



CLASS 12 · CBSE PHYSICAL EDUCATION (048)

Physical Education Solved Board Papers

Chapter-wise and year-wise CBSE board questions with complete answers

2024-2026

- ✓ Part A: every question sorted unit-wise, grouped by marks, with full answers
- ✓ Part B: complete board papers, each followed by its answers
- ✓ Board weightage table and most-asked topics for every unit
- ✓ Fixtures, tables and case studies worked out in full
- ✓ Visually impaired alternatives answered too

WHAT YOU GET

CBSE Physical Education papers 2024–2026. Every question answered. Sorted unit-wise.

3

board papers

111

solved questions

3

years · 2024–26

10

chapters

54

MCQs solved

X Questions scattered across years



✓ All in one place, unit-wise

X Don't know what to study first



✓ Weightage + most-asked topics

X Fixture questions confuse



✓ Every fixture worked out

X Short answers lose marks



✓ Answers written the board way

PART A**Chapter-wise****A**

- ✓ Weightage table
- ✓ Most-asked topics
- ✓ Every question + solution

PART B**Full papers****B**

- ✓ Exactly as set by CBSE
- ✓ Solutions after each paper
- ✓ Timed 3-hour practice

2026 · 048

2025 · 048

2024 · 048


Complete Notes · Solved PYQs

CLASS 6–12 · ALL SUBJECTS

100%
 QUESTIONS
 SOLVED
Made for **board toppers**

How to use this book

Part A puts every board question of a unit together, from 1-mark MCQs to 5-mark long answers. Finish a unit in your notes, then answer its Part A questions without looking at the answers. Check, mark the ones you got wrong, and repeat them a week later.

Each question shows where it was asked, for example **CBSE 2026 · 048 · Q31**. Use the weightage table and the most-asked topics chart at the start of each unit to decide what to revise first.

Part B gives full papers. In the last month before the exam, sit with a clock and write one paper in 3 hours, then check it with the answers that follow the paper.

Answers are written the way the board awards marks: name the term, define it, then give the points, steps or examples. For fixtures, show the method (knock-out or cyclic) and the formula used.

Contents

Part A · Chapter-wise questions with solutions

- | | |
|---|---|
| 1. Management of Sporting Events 12 Qs | 5. Sports and Nutrition 9 Qs |
| 2. Children and Women in Sports 12 Qs | 6. Test and Measurement in Sports 11 Qs |
| 3. Yoga as Preventive Measure for Lifestyle Disease 11 Qs | 7. Physiology and Injuries in Sports 9 Qs |
| 4. Physical Education and Sports for CWSN 12 Qs | 8. Biomechanics and Sports 13 Qs |
| | 9. Psychology and Sports 10 Qs |
| | 10. Training in Sports 12 Qs |

Part B · Full board papers, each followed by its solutions

- | | |
|------------------------------|------------------------------|
| 1. CBSE 2026 · 048 solutions | 2. CBSE 2025 · 048 solutions |
| | 3. CBSE 2024 · 048 solutions |

111 questions in all. Questions are taken from the CBSE Class 12 Physical Education (048) board papers and the answers are our own, checked against the official marking schemes. Every question is mapped to the 2026-27 units.

CHAPTER 1

Management of Sporting Events

Board weightage 2024–2026

Year	2024	2025	2026
Questions	4	4	4
Marks	9	9	9

Most asked topics

Tournaments and fixtures		5
Sports events and community runs		4
Committees and event phases		2
Management of sporting events		1

12 questions from 3 papers. Repeated questions are shown once with every year they were asked.

1 mark: MCQ and Assertion–Reason

CBSE 2026 · 048 · Q1

1 mark

Which of the following is the next step after planning the sports event? (A) Staffing (B) Directing (C) Controlling (D) Organising (1)

Solution

The functions of sports event management come in the order planning → organising → staffing → directing → controlling. After deciding what to do (planning), the work is divided and resources arranged (organising). **(D) Organising**

CBSE 2026 · 048 · Q2

1 mark

_____ is an event to showcase children and youth's abilities and prowess on the sports field. (A) Run for Fun (B) Run for a specific cause (C) Sports Day (D) Health Run (1)

Solution

Sports Day is the annual school or community event that showcases the abilities and prowess of children and youth, and also lets community members meet and interact. The runs are for health, fun or a cause, not for showcasing skill. **(C) Sports Day**

CBSE 2025 · 048 · Q1

1 mark

Which one of the following is a post-competition responsibility of the technical committee? (A) Requisition to purchase equipment (B) Arrangement of equipment and stationery (C) Arrangement of officials (D) Maintenance of the field (1)

Solution

(A), (B) and (C) are done **before** the event. After the event the technical committee arranges cleaning and layout of the fields, maintenance of the field and returning equipment to the store.
(D) Maintenance of the field

CBSE 2025 · 048 · Q2

1 mark

Which of the following is an objective of intramural tournaments? (A) To achieve high performance at the highest level of the tournament. (B) To develop the feeling of integration with other institutions. (C) To provide opportunities for choosing a career in sports. (D) To promote health and recreation at the institution. (1)

Solution

(A), (B) and (C) are objectives of **extramural** tournaments. Intramurals aim at mass participation, health, fitness and recreation within the institution. **(D)**

CBSE 2024 · 048 · Q5

1 mark

Match List I (functions of sports management) with List II. I. Planning II. Controlling III. Directing IV. Staffing. 1. Guiding, inspiring and instructing people to accomplish organisational goals. 2. Preparing a layout for the future course of action. 3. Ensuring that proper talent is serving that specific job. 4. Establishing performance standards, measuring actual performance and comparing them for irregularities. (a) 1 2 3 4 (b) 1 2 4 3 (c) 2 4 1 3 (d) 2 4 3 1 (1)

Solution

Planning = layout of the future course (2); controlling = standards, measuring and comparing (4); directing = guiding and inspiring (1); staffing = right talent for the job (3). I-2, II-4, III-1, IV-3. **(c)**

CBSE 2024 · 048 · Q11

1 mark

Which of the following is the objective of intramural competition? (a) To achieve high performance (b) To provide career opportunities (c) To promote health and fitness (d) To promote cultural and economic development (1)

Solution

(a), (b) and (d) are objectives of extramural competitions. Intramurals focus on fitness, wellness and health of all students. **(c)**

3 marks: short answer

CBSE 2026 · 048 · Q25

3 marks

Compare and contrast the intramural and the extramural tournament. ($1\frac{1}{2}+1\frac{1}{2} = 3$)

Solution

basis	intramural	extramural
meaning	organised within the walls of one institution (between houses, classes, hostels)	organised outside the walls , between two or more institutions (zonal, district, state, national)
main aim	to encourage mass participation and promote health and recreation	to achieve high performance at the highest level
feeling developed	integration within the institution (group cohesion)	integration with other institutions (socialisation)
who takes part	all students, not only players	selected players or teams (often chosen through intramurals)
Similarity: both are tournaments that develop fitness, fair play, leadership and sporting values; intramurals are the base for selecting teams for extramurals.		

CBSE 2025 · 048 · Q25

3 marks

"The organisation of its community sports reflects the progress of any country." In the context of this statement, outline 'Run for a specific cause' and 'Run for unity'. ($1\frac{1}{2}+1\frac{1}{2} = 3$)

Solution

Run for a specific cause: conducted to spread awareness among the masses about a social issue, such as cleanliness, a green environment, cancer, AIDS or gender inequality, or to raise charity for it. Participants run to support the cause, not to win; large participation gives the message wide reach.

Run for Unity: conducted to foster peace and promote integrity and brotherhood in the community, state and nation and among different religions. People of all ages and backgrounds run together, which builds bonding and a sense of togetherness across social and economic barriers.

Both show a country's progress because a healthy, aware and united community is the base of national development.

CBSE 2024 · 048 · Q27

3 marks

Explain the responsibilities of any two committees during sports competition. ($1\frac{1}{2}+1\frac{1}{2} = 3$)

Solution

Technical committee (during the event): conducts matches on time with the selected officials (referees, umpires, judges, timekeepers); ensures the presence of the jury; keeps fields cleaned and laid out; collects score sheets and other papers from officials; prepares the merit list and results.

Logistics committee (during the event): conducts the opening and closing ceremonies; checks registration; distributes refreshments; manages spectators; hands over medals and certificates; transports players from their place of stay to the field and back; provides first aid and medical help.

(Also acceptable: **finance:** checks inflow and outflow of money, pays officials; **marketing:** issues press releases, works with the media, fulfils sponsors' requirements, arranges telecast.)

4 marks: case-based

CBSE 2026 · 048 · Q31

4 marks

Anita prepared a fixture based on the league competition and distributed it to the coaches. When Khushi received it, it was misprinted and showed only rounds three and four:

Round III Round IV

5	Bye	4	Bye
4	6	3	5
3	7	2	6
2	1	1	7

- (i) In which round will the match between teams 4 and 3 be held? (ii) How many rounds will be played in the tournament? (A) 6 (B) 7 (C) 5 (D) 4 (iii) In which round will team number 2 get a bye? (iv) How many matches will be played in the above fixture? (A) 21 (B) 23 (C) 19 (D) 18 **OR** (iv) The other name for a league tournament is _____. (4)

For visually impaired candidates: Keshav, general secretary of the Kabaddi Association of Maharashtra, was to organise a state-level Kabaddi tournament. He formed four committees: technical, finance, logistics and marketing. (i) Which committee is responsible for publishing the news? (A) Technical (B) Finance (C) Logistics (D) Marketing (ii) Which committee maintains the play fields while organising the tournament? (A) Marketing (B) Logistics (C) Finance (D) Technical (iii) Write any two post-event responsibilities of the finance committee. **OR** (iii) Purchase of sports equipment is a function of the ____ committee. (A) Logistics (B) Finance (C) Marketing (D) Technical (iv) ____ committee arranges refreshments, boarding and lodging. (4)

Solution

The fixture is drawn by the **cyclic method** for **7 teams** (teams 1–7 appear, plus a bye because the number is odd). The bye stays fixed at the top right; in each round the other numbers move one place. Working backwards and forwards from rounds III and IV gives the full fixture:

I	II	III	IV	V	VI	VII
7–Bye	6–Bye	5–Bye	4–Bye	3–Bye	2–Bye	1–Bye
6–1	5–7	4–6	3–5	2–4	1–3	7–2
5–2	4–1	3–7	2–6	1–5	7–4	6–3
4–3	3–2	2–1	1–7	7–6	6–5	5–4

- (i) Teams 4 and 3 meet in the **first round**. (ii) For an odd number of teams, rounds = number of teams = 7. **(B) 7**. (iii) The bye passes to the next lower number each round (7, 6, 5, 4, 3, 2, 1), so team 2 gets the bye in the **sixth round**. (iv) Matches = $n(n-1)/2 = 7 \times 6/2 = 21$. **(A) 21**. **OR** (iv)

Round robin tournament.

VI alternative: (i) Publicity, press releases and media work belong to the **(D) Marketing committee**. (ii) Layout, cleaning and maintenance of fields is done by the **(D) Technical committee**. (iii) After the event the finance committee (1) examines all records related to the settlement of bills, and (2) keeps track of accounts and prepares the financial report. **OR** (iii) **(B) Finance:** the finance committee purchases equipment, stationery, medals and certificates as requisitioned by other committees. (iv) **Logistics** committee (refreshment, boarding and lodging, transport).

gives everyone a chance to take part and enjoy recreation, and brings students, teachers, staff, parents and community members together to meet and interact. It builds leadership, management and coordination and teaches ethical values, spreading both health awareness and harmony.

Health Run: organised by social, government and non-government bodies and health and sports departments to create awareness about health and fitness (or to raise charity). The aim is participation, not winning; there is no age bar and no long distance, so people of all ages run together. This spreads the message of an active lifestyle and builds a sense of community.

CBSE BOARD PAPER

2026 · Q.P. Code 048

Time: 3 hours

Maximum marks: 70

Section A: Objective questions (1 mark each)

1. Which of the following is the next step after planning the sports event? (A) Staffing (B) Directing (C) Controlling (D) Organising (1)
2. ____ is an event to showcase children and youth's abilities and prowess on the sports field. (A) Run for Fun (B) Run for a specific cause (C) Sports Day (D) Health Run (1)
3. Corrective exercises should be done under a ____ advice and supervision. (A) Physician's or Physical Education teacher's (B) Physical Education teacher's or Physiotherapist's (C) Physical Education teacher's or Coach's (D) Physician's or Physiotherapist's (1)
4. Which of the following asanas are practised to correct "Kyphosis"? (A) Chakrasana, Trikonasana, Adhomukhasana (B) Dhanurasana, Bhujangasana, Halasana (C) Bhujangasana, Trikonasana, Chakrasana (D) Dhanurasana, Chakrasana, Bhujangasana (1)
5. Gagan wants to prevent himself from asthma and hypertension. Identify the asanas to prevent him from these lifestyle diseases. (A) Uttan Mandukasana, Vakrasana (B) Supta Vajrasana, Vakrasana (C) Chakrasana, Uttan Mandukasana (D) Vakrasana, Chakrasana (1)
6. Identify the asana: [picture: a person sitting with knees spread wide and big toes together, arms folded behind the head, each hand holding the opposite shoulder blade] (A) Ardha Matsyendrasana (B) Dhanurasana (C) Uttan Mandukasana (D) Yogmudra. **(For visually impaired candidates)** Which position is related to Yog Mudra? (A) Sit in Padmasana, clasp wrists over the head, bend forward, touch forehead to the floor (B) Sit in Padmasana, clasp wrists behind the back, bend forward, touch forehead to the floor (C) Sit in Vajrasana, clasp wrists behind the back, bend forward, touch forehead to floor (D) Sit in Vajrasana, clasp wrists over the head, bend forward (1)
7. Which competition was organised by Guttman at the 1948 London Olympics for disabled persons? (A) Running (B) Swimming (C) Wheelchair competition (D) Bicycle competition (1)
8. The oath "Let me win. But if I cannot win, let me be brave in the attempt" is related to: (A) Special Olympics (B) Paralympics (C) Deaflympics (D) Summer Olympics (1)
9. Match food groups (List I) with functions (List II): (a) Protein (b) Carbohydrates (c) Fats (d) Roughage; (i) main sources of energy (ii) negligible source of energy (iii) repair body cells (iv) helps in transporting fat-soluble vitamins. (A) i ii iii iv (B) iv iii i ii (C) iii iv i ii (D) iii i iv ii (1)
10. Which statement is correct regarding the basal metabolic rate? (A) calories needed to maintain energy during exercise (B) calories needed to maintain the body in movement (C) calories needed to maintain body function at high speed (D) calories needed to maintain body function at rest (1)

11. Which is a long-term effect of exercise on the respiratory system? (A) Residual volume increases (B) Respiratory rate increases (C) Stroke volume increases (D) The rate of gas exchange increases (1) 1
12. Assertion (A): When an object or body is moving at a constant velocity, with no change in speed or direction, it is dynamic equilibrium. Reason (R): A cyclist in motion or the body position of a sprinter on the track while running are examples of dynamic equilibrium. (1) 1
13. Match examples (List I) with types of friction (List II): (a) pushing a chair (b) sea waves (c) moving heavy (stationary) objects (d) skating; (i) sliding (ii) rolling (iii) fluid (iv) static. (A) i iii ii iv (B) iv ii i iii (C) i iii iv ii (D) ii i iv iii (1) 1
14. Which statement is correct regarding a lever's fulcrum? (A) point where force is applied (B) point where load is located (C) point at which the lever rotates (D) point where efforts are made (1) 1
15. Assertion (A): Actions and responses of two athletes may differ during a match situation. Reason (R): Personality is the combination of an individual's thoughts, characteristics, behaviour, attitude and habits. (1) 1
16. Shweta is over-stressed and anxious as she prepares for her NEET exam. Which is a suitable reason for her to exercise? (A) To develop physical strength (B) Mental relaxation (C) For socialisation (D) To reduce the risk of disease (1) 1
17. Which is NOT correct regarding the training cycle? (A) A mesocycle is termed medium-duration training. (B) The duration of a microcycle is 3 to 10 days. (C) The duration of a mesocycle is 3 to 6 weeks. (D) The macrocycle has the minimum duration of training. (1) 1
18. Which type of endurance is classified according to the nature of the activity? (A) Speed endurance (B) Medium time endurance (C) Specific endurance (D) Short-term endurance (1) 1

Section B: Short answer (2 marks each)

19. "Sports that require athletes to maintain a specific weight to perform well are at higher risk of developing eating disorders." Justify this statement. (2) 2
20. Write any four benefits of Nadi-Shodhan pranayama. ($\frac{1}{2} \times 4 = 2$) 2
21. What is the role of Physical Education teachers in promoting inclusion in sports? (2) 2
22. Explain the procedure of any one strength test of the SAI Khelo India Fitness Test used for 9 to 18 years / class 4 to 12 children. (2) 2
23. Which of Newton's laws applies? Justify. (a) A swimmer pushes the water backwards. (b) A cricket ball and a tennis ball are thrown with the same force, and the tennis ball moves with greater acceleration. ($1+1 = 2$) 2
24. Briefly explain talent selection and talent transfer in the process of talent identification and talent development. ($1+1 = 2$) 2

Section C: Short answer (3 marks each)

25. Compare and contrast the intramural and the extramural tournament. ($1\frac{1}{2}+1\frac{1}{2} = 3$) 3
26. Devise a plan of physical activities in accordance with World Health Organization guidelines for adults aged 65 and above. (3) 3
27. Enlist the asanas for obesity. Explain the procedure of any one asana for it. ($1+2 = 3$) 3
28. Prashant began vomiting after lunch at school; the doctor diagnosed food intolerance. Outline three types of food intolerance. ($1\times 3 = 3$) 3
29. Elucidate three physiological changes that occur due to ageing. ($1\times 3 = 3$) 3
30. Describe three factors that affect the trajectory of a projectile. ($1\times 3 = 3$) 3

Section D: Case-based questions (4 marks each)

31. Anita prepared a fixture based on the league competition and distributed it to the coaches. When Khushi received it, it was misprinted and showed only rounds three and four: 4

Round III Round IV

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OR (iv) The other name for a league tournament is _____. (4)

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32. Rohan, 16, got injured after colliding with Sachin during a football match. He had unbearable pain in his ankle, and it was swollen. The coach noticed a collection of blood outside the blood vessels on Sachin's forehead. He gave first aid to both and rushed them to hospital. (i) What type of injury did Rohan suffer? (A) Strain (B) Abrasion (C) Sprain (D) Laceration (ii) Sachin had ____ on his forehead. (A) Contusion (B) Fracture (C) Laceration (D) Incision (iii) If Sachin suffered abrasion, which symptom would he have? (A) tear of ligament (B) rubbing away of the upper layer of epidermis (C) tear of muscles (D) instability of joints (iv) A fracture in a soft bone, in which the bone bends, is known as ____ (A) comminuted (B) transverse (C) greenstick (D) oblique (4) 4
33. Akriti, 17, in class 12, has been deaf and mute since birth. She communicates through lip movements and gestures. Other students hesitate to talk and play with her; only Raghav includes her in team activities, so she feels isolated. Raghav asked the PE teacher, Sarita, who suggested ways to include Akriti through physical activities. (i) What type of challenge is Akriti facing? (A) Visually impaired (B) Hearing and speech impaired (C) Physical disability (D) Learning disability (ii) Why does Akriti feel isolated in her physical activity class? (A) not interested in studies (B) teacher not supportive (C) other students hesitate to interact with her (D) lack of fitness (iii) Which is the key principle of inclusive physical education? (A) Segregation (B) Integration (C) Exclusion (D) Adaptation **OR** (iii) What strategy can be used to facilitate communication with Akriti? (A) loud verbal instructions (B) sign language or gestures (C) ignoring her needs (D) only written communication (iv) How can physical activities be made inclusive for Akriti? (A) training in a comfortable and emotionally secure environment (B) excluding her (C) separate programmes (D) only individual activities (4) 4

Section E: Long answer (5 marks each)

34. Differentiate between scoliosis and lordosis deformities. Suggest corrective measures for knock-knee and flat foot deformities. (2+3 = 5) 5
35. Raghav plans to conduct strength and flexibility tests specifically for the lower body for his grandfather's friend. Explain in detail the procedure and scoring of these tests. (2½+2½ = 5) 5
36. What do you understand by motivation? Which motivational techniques are used to improve the performance of the players? Explain in detail. (1+4 = 5) 5
37. What is speed? Explain the methods to develop speed in detail. (1+2+2 = 5) 5

Solutions · CBSE 2026 · 048

Q1 The functions of sports event management come in the order planning → organising → staffing → directing → controlling. After deciding what to do (planning), the work is divided and resources arranged (organising). **(D) Organising**

Q2 Sports Day is the annual school or community event that showcases the abilities and prowess of children and youth, and also lets community members meet and interact. The runs are for health, fun or a cause, not for showcasing skill. **(C) Sports Day**

- Q3** Postural deformities are medical conditions; their corrective exercises must be prescribed and supervised by a doctor (physician) or a physiotherapist, otherwise wrong exercises can worsen the deformity. **(D)**
-
- Q4** Kyphosis (hunchback) needs **backward-bending** asanas that open the chest and strengthen the upper back. Dhanurasana, Chakrasana and Bhujangasana are all back-bends; Halasana and Adhomukhasana are forward bends and would worsen it. **(D)**
-
- Q5** Uttan Mandukasana and Vakrasana appear in the syllabus list for **both** asthma and hypertension. Chakrasana is not in either list, and Supta Vajrasana is listed for diabetes. **(A)**
-
- Q6** The picture shows the stretched-up "frog" posture: knees wide, arms folded over the head holding the opposite shoulders. **(C) Uttan Mandukasana**. VI: Yogmudra is done sitting in Padmasana with the wrists clasped behind the back, bending forward to touch the forehead to the floor. **(B)**
-
- Q7** Sir Ludwig Guttmann organised the Stoke Mandeville Games, a competition for **wheelchair** athletes (World War II veterans with spinal injuries), on the opening day of the 1948 London Olympics; it grew into the Paralympics. **(C)**
-
- Q8** This is the athlete oath of the **Special Olympics** (for persons with intellectual disability), founded by Eunice Kennedy Shriver. **(A)**
-
- Q9** Protein repairs and builds cells (iii); carbohydrates are the main source of energy (i); fats carry the fat-soluble vitamins A, D, E, K (iv); roughage gives negligible energy (ii). **(D)**
-
- Q10** BMR is the minimum energy (calories) the body needs at complete rest to keep vital functions going: breathing, heartbeat, circulation, temperature, cell repair. **(D)**
-
- Q11** The CBSE textbook lists "increased residual volume" (air left in the lungs after forceful expiration) among the long-term effects of regular exercise. A rise in respiratory rate is a short-term (immediate) effect, and stroke volume belongs to the cardiovascular system. **(A)**
-
- Q12** A is the definition of dynamic equilibrium (balance while moving at constant velocity); R gives correct examples that illustrate it. **(A) Both true, R explains A** (board key).
-
- Q13** A chair dragged on the floor slides (i); waves move through water: fluid (iii); a heavy object at rest resists starting: static (iv); skates roll on wheels: rolling (ii). **(C)**
-
- Q14** The fulcrum (axis) is the fixed point about which the lever turns; in the body it is a joint. **(C)**
-
- Q15** Both are true, and because every athlete has a different personality, they react differently to the same match situation. **(A)**
-
- Q16** Exercise releases endorphins and lowers stress hormones, giving **mental relaxation**, which is what an anxious student needs. **(B)**
-

- Q17** The macrocycle is the **longest** cycle (several months to a year, or 4 years for Olympics); the microcycle is the shortest. **(D)**
-
- Q18** By nature of activity, endurance is **basic, general and specific**; by duration it is short-, medium- and long-time endurance. **(C)**
-
- Q19** (1) In sports where leanness or a weight category decides performance or eligibility, such as gymnastics, figure skating, distance running, wrestling, boxing and weightlifting, athletes are under constant pressure to stay light. (2) To prevent weight gain or keep losing weight, they severely restrict food (anorexia) or binge and then purge, misusing laxatives, diet pills or diuretics (bulimia). This low energy intake is the first part of the female athlete triad and leads to amenorrhoea and weak bones. Hence the risk of eating disorders is higher in such sports.
-
- Q20** (1) Calms and steadies the mind; improves focus and concentration. (2) Strengthens the immune system. (3) Supplies enough oxygen to every cell of the body. (4) Removes carbon dioxide and other waste gases from the blood. (Also: lowers blood pressure and stress; balances the left and right nostrils.)
-
- Q21** (1) They give **equal opportunities** to all students, including those with different abilities, in every class and event. (2) They **adapt activities** (rules, equipment, space, time) so that children with special needs can take part with others. (3) They create a supportive environment where every child feels valued, and they praise effort and set achievable tasks to build self-esteem and confidence.
-
- Q22** **Partial curl-up** (abdominal strength): the student lies on a cushioned flat surface, knees bent at about 90°, feet flat, arms straight by the sides with palms down. On "go", the student raises the trunk in a smooth motion, keeping the arms in position and sliding the fingers forward at least 6 inches along the mat to the second parallel strip, then lowers the trunk until the shoulder blades touch the floor. **Score:** the maximum number of correct curl-ups in **30 seconds** (equipment: cushioned surface with two strips 6 inches apart, stopwatch). (Also correct: push-ups for boys, modified push-ups for girls.)
-
- Q23** (a) **Third law** (action and reaction): the swimmer pushes water backwards (action); the water pushes the swimmer forward with an equal and opposite force (reaction). (b) **Second law** (acceleration): $a = F/m$, so for the same force, the lighter tennis ball gets more acceleration than the heavier cricket ball.
-
- Q24** **Talent selection:** the ongoing process of choosing, at various stages of development, the individuals who show the required performance levels for a sport (through tests, trials and competition results). **Talent transfer:** moving an athlete from one sport to another in which he or she has better chances of success, using the physical, technical and mental qualities already developed (e.g. a gymnast moving to diving).
-
- Q25**

basis	intramural	extramural
meaning	organised within the walls of one institution (between houses, classes, hostels)	organised outside the walls , between two or more institutions (zonal, district, state, national)
main aim	to encourage mass participation and promote health and recreation	to achieve high performance at the highest level
feeling developed	integration within the institution (group cohesion)	integration with other institutions (socialisation)
who takes part	all students, not only players	selected players or teams (often chosen through intramurals)

Similarity: both are tournaments that develop fitness, fair play, leadership and sporting values; intramurals are the base for selecting teams for extramurals.

Q26

component	WHO guideline (65+)	example plan
aerobic	150–300 min a week moderate, or 75–150 min vigorous, or a mix	brisk walk 30–40 min, 5 days
muscle strengthening	major muscle groups, 2 or more days a week	light weights, resistance bands, chair squats: Tue, Fri
balance (functional)	3 or more days a week, to prevent falls	heel-to-toe walk, standing on one leg, tai chi or yoga: Mon, Wed, Sat
sedentary time	limit sitting; replace with light activity	gardening, household work, stair use

Start slowly and increase gradually; elders with medical conditions should be as active as their condition allows, with a doctor's advice.

Q27

Asanas for obesity: Tadasana, Katichakrasana, Pavanmuktasana, Matsyasana, Halasana, Paschimottanasana, Ardha Matsyendrasana, Dhanurasana, Ushtrasana, Suryabhedan pranayama.

Tadasana (procedure): (1) Stand with feet together or about 10 cm apart, hands by the thighs. (2) Distribute weight equally on both feet. (3) Raise the arms over the head, interlock the fingers and turn the palms upward. (4) Fix the eyes on a point slightly above head level. (5) Inhale, stretch the arms, shoulders and chest upward and raise the heels to come up on the toes. (6) Stretch the whole body without losing balance; hold the breath and position for a few seconds. (7) Exhale, lower the heels and bring the hands down. Repeat 5–10 times.

Q28

(1) **Absence of an enzyme:** enzymes are needed to digest food fully; if one is missing or insufficient, e.g. lactase for milk sugar (lactose intolerance), the food is not digested and causes vomiting, gas or diarrhoea. (2) **Chemical causes:** certain chemicals in food and drink, such as amines in some cheeses and caffeine in coffee, tea and chocolate, cause intolerance in sensitive people. (3) **Salicylates:** derivatives of salicylic acid that plants make to protect themselves from bacteria, fungi and insects; found in many fruits, vegetables, spices and herbs, they cause reactions in sensitive people. (Also: food poisoning toxins, gluten intolerance, food additives.)

- Q29** (1) **Reduction in muscular strength:** muscle mass and strength peak between 20 and 40 years, when muscle cross-section is largest, then decline steadily. (2) **Decrease in neural function:** about 40% fewer spinal cord axons and about 10% slower nerve conduction, so reaction time and coordination worsen. (3) **Endocrine dysfunction:** glands secrete less hormone and target organs respond less, affecting metabolism and growth. (Also: lower pulmonary function and vital capacity, lower maximum heart rate and cardiac output, more body fat, loss of bone mass.)
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- Q30** (1) **Gravity:** pulls the projectile downward all the time, so its path is a curve (parabola); it limits height and distance. (2) **Speed of release:** the faster the object is thrown or hit, the farther it travels; muscle force largely determines this speed. (3) **Angle of release:** the pitch at which it is released; 45° gives maximum horizontal distance when release and landing heights are equal. (Also: **height of release:** a higher release gives a longer flight; **spin** and air resistance.)
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- Q31** The fixture is drawn by the **cyclic method** for **7 teams** (teams 1–7 appear, plus a bye because the number is odd). The bye stays fixed at the top right; in each round the other numbers move one place. Working backwards and forwards from rounds III and IV gives the full fixture:
- | I | II | III | IV | V | VI | VII |
|------------|-------|-------|-------|-------|-------|-------|
| 7-Bye | 6-Bye | 5-Bye | 4-Bye | 3-Bye | 2-Bye | 1-Bye |
| 6-1 | 5-7 | 4-6 | 3-5 | 2-4 | 1-3 | 7-2 |
| 5-2 | 4-1 | 3-7 | 2-6 | 1-5 | 7-4 | 6-3 |
| 4-3 | 3-2 | 2-1 | 1-7 | 7-6 | 6-5 | 5-4 |
- (i) Teams 4 and 3 meet in the **first round**. (ii) For an odd number of teams, rounds = number of teams = 7. **(B) 7**. (iii) The bye passes to the next lower number each round (7, 6, 5, 4, 3, 2, 1), so team 2 gets the bye in the **sixth round**. (iv) Matches = $n(n-1)/2 = 7 \times 6/2 = 21$. **(A) 21. OR**
- (iv) **Round robin tournament.**
- VI alternative:* (i) Publicity, press releases and media work belong to the **(D) Marketing committee**. (ii) Layout, cleaning and maintenance of fields is done by the **(D) Technical committee**. (iii) After the event the finance committee (1) examines all records related to the settlement of bills, and (2) keeps track of accounts and prepares the financial report. **OR** (iii) **(B) Finance:** the finance committee purchases equipment, stationery, medals and certificates as requisitioned by other committees. (iv) **Logistics** committee (refreshment, boarding and lodging, transport).
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- Q32** (i) Pain and swelling at a joint after twisting means a ligament injury: **(C) Sprain**. (ii) Bleeding under the skin from a blow is a bruise: **(A) Contusion**. (iii) An abrasion is a scrape that rubs away the top layer of skin: **(B)**. (iv) **(C) Greenstick fracture**, common in children whose bones are soft.
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- Q33** (i) **(B) Hearing and speech impaired**. (ii) **(C)**: the case says the others hesitate to talk and play with her. (iii) **(B) Integration:** children with special needs take part together with others. **OR** (iii) **(B) Sign language or gestures** (also visual signals, demonstrations, flags instead of whistles). (iv) **(A)**: a comfortable, emotionally secure environment where she is accepted by peers.
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- Q34**

scoliosis

abnormal **sideways** curvature of the spine, forming a "C" or "S" shape

signs: uneven shoulders, hips or rib cage; body leans to one side

lordosis

excessive **inward (forward)** curvature of the spine, in the lumbar (lower back) region

signs: "swayback" posture; abdomen pushed forward; buttocks stick out

Flat foot (corrective measures): walking, standing or jumping on toes and heels; skipping on toes; picking up marbles or a towel with the toes; asanas such as Vajrasana and Adhomukhasana; arch-supporting shoes.

Knock-knees: horse riding; keeping a pillow between the knees and squeezing it; asanas such as Padmasana and Gomukhasana; swimming and cycling; weight control.

Q35

Chair Stand Test (lower-body strength, Rikli and Jones): an armless chair is placed against a wall. The person sits in the middle, back straight, arms crossed over the chest, feet flat on the floor shoulder-width apart. On "go" the person stands up fully and sits down again, as many times as possible in **30 seconds**. **Score:** number of complete stands in 30 s; if the person is more than halfway up when time ends, it counts as a stand.

Chair Sit-and-Reach Test (lower-body flexibility): the person sits on the front edge of a chair placed against a wall, one foot flat on the floor, the other leg extended forward with the knee straight, heel on the floor and ankle bent at 90°. With one hand on the other, the person bends at the hip and slides the hands down the leg towards the toes, holding for 2 seconds.

Score: distance between the tips of the middle fingers and the toe, to the nearest 0.5 inch: "+" if the fingers go beyond the toe, "-" if they do not reach it, 0 if they just touch. Best of two trials.

Q36

Motivation: "the driving force that spurs a person to action; a process to initiate, guide and maintain behaviour over time" (Robert Baron). Simply, it is the direction and intensity of effort.

Techniques: (1) **Expectancy:** players are motivated for tasks where success is more likely than failure, so the coach sets tasks matched to ability. (2) **Guided discovery:** players are more motivated when allowed to find solutions themselves instead of just following orders. (3)

Social support: support of family, peers and spectators and a friendly environment keep players going. (4) **Incentives and rewards:** prizes, praise, recognition and scholarships sustain effort over a long time. (Also: goal setting, knowledge of results and feedback, fun-based training, individualised programmes, verbal encouragement.)

Q37

Speed: "the capacity of an individual to perform successive movements of the same pattern at a fast rate", or the ability to move the body or a body part as fast as possible in the minimum time.

(1) Acceleration runs: used to develop the ability to reach maximum speed from a static start. The athlete runs a set distance (e.g. 30–60 m), trying to gain full speed as early as possible, and finishes the distance at that speed. Runs are repeated with full rest between them; the number depends on age, capacity and fitness.

(2) Pace runs: running a set distance at a uniform (steady) speed, used for races of 800 m and above. The athlete runs at a maximum steady speed over a distance 10–20% longer than the racing distance, so that the pace can be held throughout the race. Repetitions are fixed by fitness level, with complete recovery between them.



All the best for your boards!

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