Q.1.A
1. 10-12
2. Football
3. Leander Paes
4. P.V.Sindhu
5. 12
6. Bachendra Pal
7. 71.12 cms

(B)
1. Dattu Bhoknal
2. Virdhaval Khade
3. Asanas
4. Long Jump
5. Badminton
6. Abhinav Bindra
7. Horse Racing

(C)
1. False
2. True
3. True
4. True
5. False
6. True
7. true

Q.2. Phillip’s JCR Test-
This test also measures the General Motor ability of the subjects with respect to power, speed, agility and muscular endurance. The test consists of three items namely vertical jump (J), Chinning (C) and shuttle run (R).

Equipment required: Vertical jump board or marked wall, marking chalk powder, stopwatch, chinning bar, 2 wooden blocks (2” * 2” * 4”).
**Test Administration:** The test procedure of each item is given below.

i. **Vertical Jump:** The subject is asked to stand erect facing the board. His/her dominant hand’s fingertips are marked with chalk powder and the subject is asked to raise the marked fingertips to a maximum height on the blackboard without lifting the heels so as to mark his/her maximum reach point. The fingertips are re-chalked. With the chalked hand side towards the wall, a vertical jump is to be performed by the subject to make another mark at the maximal height of the jump. The subject is not allowed to run or hop. However, the subject is properly instructed to take a good jump by bending knees and swinging the arms. The subject may be give three to five trails at his/her will and the best performance is considered.

**Scoring:** The maximum distance (among all the trails) between the reaching height and the jumping height provide the score of the test.

ii. **Chinning (Pull ups):**

- **Pull-ups for Boys** - The bar is located at such a height so that the feet of the tallest subject do not touch the ground while hanging on the chinning bar. The subject is asked to hang from the bar by his hands with forward grip and to chin up by pulling himself up until his chin is above the bar. Then he has to lower the body until his arms are straight and is asked not to use kick or jerky motion. If he does not straighten his arms completely when lowering the body or if he kicks, jerks or keeps (keeping one’s chin on the bar) in performing the movement, then half counts are recorded.

**Scoring:** The number of complete pull-ups plus one half of the half counts (if any) constitute the scoring.

- **Pull-ups for Girls** - Either an adjustable horizontal bar or one bar of the parallel bar which permits convenient raising and lowering, is used for this test item. A mat is laid on the floor to prevent the feet from slipping. The bar is adjusted to a height equal to the level of the sternum of the subject so that each has to pull approximately the same portion of her weight. The subject grasps the bar with palms outward and slides her feet under the bar until the body and arms form nearly a right angle when body is held straight. The weight rests on the heels. The subject is asked to pull-up to the bar with the body keeping straight as many times as possible. If the body sags, if the hips rise or if the subject does not pull completely up or go completely up or go completely down, half credits are given, up to four half credits.

**Scoring:** The number of complete pull-ups plus one half of the half counts (if any) constitute the scoring.

iii. **Shuttle Run** - Two parallel lines are marked on the floor 10 yard apart or the width of the regular volleyball court may be used for the test. The two wooden blocks are placed behind one of the lines. The subject is asked to start from behind the line other than the one behind which the wooden blocks are placed. On the signal ready? go, the timer starts the watch and the subject runs towards the block, picks-up one block, runs back to the starting line, places the block behind the starting line, turns back and picks-up the second block is placed on the ground the timer stops the watch and records the time.

**Scoring:** Two trails are allowed to each subject with some rest in between. The time of the better of the two trails is recorded to the nearest 10th of the second as a score of the test item.

OR
Q.2. **Skill Related Physical fitness.** The abilities or components of skill related fitness are not the skills associated with any particular sport, such as running, catching, tackling or kicking, but are the underlying skills which are brought to bear when participating in a sport.

**Six Components of Skill-Related Fitness**

There are six skill-related fitness components: agility, balance, coordination, speed, power, and reaction time. Skilled athletes typically excel in all six areas.

1. **Agility** - the ability to change direction quickly while the body is in motion. For example, changing directions to hit a tennis ball.

2. **Balance** - the ability to keep an upright posture while standing still or moving. For example, in-line skating & stretching.

   - Static Balance - the ability to maintain one’s equilibrium in a fixed position.
   - Dynamic Balance - the ability to maintain one’s equilibrium while the body is in motion.
   - Equilibrium - a state in which opposing forces or actions are balanced so that one is not stronger or greater than the other.

3. **Coordination** - the ability to use your senses together with your body parts, or to use two or more body parts together. For example, dribbling a basketball. Using hands and eyes together is called hand-eye coordination.

4. **Power** - the ability to perform one maximum effort in a short period of time as possible. For example, fullbacks in football muscling their way through other players and speeding to advance the ball and volleyball players getting up to the net and lifting their bodies high into the air.

5. **Reaction Time** - the ability to react or respond quickly to what you hear, see, or feel. For example, an athlete quickly coming off the blocks early in a swimming or track relay, or stealing a base in baseball.

6. **Speed** - the ability to perform a movement or cover a distance in a short period of time. Many sports rely on speed to gain advantage over your opponents. For example, a basketball player making a fast break to perform a lay-up, a tennis player moving forward to get to a drop shot, and a football player out running the defence to receive a pass.

Q.3. **Importance of Physical Education**

Physical education is an integral part of the total education of every child. Quality physical education programs are needed to increase the physical competence, health-related fitness, self-responsibility, and enjoyment of physical activity for all students so that they can be physically active for a lifetime.

Physical Education is of special importance to students.

1. They are great sources of pleasure to them.

2. They build the body and refresh their mind.

3. They train the mind in many virtues.

4. They teach the players discipline and team spirit.
5. Physical education creates in students ‘the sporting spirit’. The students learn to play fair and honourably and to keep the rules of the game.

6. They develop pluck and patience.

7. Physical education aims at bringing the best in the students.

8. Improves Physical Fitness that is muscular strength, flexibility, muscular endurance, body composition and cardiovascular endurance.

9. Develops motor skills, which allow for safe, successful and satisfying participation in physical activities.

10. Provides a wide-range of developmentally appropriate activities for all children.

11. Facilitates development of student responsibility for health and fitness.

12. Quality physical education can influence moral development. Students have the opportunity to assume leadership, cooperate with others; question actions and regulations and accept responsibility for their own behaviour.

13. Physical activity becomes an outlet for releasing tension and anxiety, and facilitates emotional stability and resilience.

14. Physical education can be a major force in helping children socialize with others successfully and provide opportunities to learn positive people skills.

15. Physical education instils a stronger sense of self-worth in children based on their mastery of skills and concepts in physical activity. They can become more confident, assertive, independent and self-controlled.

16. Gives children the opportunity to set and strive for personal, achievable goals.

OR

Q.3.
Physical health refers to the state of the body, and its ability to perform bodily functions. It refers to the aspects that are essential for keeping the body in the best
condition. Physical dimension purely refers to the perfect functioning of the body externally as well as internally. Externally: having good physique, good appearance, good texture and complexion, attractive features, well-structured and strong body parts and limbs, well-groomed posture, graceful carriage and efficient movement. Internally: all systems of human body, i.e., digestive, circulatory, respiratory, nervous, and excretory system, and sensory organs are functioning optimally. The pulse rate, blood pressure and body weight being in normal limits according to the age and sex. Physical dimension i.e. physical health means proper functioning of the systems and physical wellbeing of the body, cumulative result being perfect and harmonious functioning of the human body.

Following are a few ways to ensure good physical health:

➻ Eat nutritious food to keep the body and mind energized.
➻ Never skip meals or overeat.
➻ Water is essential for cleansing the body.
➻ Fitness through exercise will increase immunity and endurance levels of the body.
➻ Regular medical check-ups can help in arresting illnesses in their early stages.
➻ Sleep at least for 7 uninterrupted hours daily.
➻ Avoid addictive substances.

Q.4. Components of Physical Fitness:

1. **Strength** - the extent to which muscles can exert force by contracting against resistance (e.g. holding or restraining an object or person)

2. **Power** - the ability to exert maximum muscular contraction instantly in an explosive burst of movements. The two components of power are strength and speed. (e.g. jumping or a sprint start)

3. **Agility** - the ability to perform a series of explosive power movements in rapid succession in opposing directions (e.g. ZigZag running or cutting movements)

4. **Balance** - the ability to control the body's position, either stationary (e.g. a handstand) or while moving (e.g. a gymnastics stunt)

5. **Flexibility** - the ability to achieve an extended range of motion without being impeded by excess tissue, i.e. fat or muscle (e.g. executing a leg split)

6. **Muscle Endurance** - a single muscle's ability to perform sustained work (e.g. rowing or cycling)

7. **Cardiovascular Endurance** - the heart's ability to deliver blood to working muscles and their ability to use it (e.g. running long distances)

8. **Strength Endurance** - a muscle's ability to perform a maximum contraction time after time (e.g. continuous explosive rebounding through an entire basketball game)

9. **Co-ordination** - the ability to integrate the above listed components so that effective movements are achieved.

10. **Body Composition** - It means the ratio of muscle to fat in the body.

11. **Reaction Time** - How quickly an individual respond to a stimulus. Reaction time is a skill-related component of physical fitness.
Q.4. Cardiovascular Endurance-
Cardiovascular endurance is also referred to as aerobic fitness, and is a measure of the athlete’s ability to continue with exercise which places demands on the circulatory and respiratory system over a prolonged period of time. This occurs in activities such as running, walking, cycling and swimming. The tests of cardio-vascular endurance are-
- Harvard Step Test
- Tuttle Pulse Ratio Test
- Run-Walk Test
- Maximum Oxygen Uptake Testing

Harvard Step Test
Brouha (1943) constructed a very simple and promising field test for measuring cardiovascular endurance by using available and inexpensive equipment. The Harvard step test is a type of cardiac stress test for detecting and diagnosing cardiovascular disease. It also is a good measurement of fitness and a person’s ability to recover after a strenuous exercise. The more quickly the heart rate returns to resting, the better shape the person is in.

- **Equipment required:** step or platform 20 inches / 50.8 cm high, stopwatch, metronome or cadence tape.

- **Test Administration:** The athlete steps up and down on the platform at a rate of 30 steps per minute (every two seconds) for 5 minutes or until exhaustion. Exhaustion is defined as when the athlete cannot maintain the stepping rate for 15 seconds. The athlete immediately sits down on completion of the test, and the total numbers of heart beats are counted between 1 to 1.5 minutes after finishing (see measuring heart rate). This is the only measure required if using the short form of the test. If the long form of the test is being conducted, there is an additional heart rate measures at between 2 to 2.5 minutes, and between 3 to 3.5 minutes. See some videos of Harvard Step tests being performed.

- **Scoring:** The pulse of all the 3 half minute counts recorded are added together and the Fitness Index score is determined by the following equations.

\[
\text{Fitness Index (F.I)} = \frac{(100 \times \text{test duration in seconds})}{(2 \times \text{sum of heart beats in the recovery periods})}
\]

For example, if the total test time was 300 seconds (if completed the whole 5 minutes), and the number of heart beats between 1-1.5 minutes was 90, between 2-2.5 it was 80 and between 3-3.5 it was 70, then the long form Fitness Index score would be: \((100 \times 300) / (240 \times 2) = 62.5\). Note: you are using the total number of heart beats in the 30 second period, not the rate (beats per minute) during that time.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Fitness index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>&gt; 96</td>
</tr>
</tbody>
</table>
Q.5. Tests for measuring Flexibility:-
The following tests of Flexibility are:-
- Sit and Reach Test
- Bridge-up Test

**Sit and Reach Test**-
The sit and reach test is a common measure of flexibility, and specifically measures the flexibility of the lower back and hamstring muscles. This test is important as because tightness in this area is implicated in lumbar lordosis, forward pelvic tilt and lower back pain. This test was first described by Wells and Dillon (1952) and is now widely used as a general test of flexibility.

- **Equipment required**: sit and reach box (or alternatively a ruler can be used, and a step or box).
- **Test Administration**: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards, and the hands on top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for a one-two seconds while the distance is recorded. Make sure there are no jerky movements.
- **Scoring**: Each subject is given three trails and the highest score nearest to an inch is recorded and 10 inches are subtracted from the recorded reading to obtain the flexibility score which is compared with the standards given the table.

<table>
<thead>
<tr>
<th>Evaluation standards (Performance score in inches)</th>
<th>Male (Age 17-22 yrs.)</th>
<th>Female (16-21 yrs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>7 or above</td>
<td>8 or above</td>
</tr>
<tr>
<td>Good</td>
<td>5 to 6</td>
<td>6 to 7</td>
</tr>
<tr>
<td>Above average</td>
<td>3 to 4</td>
<td>4 to 5</td>
</tr>
<tr>
<td>Average</td>
<td>1 to 2</td>
<td>1 to 3</td>
</tr>
<tr>
<td>Below average</td>
<td>0 to -1</td>
<td>0 to -1</td>
</tr>
<tr>
<td>Poor</td>
<td>-2 or below</td>
<td>-2 or below</td>
</tr>
</tbody>
</table>

OR

Q.5. Short notes
1. Concept of Exercise:- Exercise is physical activity that is planned, structured, and repetitive for the purpose of conditioning any part of the body. Exercise is used to improve health, maintain fitness and is important as a means of physical rehabilitation. Exercise is useful in preventing or treating coronary heart disease, osteoporosis, weakness, diabetes, obesity, and depression. Range of motion is one aspect of exercise important for increasing or maintaining joint function. Strengthening exercises provide appropriate resistance to the muscles to increase endurance and strength. Cardiac rehabilitation exercises are developed and individualized to improve the cardiovascular system for prevention and rehabilitation of cardiac disorders and diseases. A well-balanced exercise program can improve general health, build endurance, and slow many of the effects of aging.

When we talk about exercise, we nearly always refer to physical exercise. Exercise is the physical exertion of the body - making the body do a physical activity which results in a healthy or healthier level of physical fitness and both physical and mental health.

In other words, exercise aims to maintain or enhance our physical fitness and general health. People exercise for many different reasons. Some of them are strengthening muscles, optimizing the cardiovascular system, practicing specific and athletic skills, controlling bodyweight, for fun, to win, to socialize and as a form of escapism.

2. Aerobic Exercise-Aerobic activity is the type that benefits your heart and lungs the most. Aerobic activity moves your large muscles, such as those in your arms and legs. Aerobic activity is also called “endurance activity”. Aerobic activity makes your heart beat faster than usual. You also breathe harder during this type of activity. Over time, regular aerobic activity makes your heart and lungs stronger and able to work better. Examples of aerobic activity are running, swimming, walking, bicycling, dancing, doing jumping jacks etc.

3. Basic Fitness components. Fitness is the ability of the individual to live a healthy, satisfying, useful, and more productive life. Fitness is an on-going state of health whereby all systems of the body are conditioned to withstand physical stress and are able to perform at an optimum level without injury.

4. Spiritual Wellness is the ability to establish peace and harmony in our lives. The ability to develop congruency between values and actions and to realize a common purpose that binds creation together contributes to our Spiritual Wellness.

5. Components of SRPF:- There are six skill-related fitness components: agility, balance, coordination, speed, power, and reaction time. Skilled athletes typically excel in all six areas.

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