


**ANSWER KEY**  
**Physical Education**  
**(Session 2022-23)**

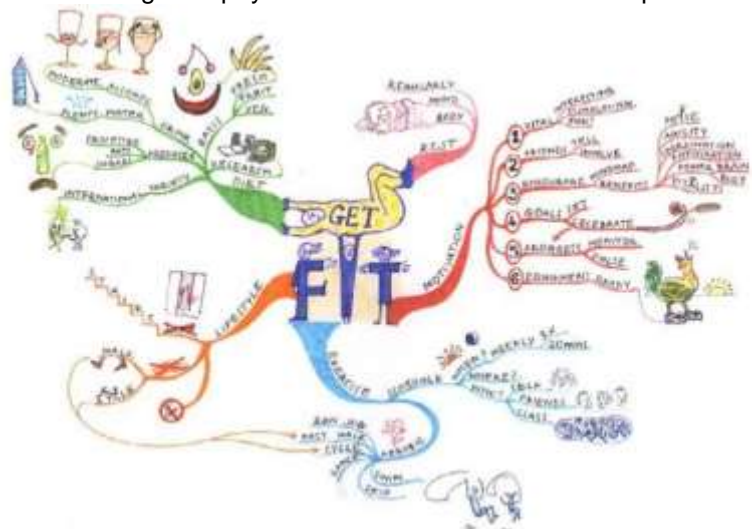
Q.NO.	ANSWER	MARKS DISTRIBUTION
<b>(SECTION A)</b>		
1.	d) Dhanurasana <b>For visually impaired</b> c) Vajrasana	1
2.	d) Openness	1
3.	b) Dynamic Equilibrium	1
4.	b) Red	1
5.	b) Iso-tonic	1
6.	a) Explosive strength	1
7.	a) Oxygen Uptake	1
8.	b) Mass	1
9.	a) Both (A) and ® are true and ® is the correct explanation of (A).	1
10.	a) Simple	1
11.	b) Magnesium	1
12.	b) Tadasana	1
13.	c) 15	1
14.	b) 7	1
15.	d) social	1
16.	a) I-3,II-4,III-1,IV-2	1
17.	a) I-1,II-3,III-4,IV-2	1
18.	c) Osteoporosis	1
<b>(SECTION B)</b>		

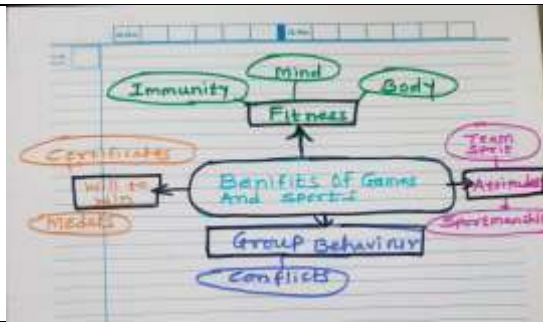
19.	<pre> graph TD     Root[Effect of Exercises on Muscular System] --&gt; ShortTerm[Short Term]     Root --&gt; LongTerm[Long term]          ShortTerm --&gt; S1[Increased blood supply]     ShortTerm --&gt; S2[Increased muscle temperature]     ShortTerm --&gt; S3[Increase muscle flexibility]     ShortTerm --&gt; S4[Accumulation of Lactate]     ShortTerm --&gt; S5[Micro tears in muscle fibers]          LongTerm --&gt; L1[Hypertrophy of Muscle]     LongTerm --&gt; L2[Increases in strength of ligaments and tendons]     LongTerm --&gt; L3[Increase in size and number of mitochondria]     LongTerm --&gt; L4[Increase in myoglobin storage]     LongTerm --&gt; L5[Increase in glycogen storage]     LongTerm --&gt; L6[Increase in oxidation/metabolism]     LongTerm --&gt; L7[Increase in lactate acid tolerance]          S5 --- L5     S5 --- L6     S5 --- L7 </pre>	2		
20.	<p>Benefits of self talk</p> <ol style="list-style-type: none"> <li>1. Building and developing self efficacy</li> <li>2. Skill acquisition</li> <li>3. Creating and changing mood</li> <li>4. Controlling efforts</li> <li>5. Focusing attention</li> </ol>	2		
21.	<table border="0"> <tr> <td style="vertical-align: top;"> <p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Develops strength and endurance</li> <li>• Appropriate form of training for most sports</li> <li>• Can be adjusted to suit age, fitness and health of the athlete</li> <li>• Exercises are simple enough to make each athlete feel a sense of achievement in completing them</li> <li>• A wide range of exercises to select from which will maintain the athlete's enthusiasm</li> <li>• Can be done in the group</li> </ul> </td> <td style="vertical-align: top;"> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Many exercises require specialized equipment - e.g. gym equipment</li> <li>• Ample space required to set up the circuit exercises &amp; equipment</li> <li>• In general can only be conducted where appropriate facilities/equipment are available</li> <li>• Use of additional equipment requires appropriate health and safety monitoring</li> </ul> </td> </tr> </table>	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Develops strength and endurance</li> <li>• Appropriate form of training for most sports</li> <li>• Can be adjusted to suit age, fitness and health of the athlete</li> <li>• Exercises are simple enough to make each athlete feel a sense of achievement in completing them</li> <li>• A wide range of exercises to select from which will maintain the athlete's enthusiasm</li> <li>• Can be done in the group</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Many exercises require specialized equipment - e.g. gym equipment</li> <li>• Ample space required to set up the circuit exercises &amp; equipment</li> <li>• In general can only be conducted where appropriate facilities/equipment are available</li> <li>• Use of additional equipment requires appropriate health and safety monitoring</li> </ul>	2
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22.	<p>A soft tissue injury is the damage of muscles, ligaments and tendons throughout the body.</p> <pre> graph TD     Root[Type of soft tissue injuries] --&gt; A[Abrasion]     Root --&gt; B[Contusion]     Root --&gt; C[Laceration]     Root --&gt; D[Strain]     Root --&gt; E[Sprain]     Root --&gt; F[Incision] </pre>	2		

23.	<p><b>3.3 Static Balance (Flamingo Balance Test)</b></p> <p><b>What does it measure:</b> Ability to balance successfully on a single leg. This single leg balance test assesses the strength of the leg, pelvic, and trunk muscle as well as static balance.</p> <p><b>How to Perform:</b> Stand on the beam. Keep balance by holding the instructor's hand (if required to start).  While balancing on the preferred leg, the free leg is flexed at the knee and the foot of this leg held close to the buttocks.  <b>Start the watch as the instructor lets go of the participant/subject.</b>  Pause the stopwatch each time the subject loses balance (either by falling off the beam or letting go of the foot being held).  Resume over, again timing until they lose balance. Count the number of falls in 60 seconds of balancing.  If there are more than 15 falls in the first 30 seconds, the test is terminated.</p> <p><b>Infrastructure/Equipment Required:</b> Non Slippery even surface, Stopwatch, can be done by just standing on a beam.</p> <p><b>Scoring:</b> The total number of falls or loss of balance in 60 seconds of balancing is recorded.  If there are more than 15 falls in the first 30 seconds, the test is terminated.</p>  <p><b>Administrative Suggestion:</b> Participants should be encouraged to focus eyes on stationary objects straight ahead.</p> <p><b>Suggested Physical activities to improve Balance (Flamingo Test)</b> To improve balance, you should practice one foot balance, walking on toes and heel toe walking, walking on straight lines, skipping, hopping, vrikshasana, walking on beam etc.</p>	2
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24.	<p><b>Proteins</b></p> <table border="1"> <tr> <td data-bbox="381 1102 552 1270"> <p><b>Proteins</b></p> </td> <td data-bbox="552 1102 1023 1270"> <ul style="list-style-type: none"> <li>• Proteins build and repair body cells</li> <li>• Proteins form part of various enzymes, hormones, and antibodies</li> <li>• Also provide energy (4 Kcal/g)</li> </ul> </td> <td data-bbox="1023 1102 1347 1270"> <p>Milk and milk product fish, eggs, poultry, meat, legumes and grains</p> </td> </tr> </table>	<p><b>Proteins</b></p>	<ul style="list-style-type: none"> <li>• Proteins build and repair body cells</li> <li>• Proteins form part of various enzymes, hormones, and antibodies</li> <li>• Also provide energy (4 Kcal/g)</li> </ul>	<p>Milk and milk product fish, eggs, poultry, meat, legumes and grains</p>	2
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**(SECTION C)**

25.	<p>Six advantages of physical activities for children with special needs</p> 	3
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26.	<p>Carbohydrates are organic compounds made up of Carbon, Hydrogen and Oxygen. Carbohydrates are a major source of energy Carbohydrates.</p> <p><b>monosaccharide, disaccharides and polysaccharides</b></p> <p><b>Simple sugars</b> (mono and disaccharides) are found in fruits (sucrose, glucose and fructose), milk (lactose) and sweets that are produced commercially and added to foods to sweeten, prevent spoilage, or improve structure and texture.</p> <p>Polysaccharides are more than two units of monosaccharide joined together. These are Starches and fibre (cellulose). These are also called <b>complex sugars</b> and are found in whole grain cereals, rice, oats, potatoes, bread, legumes, corn and flour.</p>	3												
27.	<p>The position of a participant in a tournament who is not paired with an opponent, usually in the first round, and advanced to the next round without playing.</p> <p>The right to proceed to the next round of a competition without contesting the present round, often through nonappearance of an opponent.</p> <p><b>Allotment of byes in the fixture should be given in following order:</b></p> <p>First bye will be given to last team of Lower Half,          Second by will be given to first team of Upper Half,          Third bye will be given to first team of Lower Half,          Fourth bye will be given to last team of Upper Half          Same pattern will be followed after fourth bye till the remaining byes have been given.,</p>	3												
28.	<table border="1" data-bbox="406 1554 1047 1890"> <thead> <tr> <th>Trait</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>O</b>penness</td> <td>Being curious, original, intellectual, creative, and open to new ideas.</td> </tr> <tr> <td><b>C</b>onscientiousness</td> <td>Being organized, systematic, punctual, achievement-oriented, and dependable.</td> </tr> <tr> <td><b>E</b>xtraversion</td> <td>Being outgoing, talkative, sociable, and enjoying social situations.</td> </tr> <tr> <td><b>A</b>greeableness</td> <td>Being affable, tolerant, sensitive, trusting, kind, and warm.</td> </tr> <tr> <td><b>N</b>euroticism</td> <td>Being anxious, irritable, temperamental, and moody.</td> </tr> </tbody> </table>	Trait	Description	<b>O</b> penness	Being curious, original, intellectual, creative, and open to new ideas.	<b>C</b> onscientiousness	Being organized, systematic, punctual, achievement-oriented, and dependable.	<b>E</b> xtraversion	Being outgoing, talkative, sociable, and enjoying social situations.	<b>A</b> greeableness	Being affable, tolerant, sensitive, trusting, kind, and warm.	<b>N</b> euroticism	Being anxious, irritable, temperamental, and moody.	3
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29. **Strength** – Strength component has varied sub-types like maximum strength, Explosive strength, Strength, Endurance etc. Each has different types of exercise, intensity and duration so physiological factors vary. In games like weightlifting, jumps, sprint or power, agility and strength dominating sports where force production is high, fatigue is quick, and fast twitch fibre percentage must be high in muscles. ATP-CP system or anaerobic system works to produce energy for strength training. Stroke volume (the volume of blood pumped out of the left ventricle of the heart during each systolic cardiac contraction) is a vital parameter as far as cardiovascular system is concerned.

3

30. **Female Athlete Triad.**

(a) disordered eating-  
 (b) amenorrhea and  
 (c) osteoporosis

3

(SECTION D)

31. A) 8  
 B) N-1  
 C) Semi final  
 D)  $2^n - N$

**For visually impaired students**

First Aid Committee

4

32.	<p>a) Third law of motion-Action reaction  b) 1<sup>st</sup> picture  c) Law of Acceleration  d) Kinesiology  Third law of motion-Action reaction</p> <p><b>For visually impaired students</b></p> <p><b>Guiding Principles to Determine the Degree of Stability</b></p> <ol style="list-style-type: none"> <li>1. <b>Broader the base, the greater the stability:</b> Broadening the base of support helps an athlete to achieve greater stability. <i>eg., while standing spreading the feet in the direction of movement provide stability. Where a stance is required, using both hands and feet creates the widest base.</i></li> <li>2. <b>Body weight is directly proportional to stability:</b> The athlete or an object which weighs more will have greater stability. <i>eg., it is difficult to move a heavier person than a lighter one, Combative sports like, judo, wrestling, taekwondo, and boxing are played according to the bodyweight principle.</i></li> <li>3. <b>Lower the Centre of gravity, higher the stability:</b> When a player does an activity that needs stability, the player usually lowers their centre of gravity by bending. <i>eg., when a player bends his knees while running, he can stop sooner and more efficiently. Similarly, a wrestler half sits to maintain his stability. Even a shot-put thrower bends his knees in the end so that he may avoid a foul.</i></li> <li>4. <b>The nearer the centre of gravity to the centre of the base of support the more will be the stability:</b> If the centre of gravity extends beyond the base of support, balance is lost. Keeping the body's weight centred over the base will support and help maintain stability. <i>eg., when a gymnast walks on a balance beam one requires a small base of support. During the performance, if the balance is lost the gymnast raises the arm or legs on the opposite sides to shift the centre of gravity back towards the base of support.</i></li> <li>5. <b>Direction of acting force:</b> During a competition, if the direction of an acting/ applied force is known, stability can be increased by moving the line of gravity as close as possible to the edge of the base where the force is expected. <i>eg., when in a judo match the judoka shifts his foot in the line of direction of the force applied by the opponent to use the force of the opponent as a counterforce to throw him down.</i></li> </ol>	4
33.	<ol style="list-style-type: none"> <li>a. The mission of Special Olympics is to provide year-round sports training and athletic competition in a variety of Olympic-type sports for children and adults with intellectual disabilities, giving them continuing opportunities to develop physical fitness, demonstrate courage, experience joy and participate in events</li> <li>b. "Let me win. But if I cannot win, let me be brave in the attempt."</li> <li>c. International Games for the Deaf International Silent Games"</li> <li>d. 4yrs</li> </ol>	4



## For visually impaired students

### 4.1.1 PARALYMPICS

Paralympics is a mega sports event involving athletes with a range of disabilities, and is organized by the International Paralympic Committee. The range of disabilities includes impaired muscle power (eg., paraplegia and quadriplegia, muscular dystrophy, post-polio syndrome, spina bifida), impaired passive range of movement, limb deficiency (eg., amputation or dysmelia), leg length difference, short stature, hypertonia, ataxia, athetosis, vision impairment and intellectual impairment. These disabilities are further divided into classifications which vary from sport to sport. The word Paralympics is derived from the Greek word para which means beside or alongside and Olympic. Combined, Paralympics means an international Games competition that is parallel to the Olympics. Thus, the word Paralympics refers to "a series of international contests for athletes with disabilities that are associated with and held following the summer and winter Olympic Games." There are Winter and Summer Paralympic Games, which since the 1988 Summer Games in Seoul, South Korea, are held almost immediately following the respective Olympic Games. All Paralympic Games are governed by the International Paralympic Committee (IPC).



International Paralympic Committee (IPC) was formed on 22 September 1989 and is situated in Germany. IPC organizes Summer and Winter Paralympic Games and coordinates world championships and other competitions. The vision of IPC is 'To enable Para athletes to achieve sporting excellence and inspire and excite the world.'

The purpose of the criteria

h Defining the impairment group in which an athlete can compete in the various sports.

h Grouping athletes in classes defined by the degree of activity-limitation related to the impairment and/or specific to the task in the sport.

The IPC has established ten disability categories, including physical, visual, and intellectual impairment. Athletes with one of these disabilities can compete in the Paralympics though not every sport can allow for every disability category.

These categories apply to both Summer and Winter Paralympics.

1. Physical Impairment – There are eight different types of physical impairment:

h Impaired muscle power – With impairments in this category, the force generated by muscles, such as the muscles of one limb, one side of the body or the lower half of the body is reduced. eg., spinal cord injury, spina bifida, post-polio syndrome.








h Impaired passive range of movement – The range of movement in one or more joints is reduced in a systematic way. Acute conditions such as arthritis are not included in this category.

h Loss of limb or limb deficiency – A total or partial absence of bones or joints from partial or total loss due to illness, trauma, or congenital limb deficiency. eg., amputation, dysmelia.


h Leg-length difference – Significant bone shortening occurs in one leg due to congenital deficiency or trauma. Short stature – Standing height is reduced due to shortened legs, arms and trunk, which are due to a Musculo-skeletal deficit of bone or cartilage structures. eg., achondroplasia, growth hormone deficiency,

	<p>osteogenesis imperfecta.</p> <p>h Hypertonia – Hypertonia is marked by an abnormal increase in muscle tension and reduced ability of a muscle to stretch. Hypertonia may result from injury, disease, or conditions which involve damage to the central nervous system. eg., cerebral palsy.</p> <p>h Ataxia – Ataxia is an impairment that consists of a lack of coordination of muscle movements. eg., cerebral palsy, Friedreich’s ataxia, multiple sclerosis.</p> <p>h Athetosis–Athetosis is generally characterized by unbalanced, involuntary movements and a difficulty maintaining a symmetrical posture (eg., cerebral palsy, choreoathetosis).</p> <p>2. Visual Impairment – Athletes with visual impairment ranging from partial vision, sufficient to be judged legally blind, to total blindness. This includes impairment of one or more component of the visual system – eye structure, receptors, optic nerve pathway, and visual cortex. The sighted guides for athletes with a visual impairment are such a close and essential part of the competition that the athlete with visual impairment and the guide are considered a team. Beginning in 2012, these guides, along with sighted goalkeepers in 5-a-side football, became eligible to receive medals of their own.</p> <p>3. Intellectual Disability – Athletes with a significant impairment in intellectual functioning and associated limitations in adaptive behaviour fall under the category of intellectual disability. The IPC primarily serves athletes with physical disabilities, but the Intellectual Disability group has been added to some Paralympic Games. This includes only athletes with exceptional athletic ability who have intellectual disabilities diagnosed before the age of 18. However, the IOC recognized Special Olympics World Games are open to all people with intellectual disabilities.</p>	
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**(SECTION E)**

<p>34.</p>	<ul style="list-style-type: none"> <li>• Asthma: Sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottanasana, Matsyasana, Anulom-Vilom</li> </ul> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p><i>Bhujangasana</i></p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>Matsyasana (Fish Pose)</p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>	<p>5</p>
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35.	<p>Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit &amp; Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls).</p> 	5
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36.	<p><b>Types of Flexibility</b></p> <ul style="list-style-type: none"> <li>Passive Flexibility</li> <li>Active Flexibility <ul style="list-style-type: none"> <li>Static Flexibility</li> <li>Dynamic Flexibility <ul style="list-style-type: none"> <li>General and Specific Flexibility</li> </ul> </li> </ul> </li> </ul> <p><b>Methods to improve Flexibility</b></p> <ul style="list-style-type: none"> <li>Slow Stretching</li> <li>Slow Stretch and Hold <ul style="list-style-type: none"> <li>Static</li> <li>Dynamic</li> </ul> </li> <li>Ballistic Method</li> <li>Proprioceptive Neuro-Muscular Facilitation Technique</li> </ul>	5
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37.	<p><b>FACTORS AFFECTING PROJECTILE TRAJECTORY</b></p> <ul style="list-style-type: none"> <li>Initial velocity</li> <li>Angle of projection</li> <li>Projection height relevant to the landing surface</li> <li>Air resistance <ul style="list-style-type: none"> <li>Surface area of the projectile</li> <li>Surface to volume ratio</li> <li>Mass</li> <li>Velocity</li> </ul> </li> <li>Gravity</li> <li>Spin</li> </ul> 	5
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