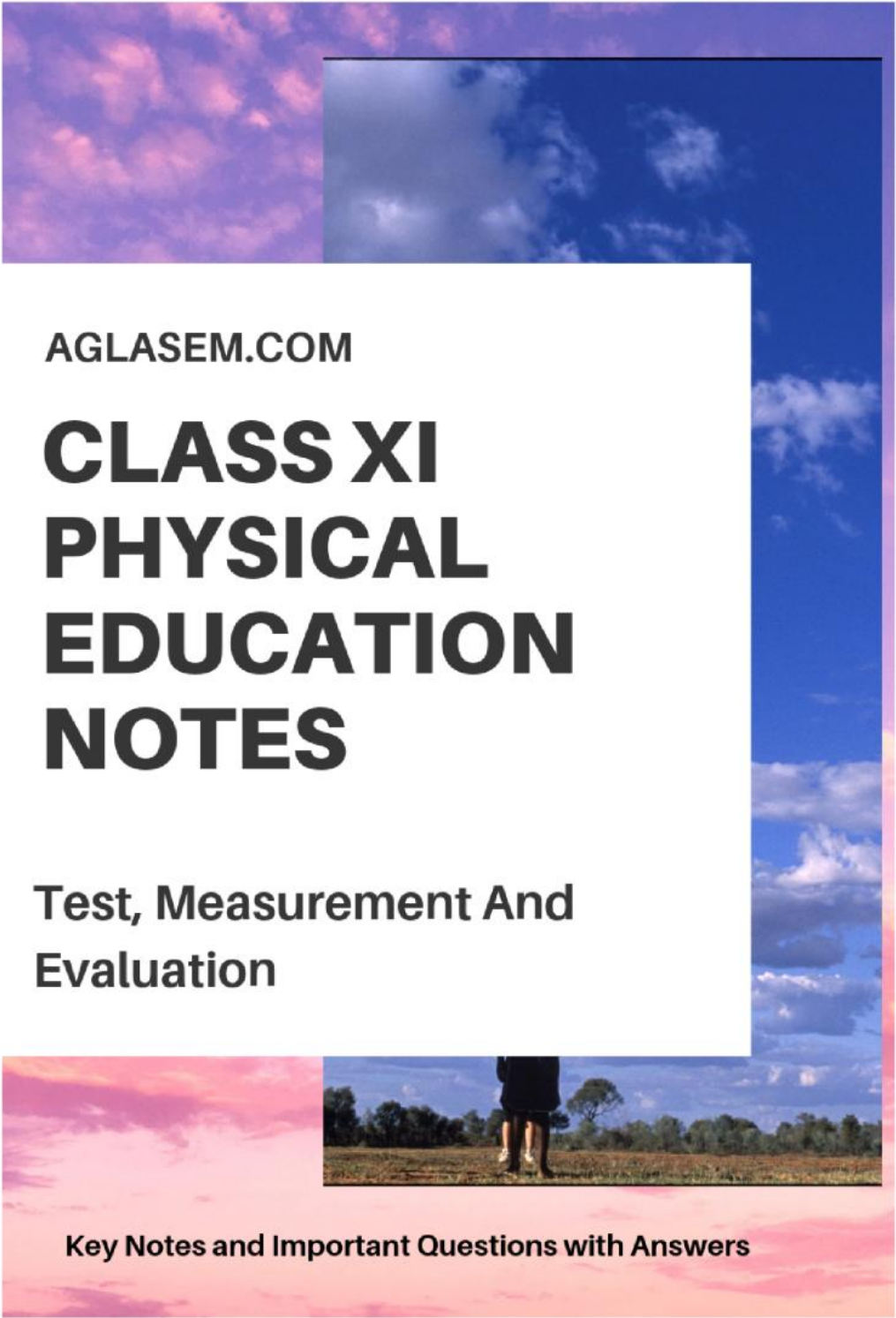




AGLASEM.COM

CLASS XI PHYSICAL EDUCATION NOTES

**Test, Measurement And
Evaluation**

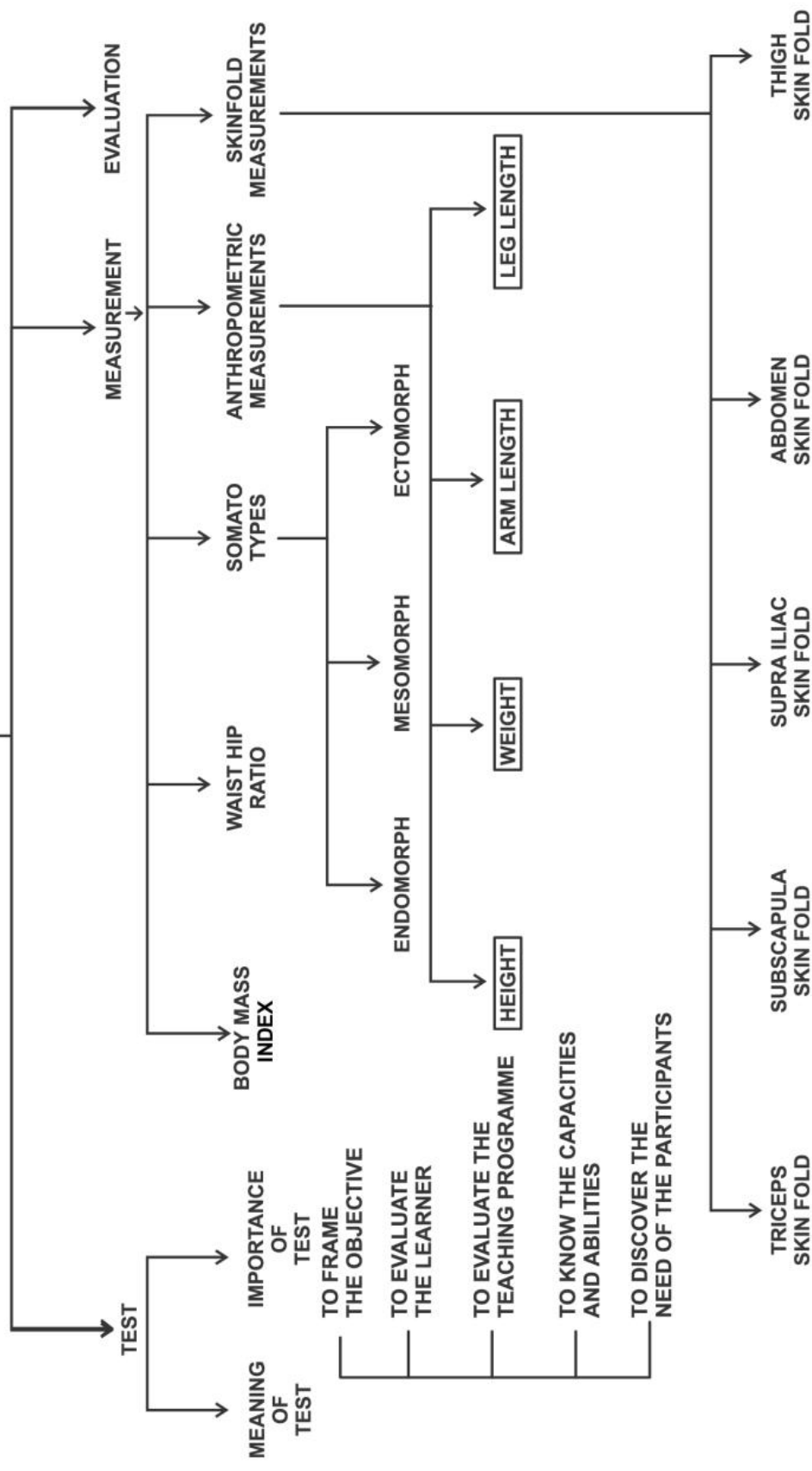


Key Notes and Important Questions with Answers

Test, Measurement & Evaluation

- ΔΙΑΚΑΛΩΣΗ ΤΩΝ ΕΛΛΗΝΩΝ. 15

FLOW CHART



TEST AND MEASUREMENT IN SPORTS

CHAPTER-7

TEST

A test is a tool which is used to evaluate the skills, performance and reliability of the task completed by a sports person.

MEASUREMENT-

Measurement is about the collection of data about performance or task completed by a sports person by using a test.

Evaluation: It is a systematic determination of a subject's merit, worth and significance, using criteria governed by a set of standards.

IMPORTANCE OF TEST AND MEASUREMENT -

1. To frame the objectives.
2. To evaluate the learners.
3. To evaluate the teaching programme.
4. To know the capacities and abilities.
5. To discover the needs of the participants.

BODY MASS INDEX (B.M.I.)-

It is the value derived from the mass (weight) and height of an individual.

FORMULA FOR CALCULATING B.M.I. -

$$\text{Body Mass Index} = \frac{\text{Weight in Kg}}{\text{Height in m}^2}$$

WAIST HIP RATIO-

Waist Hip Ratio is the ratio of the circumferences of waist to that of the hips.

FORMULA FOR CALCULATING WAIST HIP RATIO-

$$\text{Waist hip ratio} = \frac{\text{Waist Circumference}}{\text{Hip Circumference}}$$

SOMATO TYPES (ENDOMORPH, MESOMORPH, ECTOMORPH)

Somato Types means human body shape and physique type.

According to W.H. Sheldon, human beings can be classified into three extreme body types i.e.

1. ENDOMORPHY-

People with endomorph body structure have rounded physique. Their excessive mass hinders their ability to compete in sports. Suitable games weight lifting and power lifting.

2. MESOMORPHY-

People with mesomorphy body structure have thick bones and muscles with rectangular shaped body. They have larger and broader chest and shoulders and can be top sports person in any sport.

3. ECTOMORPHY-

These are slim persons because their muscles and limbs are elongated. They have flat chest and have less muscle mass. They have less strength but dominate endurance sports.

PROCEDURES OF ANTHROPOMETRIC MEASUREMENT (HEIGHT, WEIGHT, ARM AND ARM LENGTH & SKINFOLD)

Meaning of Anthropometric measurement.

Anthropometric measurements means measurements of height, weight, arm, leg length, waist circumference and skin folds etc.

HEIGHT - Height of an individual must be measured using a stadiometer to the nearest half of a centimeter.

Weight - Correct weighing machine should be used and measurement must be recorded to the nearest 0.1 k.g.

Arm Length - Measurement should be done from the body tip of the shoulder to the tip of the little finger.

Upper Arm Length - To measure the upper length the arm should be bent 90 degree at the elbow with palm facing upwards.

Leg Length - It can be measured by using flexible steel tape from the outside edge of centre of the foot to the upper edge of the greater trochanter.

Upper Leg Length- Bend the knee at 90 degree angle & sit up straight. Measure the upper leg length from inguinal crease to the proximal border of patella to the nearest of 0.1 centimeter.

SKIN FOLD MEASUREMENTS -

Arms (triceps) skin fold

Sub Scapula skin fold

Suprailiac skin fold

Abdomen skin fold

Thigh skin fold

A. SHORT ANSWER TYPE QUESTIONS (1 MARK EACH)

1. What do you mean by a test ?

Ans. A test is a tool which is used to evaluate the quality, performance and reliability of the task completed by a person.

2. What do you mean by Measurement ?

Ans. Measurement is about collection of data and information about certain skills or levels of fitness of an individual by using tests and relevant techniques.

3. What do you mean by a Evaluation?

Ans. It is the process of education that involves collection of data from the products which can be used for comparison with preconceived criteria to make judgment.

4. Define Test.

Ans. A test is a tool which is used to evaluate the skill, knowledge, capacities or aptitudes of an individual or a group.

5. Define Measurement.

Ans. Measurement is the process of administering a test to obtain a quantitative data.

6. Define Evaluation?

Ans. • It is a decision making process which assists to make grade and ranking.
• It is a technique by which we come to know at what extent the objectives are being achieved.

7. Write the formula to calculate the W.H.R. B.M.I.

Ans. $W.H.R. = \frac{\text{Waist Circumference (in Inches)}}{\text{Hip Circumference (in Inches)}}$

$BMI = \frac{\text{Weight in Kg}}{\text{Height} \times \text{Height (mts)}}$

8. What do you mean by somato types ?

Ans. Somato types basically means body types which is further classified into three types i.e. Endomorph, Mesomorph and Ectomorph.

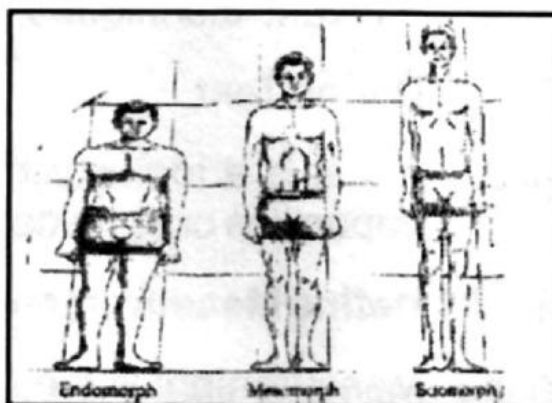
9. State the uses of Anthropometric measurements-

Ans. Anthropometric measurements of height, weight, arm and leg length, waist circumference and skin fold etc. are significant indicators of health which enable us to know the physical growth and development and health problems of an individual.

QUESTIONS CARRYING 3 MARKS EACH (60 WORDS)

1. Explain the procedure of measuring Somato Types in brief.

Ans. Somatotypes means human body shape, and physique types. Somato types helps the physical education and sports teaches to classify the students for particular sports and games on the basis of physical, mental and practical aspects.



The procedure of measuring somatotypes is based on the classification by W.H. SHELDON.

1. Endomorphy—

Such individuals have short arms and legs and rounded physique. The upper parts of arms and legs are significantly thicker than the lower parts. Their excessive mass hinders their ability to compete in sports.

2. Mesomorphy—

Such individuals have balanced body compositions and athletic physique. They are able to increase their muscle size quickly and easily and have rectangular shapes body. Their chest and shoulders are broader in comparison to their waist line.

3. Ectomorphy—

These individuals are generally slim because their muscles and limbs are elongated. As they have weak constitution of body and usually face difficulties in gaining weight. Their light body constitution makes them suited for aerobic activities like gymnastics.



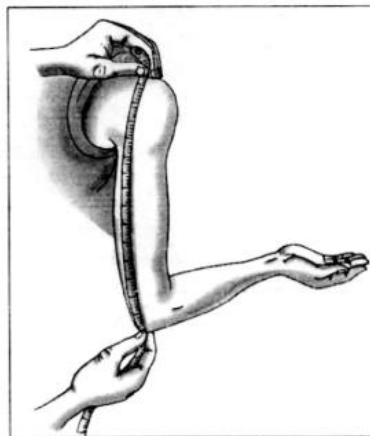
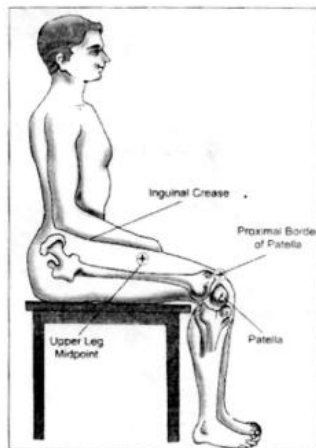
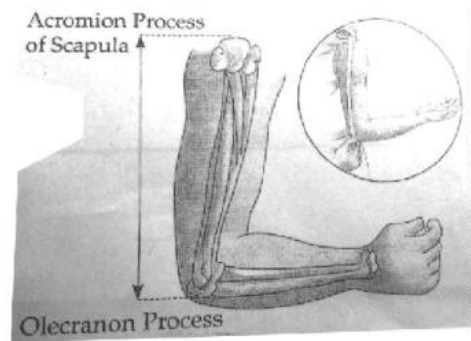
2. Discuss the procedure of measurement of arm length and upper arm length.

Ans. Procedure of measurement of 4 arm length -

The subject must stand with his arms hanging by the side of his body with his fingers outstretched. A measurement is made from the acromial i.e. the bony tip of the shoulder to the tip of the little finger.

Procedure of measurement of upper arm length -

The subject must stand upright with body weight distributed equally on both the feet. The right arm should be bent at 90 degree from the elbow with palm facing upwards. A measurement is made from acromial to the bony part of the mid elbow. Measurement must be taken to the nearest 0.1 cm. and recorded.



3. Elaborate the procedure of measurement of leg length and upper leg length.

Ans. Leg length

The leg length of a child or adult is measured with a flexible tape from the bottom to the upper edge of great trochanter.

Upper leg length-

The subject is made to sit on a box with one of the knee bent at 90 degree angle with his back upstraight measure the upper leg length from the inguinal crease to proximal border of patella. Record the measurement to the nearest 0.1 cm.



4. Calculate the BMI of a male person whose weight is 80kg and height is 1.6m. Also state the category in which he falls.

Ans.
$$BMI = \frac{\text{Weight in Kg}}{(\text{Height in m})^2}$$

$$\text{BMI} = \frac{80}{1.6 \times 1.6} = \frac{80 \times 100}{16 \times 16} = \frac{8000}{256} = 31.25$$

The above person falls in class -1 Category obesity.

5. What do you mean by BMI ? Write down the scale of BMI.

Ans. BMI is a statistical measurement that let us know whether the person is underweight, normal weight or overweight.

BMI is categorized as below -

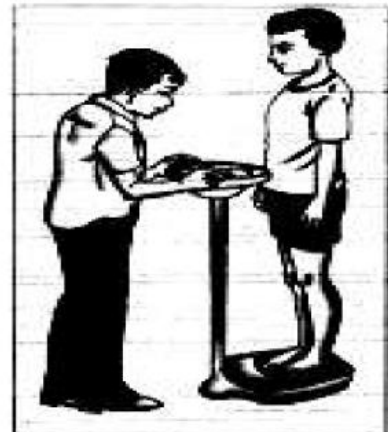
Category	BMI
Underweight	< 18.5
Normal Weight	18.5-24.9
Overweight	25.0-29.9
Obesity Class I	30.0-34.9
Obesity Class II	35.0-39.9
Obesity Class II	> 40.0

6. Explain in brief the procedure or Anthropometric measurement of weight?

Ans. The scale should be placed on hard floor surface so that the beam gets into balanced position.

Procedure for weight measurement -

1. The subject must wear light clothes.
2. He should stand in the centre of the platform of the weighing machine with his body weight equally distributed on both the feet.
3. Read the measurement in front of the needle and record it to the nearest 0.1 kg.



7. Explain in brief the procedure of Anthropometric measurement of height?

Ans. The child or adult should remove socks, shoes, jackets or any other heavy clothing. The floor surface should be plane and hard. The height should be measured using a stadiometer.

Procedure for height measurement -

1. The subject should stand with his feet flat and together on the floor. Arms should be by the sides and knees and back should be straight. The back of head, buttocks, calves, heels and shoulder blades should touch the measuring surface.
2. After that the horizontal sliding part of the stadiometers lowered gently so that hairs get pressed flat and subject should be asked to stand still.
3. Height of the subject should be read to the nearest half in centimeter and recorded.



LONG ANSWER TYPE QUESTIONS (5 MARKS EACH)

(150 WORDS)

1. Explain in detail the importance of Test and Measurement and Evaluation in the field of games and sports?

Ans. In the field of games and sports programme. It is important to select a target. If a person desires to improve himself in different aspects of fitness. He will have to undergo fitness programmes.

Test, Measurement & evaluation in physical education are the devices that are needed to collect the details regarding the needs, abilities and attitudes of a sports person.

A test is basically a situational presentation, where specific responses are collected from the subject. These responses are measured both qualitatively and quantitatively.

Measurement is about collection of data as performance or task and completed by a sports person by using test and scientific techniques.

Evaluation is the process of physical education that involves collection of data from the products which can be used for comparison with preconceived criteria to make judgement.

Importance of Test, Measurement & Evaluation

The importance of test, measurement & evaluation in the field of games & sports are the following ways.

- (i) To frame the objectives: Setting target and goal according to the need and requirement.
- (ii) To realize that the objectives are achieved or not.
- (iii) To understand the need, ability and capacity for any individual.
- (iv) To evaluate the learner: so that feed back can be given.
- (v) To evaluate teaching programme.
- (vi) For the classification or grading of the students.
- (vii) To check the progress or improvement of the learner time to time.
- (viii) For diagnosis of learning program: Bio-mechanics, motor skill and cognitive etc.
- (ix) Prediction of future performance.
- (x) Selection of team or individual events and a player.
- (xi) For intensive type of research it is essential.
- (xii) For the pose of guidance of counselling.
- (xiii) Evaluate different methods of instruction.

Q.2 Explain any four importance of test, measurement & evaluation in detail?

Ans. The four importance in the physical education field are given below of test, measurement & evaluation:

1. To frame the objectives -

Test and Measurement helps in setting the target or goal according to the need and requirement. By adopting the Test and Measurement techniques the physical education teachers get an accurate idea about the progress made by the students.

2. To evaluate the learners-

In the field of physical education and sports Test and Measurement helps

in collection of data which further helps in evaluating the learners ability separately. It also helps the sports person in enhancing his sports performance.

3. To evaluate teaching programme -

Test and Measurement is a scientific tool which helps the teacher to adopt correct methodology upon the sportsman so that desired results may be achieved.

4. To discover the needs and requirements of the participants-Needs of the participants are correctly assessed by the scientific approach of Test and Measurement. It helps in knowing where more emphasis is needed so that target may be achieved.

Q.3 Explain the procedure for fixing marks for skin fold measurement.

Ans. The marking of skinfold measurement should be proper for taking accurate anthropometric measurements. So, for proper marking of skinfold measurements the following procedures should be taken into consideration.

1. Triceps skinfold-

The child or adult must stand upstraight with arms relaxed. With the help of a measuring tape mark a point with a pen at the centre of triceps. This is the point or mark from where the skinfold measurement should be done with the help of a skinfold caliper.

2. Sub Scapula Skinfold -

Find out the exact location of scapula. The skin fold area is just below the inferior angle of scapula. Skin fold measurement should be done with the help of skin fold calipers.

3. Suprailiac skinfold-

The intersection of a line joining the spinal and front part of armpit and horizontal line at the level of iliac crest can be marked for skinfold measurement.



Procedure for using skinfold calipers of measurement

4. Abdomen skinfold -

The abdomen muscles of the subject must be relaxed. He may be asked to hold the breath if any movement interferes the process of measurement.

A point should be marked 3cm to the right and 1 cm below the midpoint of umbilicus.

5. Thigh skinfold-

The child or adult whose measurement is to be taken must sit on a chair with his back completely straight. Now mark a point exactly between the knee cap and the inguinal crease on the thigh for skinfold measurement.

4. Explain the procedure of skinfold measurement in detail.

Ans. Skinfold measurements are also called as "fatfold thickness". These measurement provide the information or data of the thickness of double folds of the skin and sub cutaneous adipose tissue at specific sites of the body. In simple words skinfold provides the information about general fatness of the body.

The procedure of skinfold measurements is as under -

1. The arm of the subject or child should be hung loosely. Stand behind the subject and pull the vertical skinfold about 1/2 inch from the spot already marked. Keep the skinfold caliper perpendicular to the length of the fold centering the mark. Record the measurement to the nearest millimeter.

2. Sub scapula skinfold -

After locating the marked point on the sub scapular region, pull a skin fold for about 34 inch above and keep the skin fold caliper perpendicular to the length of skinfold. Release the capilar and note the measurement to the nearest millimeter.

3. Suprailiac skinfold -

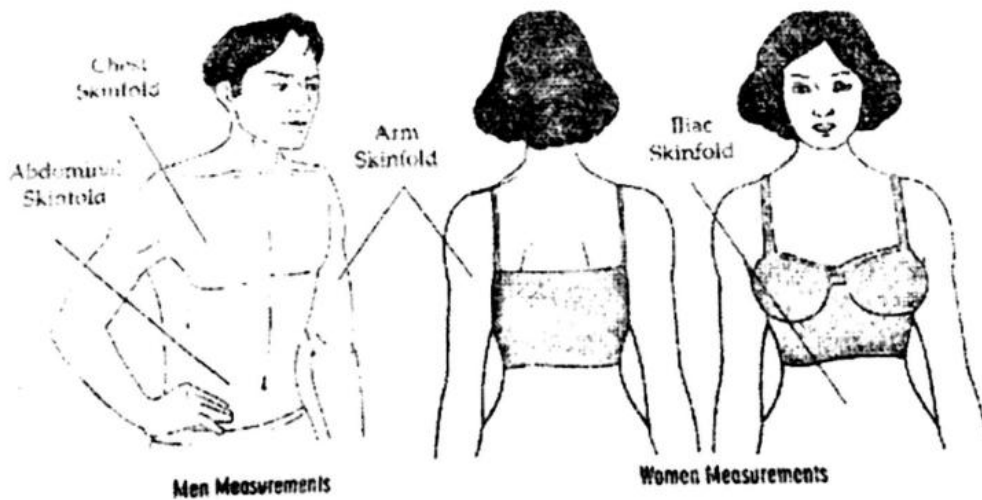
The subject should stand straight with his feet together and arms relaxed. Pull a skinfold 34 inch above the marked point with the thumb and index finger. The skinfold caliper should be kept perpendicular to the length of skin fold. Release the caliper and note the reading on the dial to the nearest of millimeter and record it.

4. Abdomen skinfold-

After locating the already marked point, pull a horizontal skinfold to about 34 inch. Place the skinfold caliper perpendicular to the length of skinfold. Release the caliper and note the reading the nearest of millimeter and record it.

5. Thigh skinfold-

The person is made to stand with his weight on the left leg and right leg forward with knee slightly bent. Grip a skinfold on the already marked area on the mid thigh. Place the skinfold caliper and note the reading to the nearest of millimeter and record it.



VALUE BASED QUESTION

Q.5 A group of students from Class-XI reports to the Physical Education Teacher for participating in various sports activities. Where the Teacher/ Coach has to classify the students according to their physical appearance and observe the group property. He find out that few students are having round shape body structure, few are fit and healthy and few of them are tall and this.

1. How will be the classification of the students be done by the Teacher?

Ans. The students will be classified according to:

- ### 1. Round Shaped Body - Endomorph

2. Fit and Healthy - Mesomorph

3. Tall and thin - Ectomorph

2. What kind of Games can be suggested for Round shaped body structured students ?

Ans. Weight lifting and Power lifting etc. which need extra strength and Power for these Games.

3. What kind of Games can be suggested for Mesomorphic students ?

Ans. Athletics especially running events.

4. What type of Games can be suggested for tall and thin students ?

Ans. Long Distance Running, Volleyball, Basketball etc.