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ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

(Department of Special Education)

Course: Educational Adaptation for Children with Physical Disabilities-II (3610) • Level: MA/MEd Special Education

Semester: Autumn 2025

Assignment No. 2 (Units: 5–9)

Total Marks: 100 • Pass Marks: 50

SOLVED ASSIGNMENT GUIDE — For Study & Reference

Note: This guide is prepared for study and reference purposes only. Students are advised to read the relevant units of the course book, understand the concepts, examples and arguments given here, and then write the assignment in their own words. Copying this guide word for word is not allowed and will not develop the understanding of special education this course is designed to build.

Question 1: Muscular Dystrophy and the Teacher's Support (20 Marks)

Question as printed: Describe the nature, types, and progression of muscular dystrophy, and explain how teachers can support affected students through appropriate seating, energy conservation strategies, assistive devices, peer support, and flexible assessment.

Introduction

Muscular dystrophy is one of the most demanding conditions a teacher of children with physical disabilities will meet, not because the child is difficult but because the condition itself keeps changing. Unlike a static impairment, to which a child gradually adapts once and for all,

muscular dystrophy progressively weakens the muscles, so that abilities the child had last year may be lost this year, and the school's arrangements must be re-planned again and again around a moving target. The teacher's role therefore combines practical support — seating, energy management, devices, peers and assessment — with the emotional intelligence to preserve the child's dignity, participation and hope while his body is becoming weaker. This answer first describes the nature, types and progression of muscular dystrophy, and then examines each of the five areas of teacher support named in the question.

Nature of Muscular Dystrophy

Muscular dystrophy is not one disease but a group of inherited disorders in which a genetic defect prevents the body from making one of the proteins that keep muscle fibres intact. Without that protein, muscle fibres are damaged by ordinary use, die, and are gradually replaced by fat and fibrous tissue — which is why muscles in some forms appear enlarged (pseudohypertrophy, especially in the calves) while actually becoming weaker. The weakness is progressive and follows a characteristic distribution in each type. Intelligence is not directly affected in most forms, although the missing protein in the commonest type also occurs in the brain and a proportion of boys have associated learning or attention difficulties. There is at present no cure; management is by physiotherapy to preserve movement and prevent contractures, orthotics and surgery for deformity, cardiac and respiratory monitoring as those muscles become involved, medication in some types, and educational and social support throughout. Because the conditions are inherited — several of them X-linked, carried by mothers and appearing in sons — families may contain more than one affected member, and

siblings and parents carry their own burdens of worry and guilt that sensitive teachers should understand.

Main Types

The types most relevant to schools are the following. Duchenne muscular dystrophy (DMD) is the commonest and most severe childhood form: it affects boys, appears between about three and five years, and progresses steadily until walking is lost, usually in the early teens, with heart and breathing muscles affected later. Becker muscular dystrophy is caused by a defect in the same gene but produces a partially working protein, so onset is later, progression slower and walking preserved much longer. Limb-girdle muscular dystrophies weaken the shoulder and hip girdle muscles first, with onset varying from childhood to adult life and progression generally slower. Facioscapulohumeral dystrophy begins in the muscles of the face, shoulders and upper arms — the adolescent may be unable to whistle, close the eyes fully or raise the arms — and usually progresses slowly with normal lifespan. Myotonic dystrophy combines weakness with myotonia (delayed relaxation of muscles after contraction) and may affect several body systems; its congenital form can be severe from birth. Emery-Dreifuss dystrophy is recognised by early contractures at elbows, neck and ankles together with cardiac involvement that needs monitoring. For the school, the key point is that type determines timetable: a child with DMD needs term-by-term replanning, while a child with a slowly progressive form needs stable long-term arrangements and vigilance rather than constant change.

Progression: The Example of Duchenne Muscular Dystrophy

The progression of DMD illustrates the general pattern of the group. In the early stage (about ages three to six) the boy is late or clumsy in running and climbing, falls frequently, walks on his toes with a waddling gait and enlarged calves, and rises from the floor by 'walking' his hands up his thighs — Gowers' sign — because his hip muscles are too weak to lift him directly. In the ambulant stage (roughly six to ten) walking continues but stairs, rising from chairs and keeping up with peers become steadily harder; contractures develop at ankles and hips, the spine begins to curve, and fatigue dominates the school day. In the transitional stage the child uses a wheelchair for distances, then full time, typically somewhere between ten and fourteen; correct powered mobility at this point is liberating, not a defeat, because it returns the independence that walking had ceased to give. In the later stage, weakness spreads to arms and hands, so feeding, writing and computer control need technology; scoliosis may need surgery; and respiratory and cardiac care become central, with life expectancy now extending into the twenties and beyond with modern care. Figure 1 traces this characteristic rise-and-decline pattern.

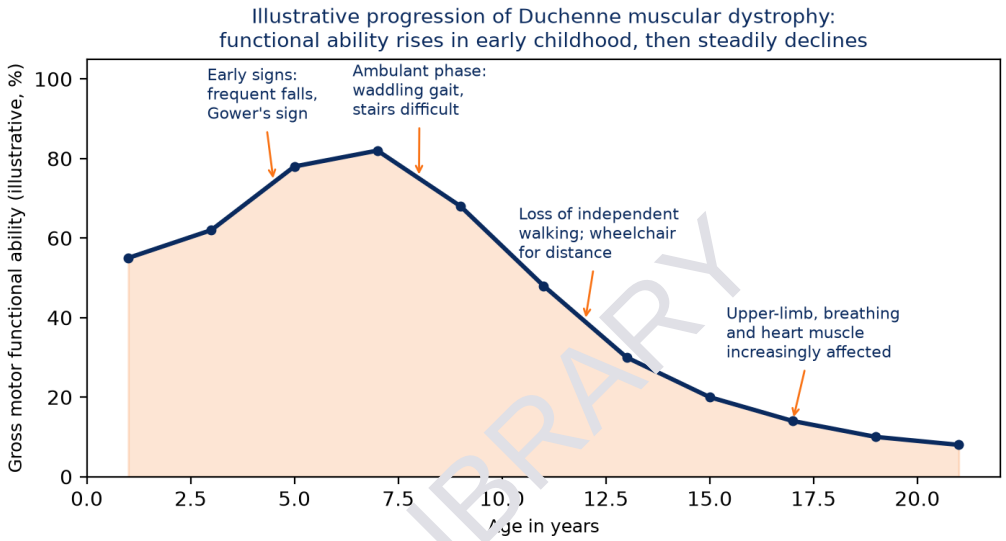

Figure 1: The characteristic course of Duchenne muscular dystrophy. Support must be reviewed at every stage because the child's abilities — and therefore his needs — keep changing.

Support Through Appropriate Seating

Seating support begins with the ordinary classroom chair and desk: correct height so feet are supported and the table allows the forearms to rest, since a boy with weak shoulder and trunk muscles tires rapidly when his arms are unsupported, and may slump into postures that worsen scoliosis. As weakness progresses, the physiotherapist and occupational therapist guide the move to supportive seating — firm base, lateral trunk supports, headrest where needed — and eventually to a properly fitted manual and then powered wheelchair with pressure-relieving cushion, because a young person who sits all day in a badly fitted chair develops pain, pressure damage and spinal deformity. The teacher's daily contribution is to insist on correct positioning every time, not only in therapy: feet placed properly, posture checked after transfers, rest and position changes built into long lessons, and the child's place in class arranged so the wheelchair is part of the group, near friends and the board, never parked in a corner or in the

corridor. Seating also protects participation in practical subjects, where a lap tray, adapted workbench height or perching stool may keep the child inside the activity rather than watching it.

Energy Conservation Strategies

Weak muscles have a small energy budget, and the teacher who spends it wisely gives the child a full school life. Energy conservation means planning the day so effort is spent where it matters: timetabling demanding subjects early, before fatigue accumulates; siting the classroom to minimise travel distances, or allowing the pupil to leave lessons a few minutes early to move through empty corridors; removing pointless physical costs — carrying heavy bags, queuing for lunch, copying from the board — and substituting a locker near the classroom, a peer or trolley for books, and printed or digital notes. Work itself is paced: short bouts with rest pauses, handwriting loads reduced in favour of keyboarding and voice input, and homework quantity adjusted so evenings are not an exhausted extension of the day. Crucially, the boy is taught to budget his own energy and to say when he is tired — a self-advocacy skill he will need for life — while staff watch for the overexertion that damages dystrophic muscle: activity should challenge but never exhaust, and physiotherapy advice sets the limits. Energy saved on transport and copying is energy available for learning and friendship, which is the true aim.

Assistive Devices

Assistive devices change stage by stage, and the teacher helps by knowing what each device is for, encouraging its use without embarrassment, and reporting problems of fit or function

promptly. In the early stages these are orthoses — ankle-foot splints worn at night or in the day to prevent contracture — and simple mobility aids. Later come walking frames, manual wheelchairs for distance and then powered wheelchairs, which the young person must be taught to drive safely around school; hoists and transfer aids, with staff trained to use them, protect dignity and backs alike. For learning, assistive technology is decisive as hand weakness grows: laptops and tablets with adapted keyboards or keyguards, voice-recognition software, page turners, and environmental controls progressively replace the failing hand, so that a student who can no longer write a sentence can still produce an essay. Communication and computer access must be reviewed at least termly, because in a progressive condition last term's solution is this term's barrier. The school also protects time for device maintenance and ensures the child is never left stranded by a flat battery or a broken chair — backup plans are part of provision, not an afterthought.

Peer Support

As physical ability declines, social belonging becomes the child's most important school experience, and peers are its main carriers. The teacher builds peer support that is natural rather than charitable: stable friendship groups and buddy arrangements for practical help — carrying, opening doors, sharing notes — offered within ordinary give-and-take so the boy also gives (help with reading, humour, loyalty, digital skills) and is not cast permanently as the receiver. Class discussion, pitched factually and with the family's consent, answers questions about the condition and the wheelchair before rumour and awkwardness fill the gap; inclusive games and activities are adapted so he plays, referees, scores and strategises rather than spectating. Teachers watch the two characteristic dangers: overprotection, in which kind

classmates do everything and quietly erase the child's independence, and invisibility, in which the wheelchair gradually drifts to the edge of group life. Deliberate structures — mixed teams, shared responsibilities, accessible venues for class social events — keep the boy where he belongs: in the middle of his peer group.

Flexible Assessment

Flexible assessment keeps expectations high while removing barriers that have nothing to do with what is being assessed. Concretely, this means extra time and supervised rest breaks in tests for slow, fatiguing output; permission to type, dictate or use a scribe whose role is strictly to record; splitting long examinations across sessions; adjusting handwriting-heavy coursework toward oral, typed and project formats; arranging accessible exam rooms and, where relevant, applying formally to the board for the concessions the regulations allow (extra time, scribe, assistive technology) well before examination season. Assessment planning must also track progression: a concession unnecessary in class eight may be essential in class ten, so arrangements are reviewed with the same regularity as seating and devices. Throughout, the principle is fairness, not favour: the student with muscular dystrophy is assessed on the same knowledge and skills as his classmates, but through channels his weakening muscles can still use — which is precisely what assessment accommodation means.

Conclusion

Muscular dystrophy presents the school with a child of intact mind in a progressively weakening body, on a timetable that varies by type but never stands still. Meeting it well requires the practical arts described here — seating that supports posture and participation, energy spent

deliberately, devices reviewed as needs change, peers organised into genuine friendship, and assessment flexibly channelled — renewed at every stage of progression. Done consistently, they achieve the goal that matters most to the child and family: that school remains a place of learning, belonging and achievement throughout the course of the condition.

Question 2: Myotonia Congenita, Familial Periodic Paralysis and Myasthenia Gravis (20 Marks)

Question as printed: Discuss the educational implications of muscle-related conditions such as myotonia congenita, familial periodic paralysis, and myasthenia gravis, and explain the precautions teachers should take when planning classroom and physical activities.

Introduction

Not every muscle condition a teacher meets is a wasting disease. A distinctive group of muscle-related conditions disturbs not the structure of the muscle but its electrical and chemical behaviour — how it contracts, relaxes, and responds to use and rest. Three representative conditions, all named in this course, are myotonia congenita, in which muscles cannot relax promptly; familial periodic paralysis, in which episodes of paralysis arrive and depart; and myasthenia gravis, in which the signal from nerve to muscle fades with use and the child weakens as the day goes on. These conditions are individually rare, but together they teach a general educational lesson: fluctuating and episodic conditions need flexible schools. A child who is strong at nine o'clock may be helpless at noon; a child floored by an attack on Monday may be entirely normal on Tuesday. This answer explains each condition, draws out its

educational implications, and sets out the precautions that should govern classroom and physical activity planning.

Myotonia Congenita

Myotonia congenita is an inherited disorder of the chloride channels in muscle fibre membranes. Because the electrical recovery of the fibre after contraction is faulty, the muscle cannot relax immediately: after gripping an object the hand opens slowly; after sitting, the first steps are stiff and stilted until repeated movement 'warms up' the muscle and the stiffness melts away — the warm-up phenomenon characteristic of this condition. Symptoms typically appear in childhood; muscles, especially in the legs, may be unusually well developed (hypertrophied), giving the child a misleadingly athletic appearance. Strength between episodes of stiffness is essentially normal and intelligence is unaffected. Cold, rest after exertion and sudden movement after stillness worsen the stiffness; emotional startle can provoke a fall when stiff legs cannot respond. In the Becker (recessive) form there may also be some genuine weakness, especially later. Educational implications follow from the pattern: the child is most disabled at transitions — standing up when the bell rings, starting to write after listening, beginning a race — and least disabled once warmed into activity, an exact inversion of what teachers usually expect, and a pattern easily misread as laziness, clumsiness or clowning.

Familial Periodic Paralysis

Familial periodic paralysis is a group of inherited channel disorders — most importantly the hypokalemic form, in which attacks are linked to low blood potassium, and the hyperkalemic

form — in which the child suffers episodes of flaccid weakness or paralysis lasting from minutes to hours or even a day or more. Attacks commonly begin in later childhood or adolescence and are triggered by recognisable factors: rest after vigorous exercise, heavy carbohydrate-rich meals, cold, stress, illness and certain medicines. During an attack the affected muscles — usually the legs first, sometimes the whole body except breathing and face — become limp and the child may be unable to walk or get up; sensation and consciousness remain normal, which makes the experience frightening. Between attacks strength is usually normal, though repeated attacks over years can leave some permanent weakness. Educational implications are dominated by unpredictability and triggers: attendance and performance can collapse without warning; an attack at school is a medical event requiring a planned response; examinations and sports fixtures may coincide with episodes; and because the child looks perfectly healthy between attacks, staff and peers may doubt the condition is real — one of the commonest sources of conflict around episodic illness.

Myasthenia Gravis

Myasthenia gravis is an autoimmune condition in which antibodies block or destroy the receptors for acetylcholine at the neuromuscular junction, so that the nerve's signal to the muscle progressively fails with repeated use. Its hallmark is fluctuating, fatigable weakness that worsens through the day and with activity, and improves with rest and with anticholinesterase medication. The eye muscles are often affected first — drooping eyelids (ptosis) and double vision — followed by the muscles of speech, chewing and swallowing, the neck and limbs; in a generalised crisis the breathing muscles can be involved, which is a medical emergency.

Juvenile myasthenia appears in children and adolescents, sometimes alongside other autoimmune conditions. Educational implications are wide: vision for reading fluctuates, so board work and books may blur by afternoon; speech becomes nasal and slurred when tired; handwriting deteriorates across a long task; chewing fatigue makes school lunches slow and swallowing unsafe if rushed; and the whole performance curve of the child slopes downward across the day in a way that timetabling can either respect or ignore. Medication timing becomes part of the school plan, and infections or missed doses can precipitate sudden deterioration.

Table 1: The three muscle conditions compared

Feature	Myotonia congenita	Familial periodic paralysis	Myasthenia gravis
Basic problem	Muscle relaxes too slowly (chloride channel)	Episodes of paralysis (potassium-related channels)	Nerve-to-muscle signal fails with use (autoimmune)
Pattern in the day	Stiff after rest; improves with warm-up movement	Normal between sudden attacks	Weakens with use and through the day; rest restores
Main triggers	Cold, sudden movement after stillness, startle	Rest after exercise, heavy meals, cold, stress	Exertion, missed medication, infection, heat
Intelligence	Normal	Normal	Normal
Key school risk	Falls at transitions;	Attack at school;	Fatigue, swallowing

	being misjudged as clumsy	disbelief between attacks	problems, rare breathing crisis

General Educational Implications

Across the three conditions, four shared implications stand out. First, variability defeats fixed arrangements: seating plans, workloads and expectations built for a 'typical day' fail on the child's worst days, so flexibility — in deadlines, output modes and activity demands — must be designed in rather than begged for. Second, invisibility invites misjudgement: all three children look normal much of the time, and their difficulties (stiffness, attacks, afternoon collapse) are easily attributed to behaviour; staff training and, with consent, honest information for peers are therefore part of provision. Third, each condition has an emergency or dignity dimension — a paralysed child who must be moved and reassured, a myasthenic child whose swallowing or breathing worsens — so written individual healthcare plans, shared with all relevant staff including substitutes, are indispensable. Fourth, adolescence complicates everything: self-consciousness about difference, reluctance to take medication publicly, and the wish to join sport and social life push against medical limits, and the wise teacher negotiates rather than merely forbids, keeping the young person a partner in managing his own condition.

Precautions in Classroom Activities

When planning classroom activities, teachers should apply the following precautions. Schedule with the condition's rhythm: put the myasthenic child's most demanding work early and allow medication to peak before major tasks; build warm-up moments into the myotonic child's

transitions, allowing a few unhurried steps or hand-openings before speed is expected; and keep alternative, equivalent work ready for the child with periodic paralysis on attack and recovery days so learning continues without penalty. Reduce known triggers indoors: avoid cold draughts on the child with myotonia, manage post-exercise rest transitions for the child with periodic paralysis (gentle cool-down and movement rather than abrupt sitting still), and protect the myasthenic child's lunch period — unhurried, seated, supervised appropriately, with soft food options when chewing is weak. Watch output rather than appearances: deteriorating handwriting, drooping eyelids, slurring speech or a grip that will not release are data, and the correct response is rest and the healthcare plan, not exhortation. Keep medication arrangements discreet and punctual, record incidents factually for parents and doctors, and ensure supply teachers receive the plan, since fluctuating conditions are most dangerous exactly when routine staff are absent.

Precautions in Physical Activities

Physical activity is beneficial for all three groups but must be intelligently bounded. For myotonia congenita, the governing ideas are warmth and warm-up: thorough, gradual warm-up in a reasonably warm environment, no sudden explosive starts from stillness, extra care in swimming (cold water plus stiffness can be dangerous; close supervision and warm water are required), and understanding that the child's performance improves as activity proceeds. For familial periodic paralysis, the plan avoids the trigger pattern: vigorous exercise is followed by gentle continued movement rather than abrupt rest; heavy meals immediately before exertion are discouraged; staff know that weakness after games may be an attack, not exhaustion

theatre, and the response plan — rest in a safe place, oral potassium only as the child's own medical plan directs, medical help if breathing or swallowing is involved — is followed without improvisation. For myasthenia gravis, activity is paced in short bouts with planned rests, scheduled when medication is effective, stopped on signs of significant weakness, and collision and endurance demands are moderated; swimming and climbing require specific medical clearance and one-to-one vigilance because weakness can arrive mid-activity. Underlying all three is one rule: the child is included in physical education by design — adapted role, adjusted intensity — never simply excused to the sideline, and never pushed through warning signs to prove toughness.

Conclusion

Myotonia congenita, familial periodic paralysis and myasthenia gravis disturb the chemistry and electricity of muscle rather than its bulk, and so produce the fluctuating, episodic patterns that most challenge school routines. Their educational implications — variability, invisibility, emergency potential and adolescent sensitivity — are met by a consistent teacher response: know the child's pattern and triggers, plan the day around them, keep healthcare plans live and shared, include the child fully in classroom and physical life within medical limits, and believe the child on the bad days. Flexibility, in these conditions, is not a concession; it is the curriculum's doorway.

Question 3: Orthopedic Difficulties — Amputation, Arthritis, Osteogenesis Imperfecta and Hip Dislocation (20 Marks)

Question as printed: Discuss orthopedic difficulties associated with amputation, arthritis, osteogenesis imperfecta, and hip dislocation, and explain how these conditions affect mobility, self-care, social participation, and emotional adjustment at school.

Introduction

Orthopedic conditions are disorders of the bones, joints and supporting structures — the frame on which all movement hangs. Four conditions named in this course illustrate their variety: amputation, the loss of part of a limb; arthritis, inflammation and damage within joints; osteogenesis imperfecta, in which the bones themselves are fragile; and hip dislocation, in which the body's central weight-bearing joint is unstable or displaced. Each condition creates its own pattern of orthopedic difficulty, yet all four converge on the same four areas of school life: mobility, self-care, social participation and emotional adjustment. A teacher who understands both the specific mechanics of each condition and these shared areas of impact can plan provision that is accurate rather than generic. This answer takes the four conditions in turn and then examines their effects across the four areas.

Amputation

Amputation is the loss of part of a limb, congenital (the limb fails to form fully before birth, so the child is born with a limb deficiency) or acquired through accident, infection, bone tumour or severe injury. The level of loss — below or above knee or elbow, one limb or several —

determines the functional challenge: an above-knee amputee expends far more energy in walking than a below-knee amputee, and upper-limb loss chiefly affects manipulation and two-handed tasks. Most school-age amputees use a prosthesis (artificial limb), which must be fitted, adjusted and replaced as the child grows, and which brings its own problems of skin irritation, fit during growth spurts and breakage. Some children choose crutches or a wheelchair for some activities. Phantom sensations and, in acquired amputation, phantom pain may occur. Orthopedically, the remaining joints and the sound limb are overloaded and need protection, balance is reorganised around a new centre of gravity, and gait training is a continuing part of childhood rather than a single event.

Arthritis

Arthritis means inflammation of joints; in children the commonest chronic form is juvenile idiopathic arthritis (JIA), an autoimmune condition in which the body's immune system attacks its own joint linings, producing pain, swelling, stiffness — characteristically worst in the morning and after rest — and, if uncontrolled, joint damage and deformity, unequal limb growth and sometimes inflammation of the eyes (uveitis) that threatens sight silently. JIA may affect one joint, a few joints, or many, and it runs an unpredictable course of flares and remissions, managed with anti-inflammatory and immune-modifying medicines, physiotherapy to preserve range and strength, splints, and regular eye screening. Unlike the degenerative arthritis of old age, childhood arthritis strikes a growing skeleton, so its orthopedic stakes are higher: an inflamed knee that is not treated and moved can produce a permanently bent, shorter leg. The orthopedic difficulty for schooling is therefore a fluctuating mixture of pain,

stiffness, fatigue and enforced rest during flares, alternating with periods in which the child appears entirely well.

Osteogenesis Imperfecta

Osteogenesis imperfecta (OI), or brittle bone disease, is an inherited disorder of collagen — the protein framework of bone — in which bones fracture with minimal force and may bow and deform under ordinary loads. Its severity ranges from a mild form with a few fractures and near-normal stature to severe forms with many fractures from infancy, marked short stature, progressive deformity of limbs and spine and wheelchair use. Associated features can include a blue tint to the whites of the eyes, fragile teeth (dentinogenesis imperfecta) and hearing loss developing over time. Management is protective and strengthening at once: careful handling from babyhood, physiotherapy and safe activity to build what bone and muscle strength is possible, surgery with internal rods to stabilise long bones, bisphosphonate medicines in many cases, and mobility aids matched to the child's fragility. The orthopedic difficulty is paradoxical and central to schooling: the child needs activity to strengthen bones and muscles, yet activity carries fracture risk, so every plan must balance protection against the equal danger of overprotection and immobility.

Hip Dislocation

Hip dislocation in children is usually developmental dysplasia of the hip (DDH): the hip joint, in which the ball of the thigh bone should sit deeply in the socket of the pelvis, is shallow, unstable or frankly dislocated from birth or early infancy. It is commoner in girls, in first-born

children and after breech birth, and it is detectable in newborn screening by clinical tests and ultrasound — which matters, because treated early with a harness it usually resolves, while discovered late it needs surgery and leaves lasting problems. A child with an untreated or partially corrected dislocation walks with a limp and a lurching, Trendelenburg gait, has one leg effectively shorter than the other, tires quickly and may develop early arthritis and back or knee pain from the abnormal mechanics. Bilateral dislocation produces a waddling gait. Orthopedic management in school-age children may involve periods in casts or braces after surgery, restricted weight-bearing and adapted seating, followed by long physiotherapy. The school impact concentrates on mobility and stamina, with a secondary emotional load when treatment interrupts schooling or makes the child's walk conspicuous.

Table 1: The four orthopedic conditions at a glance

Condition	Core orthopedic problem	Typical aids and treatment	Volatility
Amputation	Loss of part of a limb; balance and leverage changed	Prosthesis, crutches, wheelchair; gait and skills training	Stable; fit problems during growth
Arthritis (JIA)	Inflamed, painful, stiff joints; growth disturbance	Medication, physiotherapy, splints, eye screening	Fluctuating: flares and remissions
Osteogenesis imperfecta	Fragile, deforming bones from defective collagen	Careful handling, rods surgery, mobility aids, physiotherapy	Fracture risk ever-present

Hip dislocation	Unstable/displaced hip joint; leg-length difference	Harness in infancy; surgery, casts, physiotherapy if late	Stable after treatment; gait effects persist

Effects on Mobility

Mobility is the most obvious casualty across the four conditions, but the mechanism differs in each, and provision must match mechanism. The amputee's mobility depends on prosthetic fit and energy cost — distances, stairs and crowds are the pinch points, and a wheelchair may be the sensible choice for long school trips even for a competent prosthetic walker. The child with arthritis has good days and bad days: morning stiffness may make the journey to school and the first lessons the hardest of the day, and during flares even short distances become impossible, so flexible transport and late-arrival arrangements matter. The child with OI may move freely until a fracture resets the clock to weeks of immobilisation, and his mobility plan must include handling rules known to every adult (never pull by the arms; support the whole body) and fall-risk management. The child with hip dislocation walks with a limp and reduced endurance and may have post-surgical periods of non-weight-bearing. In all four, the school's physical geography — stairs, distances between rooms, playground surfaces, evacuation routes — is part of the condition's effect, and therefore part of its remedy.

Effects on Self-Care

Self-care — dressing, toileting, eating, washing, organising one's belongings — is where independence is won or lost daily, and each condition taxes it differently. Upper-limb

amputation affects fastening, cutting food, carrying a tray and two-handed hygiene tasks until prosthetic or one-handed techniques are mastered; lower-limb amputation complicates bathing, dressing while seated and safe transfers. Stiff, painful hands in arthritis make buttons, zips, taps and lunch packaging a morning battlefield, and fatigue compounds it. In OI, self-care is slowed by caution — every transfer and wash carries fracture awareness — and by short stature, which puts standard sinks, locks and shelves out of reach. Hip problems restrict bending, sitting on low chairs and floor-based routines such as changing for games. The educational response is occupational therapy advice translated into school routine: adapted clothing expectations, extra time without penalty, equipment such as button hooks and adapted cutlery, accessible facilities, and adults who offer the minimum help necessary, because self-care done for the child is self-care taken from the child.

Effects on Social Participation

Social participation suffers when the child is physically outside the group's activities: the amputee left out of football until a running game is adapted, the arthritic child absent through a flare when friendships are being renegotiated, the child with OI watching contact play from the side for years, the child with a limp excluded from the walking pace of the playground crowd. Participation is also strained by visibility and difference — prostheses, splints, unusual gait, small stature — which attract questions, staring and sometimes teasing in the middle childhood years when conformity rules. Yet the research of school experience is consistent: children with orthopedic conditions who are deliberately included — given real roles in games, chosen for teams with adapted rules, taken on every trip with access planned — develop

ordinary friendships and social standing, while those passively 'present' drift to the margins. Participation, in other words, is a planning outcome, not a personality trait of the child.

Effects on Emotional Adjustment

Emotionally, each condition writes its own story. Acquired amputation involves grief for a lost limb and body image, and sometimes trauma from the accident itself; congenital limb deficiency raises its hardest questions in adolescence, when appearance and identity come to the fore. Arthritis brings the weariness of chronic pain and unpredictability — never knowing whether tomorrow is a good day — and the frustration of looking well while feeling ill, which can draw disbelief instead of sympathy. OI often produces understandable anxiety about fracture and, in parents, a protective vigilance that the growing child may experience as restriction; the child must build confidence inside genuine limits. Hip dislocation, especially with late treatment, casts or visible limp, can dent self-esteem at exactly the age when walking 'normally' feels socially compulsory. Common threads are body image, fear of being different, dependence on adults, and worry about the future; the school's counterweights are equally consistent — honest information, counselling when needed, success experiences in valued activities, peer understanding, and teachers who treat the child as a whole person whose condition is one fact among many.

Conclusion

Amputation removes structure, arthritis inflames joints, osteogenesis imperfecta weakens the frame itself, and hip dislocation destabilises the body's central joint — four distinct orthopedic

difficulties that nonetheless press on the same four fronts of school life: how the child moves, how he cares for himself, how he joins his peers and how he feels about himself. Effective provision answers on all four fronts at once: mechanical help and accessibility for mobility, taught skills and adapted equipment for self-care, deliberate inclusion for participation, and informed, respectful relationships for emotional adjustment.

Question 4: Classroom Management and Emergency Preparedness for Health Impairments (20 Marks)

Question as printed: Explain classroom management and emergency preparedness for students with health impairments such as asthma, cystic fibrosis, diabetes mellitus, anaemia, haemophilia, and cardiac conditions.

Introduction

Health impairments are medical conditions that limit a child's strength, vitality or alertness even when the limbs and senses are intact. The six conditions named in this question — asthma, cystic fibrosis, diabetes mellitus, anaemia, haemophilia and cardiac conditions — are among the commonest serious health conditions of school-age children, and together they define a distinctive teacher responsibility: most of the time these children need nothing unusual at all, and then, rarely and suddenly, they may need exactly the right action within minutes. Classroom management for health impairments is therefore a double discipline — the quiet daily arrangements that keep the child well, learning and included, and the rehearsed

emergency preparedness that keeps a crisis from becoming a catastrophe. This answer outlines each condition briefly, then develops the daily management and emergency sides in turn.

The Six Conditions in Brief

Asthma is a chronic condition in which the airways are inflamed and over-reactive; they narrow in response to triggers such as dust, pollen, cold air, exercise, smoke and infections, producing coughing, wheezing, chest tightness and breathlessness, treated with daily preventive inhalers and a reliever inhaler for attacks. Cystic fibrosis (CF) is an inherited condition in which thick, sticky mucus clogs the lungs and the digestive system: the child needs daily physiotherapy to clear the chest, enzyme capsules with food to digest it, frequent antibiotics, a high-energy diet, and vigilance against chest infections, with school absences for treatment a regular feature. Diabetes mellitus (in schoolchildren usually Type 1) is a failure of insulin production: blood glucose must be balanced daily with insulin injections or a pump, food and activity, because glucose that swings too low (hypoglycemia) or too high (hyperglycemia) both make the child ill — hypoglycemia quickly and dangerously. Anaemia is a shortage of red blood cells or haemoglobin — in Pakistan most often from iron deficiency, but also from inherited conditions such as thalassemia — producing tiredness, pallor, breathlessness on exertion and poor concentration. Haemophilia is an inherited disorder, affecting boys, in which blood lacks a clotting factor, so bleeding from injuries is prolonged and, more seriously, bleeding can occur into joints and muscles after minor knocks, requiring prompt factor treatment. Cardiac conditions include congenital heart defects (some corrected by surgery, some not) and

acquired heart disease, whose school significance is limited stamina, breathlessness, possible blueness (cyanosis) on exertion, medication, and clear medical limits on physical exertion.

Table 1: Daily management and emergency action at a glance

Condition	Daily management essentials	Emergency signs and first action
Asthma	Reliever inhaler accessible at all times; trigger control (dust, smoke); preventive inhaler routine at home	Severe attack: cannot speak in sentences, reliever not helping — sit upright, give reliever as per plan, call emergency help and parents
Cystic fibrosis	Enzymes with every meal/snack; chest physiotherapy schedule; infection control and hygiene	Severe breathlessness, coughing blood, or chest pain — stop activity, sit upright, urgent medical help per care plan
Diabetes mellitus	Regular meals/snacks; blood glucose checks; insulin as planned; hypo treatment kept in class	Hypoglycemia: sweating, shaking, confusion — give fast sugar (juice/glucose), recheck; if unconscious, nothing by mouth, recovery position, call emergency help
Anaemia	Balanced workload, rest when exhausted; iron-rich diet at	Fainting, severe breathlessness or chest pain — lie down, keep

	home; watch concentration and stamina	warm, medical assessment same day
Haemophilia	Avoid high-impact contact; protective gear for sport; staff know bleeding plan	Bleeding into joint/muscle or head injury — rest, ice, elevate as per plan, urgent factor treatment; head knocks always referred medically
Cardiac conditions	Exertion within medical limits; child stops when symptomatic; medication routine	Chest pain, severe breathlessness, blueness or collapse — stop, rest, call emergency help; start CPR and use AED if trained and needed

Daily Classroom Management

Daily management begins with information: for each child there should be an individual healthcare plan, written with parents and medical advice, stating the condition, medication, daily routines, triggers and warning signs, and emergency steps — held by the class teacher, known to relevant staff including substitutes, and reviewed at least annually. Around that plan, management has several strands. Medication management: medicines are stored securely but never locked away from a child who may need them urgently — the asthmatic's reliever inhaler travels with the child, the diabetic's glucose and testing kit sit in an agreed place — and staff who administer or supervise medication are trained and record what they do. Routine

management: the timetable silently respects the child's regime — enzymes before CF snacks are never forgotten in the lunch queue, diabetes snack times are protected from lesson overrun, physiotherapy and hospital appointments are planned for with catch-up arrangements rather than treated as truancy. Environment management: classrooms are kept as free as possible of asthma triggers (chalk dust, strong sprays, classroom pets where they matter), infection risks are reduced for the child with CF or low immunity through ordinary hygiene and honest policies about attending school with infections, and seating lets a breathless or fatigued child work without constant explanation. Workload management: teachers pace demands for the child with anaemia or a cardiac condition, watch concentration as a health signal as well as an academic one, and keep expectations high but elastic on bad days. Confidentiality and normality management: health information is shared on a need-to-know basis, routines are handled matter-of-factly, and the child is not made a spectacle — the art is for the class barely to notice the arrangements that keep their classmate safe.

Emergency Preparedness: Planning

Preparedness is built before any emergency. Its foundations are: the individual healthcare plan with an emergency page that a stranger could follow; staff training, refreshed regularly, covering at minimum asthma attack response, hypoglycemia treatment, seizure- and bleeding-awareness where relevant, and basic first aid including CPR for designated staff; equipment readiness — reliever inhalers and spacers, glucose supplies, first-aid kits, and emergency contact numbers checked and in date; communication readiness, meaning the school office, parents and the nearest hospital can be reached quickly and someone is designated to make

the call, someone to stay with the child, and someone to meet the ambulance; and evacuation planning, in which fire drills include how a breathless, diabetic or post-surgical child will be evacuated and who assists. Schools in Pakistan, where a school nurse is a rarity, must deliberately assign and train these roles among teachers and senior staff rather than assume a medical professional will appear. Preparedness also includes simulation: walking through the asthma and hypo scenarios once a term converts paper plans into muscle memory.

Emergency Preparedness: Responding

When an emergency occurs, the response pattern is constant: stay calm, assess quickly, act on the child's plan, call for help early, and hand over information clearly. Condition-specific responses, summarised in Table 1, must be exact: the asthmatic child is sat upright, reassured and given the reliever inhaler through a spacer, and if there is no improvement, or the child cannot talk, is exhausted or is turning blue, emergency help is called without waiting; the hypoglycemic child who is conscious receives fast-acting sugar immediately and is re-checked, while one who is unconscious or cannot swallow receives nothing by mouth and is placed in the recovery position while help is summoned — a distinction that saves lives and must be drilled; the child with haemophilia who takes a significant knock, complains of a tight, painful joint or receives any head injury is rested, treated as the plan directs and referred urgently, because internal bleeding declares itself late; the child with a cardiac condition who develops chest pain, severe breathlessness or collapse is stopped, rested and given emergency help at once, with CPR and an AED used by those trained if the child becomes unresponsive and not breathing normally; the child with CF who coughs blood or becomes acutely breathless, and the severely

anaemic child who faints or develops chest pain, are treated with the same calm urgency and medical referral. After every incident, events are recorded factually, parents are informed the same day, and the plan is reviewed — an emergency that teaches the school nothing will be repeated.

Working With Parents, Health Services and the Child

Neither management nor preparedness works without partnership. Parents are the school's first source of expertise about their child's condition, medication changes and warning signs, and the school owes them prompt, honest communication in return — a home–school record for significant events, agreed channels for urgent contact, and meetings whenever the plan changes. Health services — the child's hospital team, the local doctor, and in Pakistan often NGO or foundation clinics for conditions such as thalassemia and haemophilia — should know what the school can and cannot do, and the school should know whom to telephone. Finally, the child himself is a partner whose role grows with age: even young children can learn to recognise and report early symptoms, and adolescents should be moving toward self-management — carrying their inhaler, testing their glucose, recognising a bleed — with the school deliberately handing over responsibility rather than either clutching it or abandoning it. Emergency preparedness includes dignity: a teenager collapsed in front of classmates needs privacy and matter-of-fact normality afterwards as surely as he needed sugar during the episode.

Conclusion

Students with asthma, cystic fibrosis, diabetes, anaemia, haemophilia and cardiac conditions ask of their teachers a characteristic combination: unobtrusive daily management that keeps routines, medication, environment and workload quietly aligned with health, and rehearsed emergency preparedness that converts a rare crisis into a planned response. Both rest on the same foundations — an individual healthcare plan, trained and informed staff, ready equipment, fast communication and partnership with parents, health services and the child. A school that builds these foundations gives the child with a health impairment the only thing he really needs from it: an ordinary education, safely delivered.

Question 5: A Plan for Inclusive Sports Participation (20 Marks)

Question as printed: Design a plan for inclusive sports participation for students with physical and health impairments, addressing ability assessment, equipment adaptation, rule modification, safety precautions, peer support, and evaluation of participation.

Introduction

Sport is where inclusion is tested most honestly. A child can be given a seat in every lesson and still be excluded from the one part of school life children themselves value most — games. For students with physical and health impairments, sport is not a dispensable extra: it builds the strength, coordination and fitness their bodies need, it returns to them the childhood experiences of teams, contests and victories, and it quietly teaches classmates that disability and athletic effort belong together. Yet unplanned sport excludes or endangers: standard rules

assume standard bodies. The answer is a deliberate plan. This answer designs such a plan for a school with students with physical and health impairments, structured around the six components named in the question — ability assessment, equipment adaptation, rule modification, safety precautions, peer support and evaluation of participation — preceded by the aims and organisation that hold them together.

Aims and Organisation of the Plan

The plan's aims are: (1) participation — every student with a physical or health impairment takes part in the school's sports programme in a real, valued role; (2) physical benefit — activities develop strength, endurance, coordination and mobility matched to each condition's needs and limits; (3) social inclusion — sport is a shared experience with classmates, not a separate session elsewhere; and (4) progression — each student has goals, records and routes to competition where appropriate, including disability sport pathways. Organisationally, responsibility sits with the physical education teacher, supported by the special education teacher, school administration (for timetable, budget and facilities), parents and medical advisers, and the students themselves. The plan operates on three tiers: inclusive class PE, in which adaptations make common activities accessible; school-level inclusive events such as sports day with modified and parallel events; and representative opportunities — inter-school and disability-sport competitions — for students who excel. The six working steps of the plan are summarised in Figure 1.



Figure 1: The six steps through which the plan converts a standard sports programme into an inclusive one; evaluation feeds back into fresh assessment each term.

Step 1: Ability Assessment

The plan begins by assessing abilities, not cataloguing deficits. For each participating student the PE and special education teachers, using medical information and therapy advice, build a functional profile covering: mobility (independent walking, aids, wheelchair use and skill), strength and endurance, balance and coordination, upper-limb function for throwing, catching and racket skills, sensory status relevant to sport (vision, hearing), health limits (cardiac and respiratory limits, seizure status, bleeding risk, fatigue pattern), and — equally important — the student's interests, experience and ambitions. Simple standardised checks (timed mobility tasks, grip and throw measures, endurance observations) give baselines against which progress can later be judged, and classification principles from disability sport — grouping by functional ability rather than diagnosis — guide fair team and event organisation. Medical clearance defines the boundaries (for example, no contact sport for the student with haemophilia or severe osteogenesis imperfecta; exertion ceilings for cardiac conditions), and the profile is

reviewed each term and after any change in condition. Assessment is shared appropriately: the student and parents help set the goals that follow from it, so the plan is done with the student, not to him.

Step 2: Equipment Adaptation

Equipment adaptation removes the mechanical mismatches between standard kit and different bodies, at whatever cost level the school can reach — ingenuity matters more than budget. Balls are adapted by size, weight, texture and sound: larger, lighter foam balls for weak grip and slow reactions; a bell ball for a student with visual problems; lower-compression balls for racket games. Implements are adapted: short-handled and lightweight rackets and bats, velcro catching mitts, bowling ramps and ball guides that let a wheelchair user or a student with weak arms launch a ball accurately, and targets enlarged or lowered — basketball hoops at reduced height, nearer throwing lines. Personal equipment is checked as part of the plan: sports wheelchairs or everyday chairs secured appropriately, prostheses and orthoses checked for fit before activity, helmets and padding where balance or bleeding risk demands them. Playing surfaces and spaces are equipment too: smooth, even ground for wheelchairs and frames, marked boundaries, shaded rest areas and water within reach for students who fatigue or overheat. Every adaptation is tried with the student in practice before it is used in a game, because an adaptation that fails publicly teaches exclusion faster than no adaptation at all.

Step 3: Rule Modification

Rule modification keeps the game's essence while equalising its demands, and the guiding principle is the smallest change that produces genuine competition. Distances and dimensions shrink: shorter pitches and running distances, smaller courts, lower nets. Time and effort rules flex: shorter halves, rolling substitutions, extra rest breaks, and wheelchair or walking versions of running games. Scoring and roles adapt: double points for a basket scored from a wheelchair, bounce allowances in racket games (the ball may bounce twice for the player with limited mobility), a runner may be provided for a batter who cannot run, and mixed-ability team rules — for example every player must touch the ball before a score counts — make inclusion structural rather than charitable. Where a student cannot join even a modified version of a particular game, parallel events of equal status run inside the same programme (the sports day includes wheelchair races and seated throws as headline events, not side shows). Rules are written down, applied consistently and reviewed with the students, because modification accepted as fair by classmates is the difference between inclusion and tokenism — and students, consulted honestly, are usually rigorous and generous rule-makers.

Table 1: Sample adaptations across three common school sports

Sport	Equipment adaptation	Rule modification
Cricket	Lighter bat, larger softer ball, batting tee or ramp for ball delivery	Shorter pitch; runner for batter; boundary moved in; over limits adjusted for fatigue
Football	Lighter ball, smaller pitch-side	Walking football version;

	goals	smaller-sided teams; no-slide-tackle rule for students with fragility or bleeding risk
Athletics	Bell ball for guided events; throwing implements of graded weights; racing wheelchairs where available	Graded distances; seated throws; classification by functional ability for fair finals

Step 4: Safety Precautions

Safety planning is condition-specific, written into the plan, and briefed to every supervising adult. Medical boundaries from assessment are absolute: cardiac exertion limits, asthma plans (reliever inhaler pitch-side, warm-up graduated, cold-air caution), diabetes arrangements (glucose available, activity paused on hypo symptoms), haemophilia and osteogenesis imperfecta restrictions on contact and falls, epilepsy supervision for swimming, climbing and heights, and shunt awareness for the student with spina bifida. General precautions layer beneath: proper warm-up and cool-down (doubly important for stiff or spastic muscles), hydration and heat management — Pakistani summer sport demands shaded rest, water breaks and rescheduling in extreme heat for everyone, most of all for students who cannot sweat, move or communicate distress easily; surface and equipment checks before play; supervision ratios matched to risk; and an emergency routine for the sports field identical in structure to the school's general plan — first-aid kit and emergency contacts pitch-side, a named first-aider, and a clear route for an ambulance. Students are taught their own safety

roles: to report pain, breathlessness or unusual fatigue early and to stop without shame, because the culture of 'playing through it' is precisely what a good plan must abolish for these bodies.

Step 5: Peer Support

Peer support is engineered, not hoped for. Buddy systems pair the student with trained classmates for practical assistance — guiding, retrieving, chair handling only as the student directs — organised as ordinary team-mateship so help flows in both directions across a season. Mixed-ability teams and house structures place students with impairments inside the school's competitive loyalties rather than outside them; captains are taught to use every player, and rules (such as the all-touch rule above) make that use rational. Disability-awareness preparation — honest explanation, chances to try a sports wheelchair or a bell ball, discussion led with the student's consent — converts curiosity and awkwardness into understanding, and older students can be developed as young leaders and officials, roles in which a student with a severe impairment can also serve with full status when playing roles are limited. Recognition completes the system: effort, improvement and sportsmanship by students with impairments are celebrated in assembly and on the honours board on the same terms as anyone's, because peer attitudes follow what the institution visibly values.

Step 6: Evaluation of Participation

A plan that is not evaluated decays into good intentions, so the plan builds evaluation in at three levels. Participation evaluation asks the blunt questions each term: How many students

with impairments took part, in which activities, for how many minutes, in what roles — and who is still only watching? Attendance and role records expose tokenism that enthusiasm hides. Progress evaluation returns to the assessment baselines: fitness and skill measures, personal-best records and goal reviews show whether the physical aims are being met, and student self-records (simple training and enjoyment logs) keep the student's own verdict in the data. Experience evaluation gathers views — short termly feedback from the participating students, peers and parents about enjoyment, fairness of rules, functioning of equipment and feelings of belonging — and the plan's team (PE lead, special education teacher, administration) meets termly to act on all three levels: adjusting adaptations, replacing failed equipment, reclassifying groups, setting new goals. An annual report to school leadership summarises participation rates, achievements, incidents and needs, making inclusive sport a governed part of the school rather than one teacher's hobby. Evaluation closes the loop back to Step 1: this term's evidence becomes next term's assessment.

Conclusion

Inclusive sport does not happen by opening the gate of an unchanged programme; it is designed. Assess abilities honestly, adapt equipment until bodies and kit fit each other, modify rules the smallest amount that makes competition real, bind the whole in condition-specific safety, organise peers into genuine team-mates, and evaluate participation, progress and experience term by term. Followed as a cycle, this plan gives students with physical and health impairments what sport gives every child — fitness, friendship, contest and pride — and gives the school a playing field that finally matches its inclusive classroom.