

## Chapter-7

### Test and Measurement in Sports

### Important Questions

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#### VERY SHORT ANSWER TYPE QUESTION - (1 MARK EACH)

**Q.1 What is test?**

**Ans.** Test, may be called as tool, a question, set of question, an examination which use to measure a particular characteristic of an individual or a group of individuals.

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**Q.2 What is measurement?**

**Ans. According to R.N. Patel**

“Measurement is an act or process that involves the assignment of numerical values to whatever is being tested. So it involves the quantity of something.”

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**Q.3 What do you understand by muscular strength?**

**Ans.** It is the amount of force the muscle or a group of muscles can exert against resistance for short duration as in anaerobic activities.

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**Q.4 What is Kraus-Weber test?**

**Ans.** It is mean to test minimum general fitness required by an individual by testing the strength and flexibility of big muscles and joints.

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**Q.5 What is motor fitness?**

**Ans.** Motor fitness is a person's ability to perform physical activities.

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**Q.6 What do you understand by cardiovascular fitness?**

**Ans.** Cardiovascular fitness is the ability of the heart and lungs to supply oxygen rich blood



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to the working muscle tissues and the ability of the muscles to use oxygen to produce energy for movement.

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**Q.7 What do you understand by Harward step test?**

**Ans.** It is a cardiovascular fitness test. It is good for measurement of fitness and the ability to recover after a strenuous exercise.

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**Q.8 What is Rockport one mile test?**

**Ans.** It is cardio respiratory test used to determine VO<sub>2</sub> max. (volume of oxygen) V<sub>O2</sub>max is the maximum capacity of the person's body to move and use oxygen during exercise.

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**Q.9 What do you understand by flexibility?**

**Ans.** Flexibility is the range of motion in a joint or group of joints, or, the ability to move joints effectively. Flexibility is related to muscle strength.

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**Q.10 What do you understand by senior citizen fitness test?**

**Ans.** Senior citizen fitness test are easy to understand and effective tests to measure aerobic fitness, strength and flexibility using minimum and inexpensive equipments.

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**Q.11 Why measurement is necessary?**

**Ans.** It is something which provides information regarding individual's ability, knowledge, performance and achievement.

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**Q.12 By which test the one can measure abdominal strength?**

**Ans.** Kraus-Weber test.



## SHORT ANSWER TYPE QUESTION [80 TO 90 WORDS] -

(3 MARKS EACH)

**Q1. What do you understand by AAHPER test? Describe any two items of the test.**

Ans. The AAHPER youth fitness test was formed in 1965 in United States. This test administered on school student of 17 year age. This test was designed to help the physical education teachers and other recreation leaders in the field to find out the performance levels of their students, compare them with national norms.

### Administration of test

1. **(a) Pull-ups(boys):** This test measures the total number of repetitions performed without taking rest on a horizontal bar. The total number of pull-ups noted. In this test, the chin must reach above the bar while doing pull-ups.

**(b) Flexed-arm hangs (girls):** This is test is administered on an adjusted on an adjustable horizontal bar. The height of the bar should be adjusted so that it is approximately equal to the standing height of the student. With the help of two girls the student's body is lifted off the ground until her chin is positioned above the bar.

The student holds this position as long as possible. Her time is noted in seconds. She may be allowed for one trial.

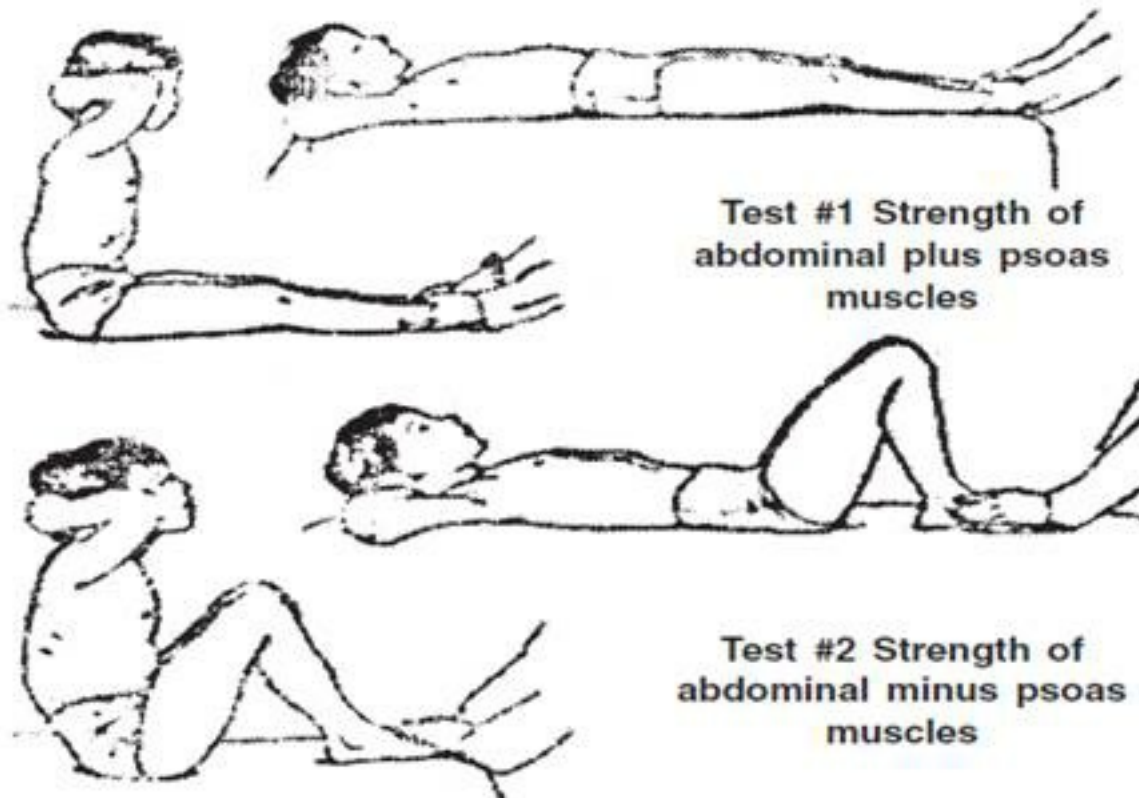
2. **Flexed-leg sit-ups :** The student is advised to lie on floor on his/her back keeping knees bent. The angle of knee: around 90 degree. The feet are held by partner. The student should put fingers locked and put behind the head curls up and touches the elbows to knees the score is counted as maximum number of sit-ups in 60 seconds.

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**Q2. Describe any three tests in Kraus-Weber test.**

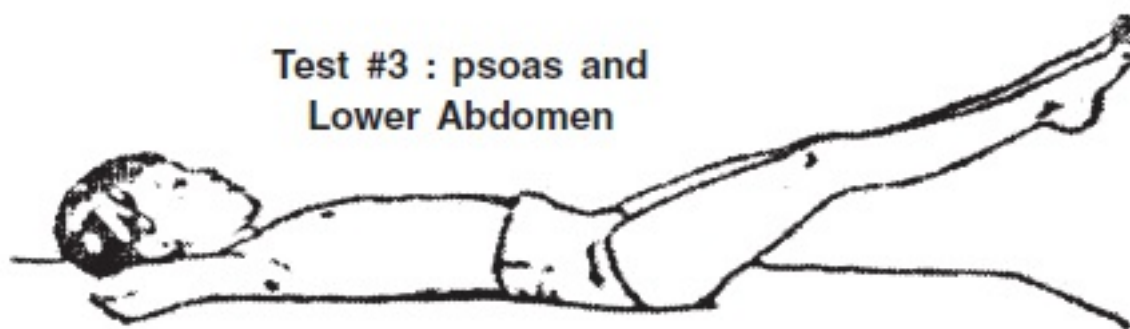


**Ans.** This very test of fitness was firstly used to investigate about the progress of the treatment given for back pain problems. More than eighty who take this test failed to pass it in the first attempt.



The first test of the six Kraus-Weber tests series is used to evaluate general fitness of a person. In this test one has to keep the feet on the ground: do sit ups while keeping both hands folded on the back and lying body on the ground.

The second part of Kraus-Weber 'Test series is similar to first in posture but only change is that in this test knees of person are folded and the ankles are as close to buttocks as possible; while doing sit ups.



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## Lower Abdomen

The third part of Kraug-Weber Test series requires the person to lie flat on the back and keeps hands behind the neck and legs remain straight and lifted up for about ten seconds in a stretch.

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### Q3. Explain administration of Rockport one mile test.

**Ans.** Administration of Test : (i) Choose a windless day to conduct the test, (ii) Record your weight in pounds (lbs) (iii) Walk one mile (1609 mt) as fast as possible, (iv) Record the time to complete the one mile walk, (v) Immediately on finishing the walk record your heart rate (beats per minute), (vi) Determine your maximum cardio-respiratory ability ( $VO_2$ ) from the calculation given below. Calculation procedure : Analysis of the result is done by comparing it with the result of previous test. It is expected that, appropriate training between each test should be done to show improvement.

The formula used to calculate  $VO_2$  Max is :  $132.853 - (0.0769 \times \text{weight}) - (0.3877 \times \text{Age}) + (6.315 \times \text{Gender}) - (3.2649 \times \text{Time}) - (0.1565 \times \text{Heart rate})$

Where :-

- (a) Weight is in pounds (lbs),
- (b) Gender: Male - 1 and Female = 0
- (c) Time is expressed in minutes and seconds,
- (d) Heart rate is in beats/minute
- (e) Age in years.





Harvard Step Test

#### Q4. Describe in short Harvard step test.

Ans. **The Harvard Step Test** is a method used to assess cardio-respiratory fitness, which was developed by Brouha et al. (1943) in the Harvard Fatigue Laboratories during World War II. It is based on heart rate recovery following a given work load of 5 minutes or until exhaustion.

#### What do we need?

- A gym bench or box. 20 inches high.
- A stopwatch
- cadence
- An assistant

#### SCORING THE TEST

There are two versions of the Harvard Step Test, the short form and the long form.

- Short Form Equation** - Fitness Index =  $(100 \times \text{test duration in seconds}) \div (5.5 \times$

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pulse count between 1 and 1.5 minutes).

·Long form Equation - Fitness Index =  $(100 \times \text{test duration in seconds}) \div (2 \times \text{sum of heart beats in the recovery periods})$ .

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**Q5. Discuss the back scratch Test for upper body flexibility.**

**Ans.** You'll need a ruler or a yardstick. Place your hand over your shoulder, and reach as far as possible down the middle of your back, your palm touching your body. Place your other arm behind your back, palm facing outward and reach up as far as possible attempting to touch or overlap the middle fingers of both hands. Practice two times, and then test two times. Your partner measures the distance between the tips of the middle fingers to the nearest half-inch. If the fingertips touch, score zero. If they do not touch, score a negative distance, such as 2 inches. If they overlap score a positive distance, such as 1 inch. Take your best score. For women the goal is to have your fingertips no more than 5 inches apart and for men no more than 8 inches apart. If you're unable to reach this goal. You may be at risk for losing the ability to perform some activities that require upper body flexibility. Stop the test if you experience pain.

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**Q6. Discuss in short sit and reach test.**

**Ans.** The sit and reach test is a common measure of flexibility, and specifically measures the flexibility of the lower back and hamstring muscles.

**Equipment**

Ruler, step (optional, you could make your own sit and reach box if keen too) After a brief warm up the subject sits on floor with shoes off. Subject places bottom of feet (10 to 12 inches apart) against side of box (approximately 12" or 30 cm high) with knees straight. Tester places measuring stick on box parallel to subject's legs; 15" or 38 cm at edge of box closest to subject and end of measuring stick ("0") toward subject. Subject places hand over hand and reaches as far as possible over measuring stick without bending knees. Best of three tries is recorded.

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**Q7. What is the importance of measurement in physical education and sports? Write in**



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**your own words.**

**Ans.** Physical education and sports is a big area. It has no end. Without doing any test, measurement is not possible. Till we do not evaluate the results, the measurements are useless. In physical education and sports use of test and measurement is important due to reasons given below:

1. Selection of athlete
2. Classification of individual games
3. To Study the development of athletes
4. The person-centered training program
5. Motivate athletes
6. Potential performance
7. The criteria and standards to be created
8. Measuring current capacity
9. To do research
10. To achieve objectives & goal of the activity.

