2	1	3