



RRB JE 2025 CBT-2 Civil

Junior Engineer · Civil Engineering · CEN 05/2025 · CBT-2 · Technical Abilities · Question Paper

English

Complete Paper · 100 Questions · Technical Abilities Section · Official Answer Key

About this Compilation

This booklet contains the complete question paper of the **RRB JE 2025 CBT-2 (Civil Engineering)** examination in **English** (**Technical Abilities** section only), with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

How to use

- Use the **Index** page to jump directly to any set (clickable).
- Questions appear section by section in the order of the paper, numbered 1 onward.
- Diagram and wide-table questions appear at full width at the end of their section.
- The correct answer is highlighted in green with a tick.

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Set 1

02 Jul 2026

9:00 AM - 11:00 AM

Technical Abilities

100 Questions • Answer Key

Q1 Technical Abilities

Which layer of soil is compacted to increase its bearing strength and reduce settlement in construction work?

- A. Base layer
- B. Topsoil layer
- C. Subgrade layer
- D. Surface layer



Q2 Technical Abilities

The fineness of cement is generally expressed in terms of specific surface, which is measured in:

- A. $\text{cm}^2\text{-g}$
- B. $\text{m}^2\text{-g}$
- C. m^2/kg
- D. kg/cm^2



Q3 Technical Abilities

Which type of stone is laid with its length perpendicular to the face of the wall so that it extends into the thickness of the wall in stone masonry?

- A. Stretcher
- B. Header
- C. Bed
- D. Tail



Q4 Technical Abilities

As per Indian Railways standards, what is the degree of curvature for a railway curve with a radius of 875 m?

- A. 1°
- B. 4°
- C. 2°
- D. 3°



Q5 Technical Abilities

Which statement correctly distinguishes administrative approval from technical sanction in civil engineering estimation?

- A. Administrative approval authorizes procurement, while technical sanction approves staffing requirements
- B. Administrative approval accepts project necessity, while technical sanction verifies design and estimates
- C. Administrative approval checks material quality, while technical sanction determines project duration
- D. Administrative approval controls work execution, while technical sanction manages contractor payments



Q6 Technical Abilities

For compression members, the I-section is preferred because it ____.

- A. is more flexible compared to other sections
- B. has a lower weight for the same strength
- C. has better resistance to lateral-torsional buckling
- D. requires more material to provide equivalent strength



Q7 Technical Abilities

According to Euler's theory, the design load for a column depends on:

- A. The column's length and radius of gyration
- B. The moment of inertia and shear stress
- C. The bending moment applied at the column's base
- D. The material's ultimate tensile strength



Q8 Technical Abilities

Which modelling method in CAD is used for creating and manipulating the external, visible surfaces of a 3D object, focusing on the shape, aesthetics, and form rather than its internal structure?

- A. Surface modelling
- B. Solid modelling
- C. Isometric projection
- D. Parametric modelling



Q9 Technical Abilities

Which statement best describes the primary structural function of pile caps in foundation systems?

- A. Distributing structural loads among supporting piles ✓
- B. Protecting exposed pile surfaces from environmental damage
- C. Providing waterproof protection around foundation piles
- D. Connecting foundation piles directly to floor beams

Q10 Technical Abilities

Which of the following automatic rain gauges gives a continuous graph of rainfall vs. time?

- A. Float type recording gauge ✓
- B. Tipping bucket gauge
- C. Symons gauge
- D. Non-recording gauge

Q11 Technical Abilities

Which type of engineering contract involves payment for actual quantities of work done at agreed rates?

- A. Cost-plus contract
- B. Turnkey contract
- C. Lump sum contract
- D. Item rate contract ✓

Q12 Technical Abilities

In considering thermosetting plastics versus thermoplastics for a high-heat application, which type should be chosen and why?

- A. Thermoplastics, because they are heat resistant
- B. Thermosetting plastics, because they get remoulded upon heating
- C. Thermoplastics, because they do not soften on heating
- D. Thermosetting plastics, because they do not soften on heating ✓

Q13 Technical Abilities

What is the primary risk of placing concrete in cold weather?

- A. Higher heat of hydration
- B. Increased setting time ✓
- C. Increased air content
- D. Increased hydration rate

Q14 Technical Abilities

What is an effective way to limit settlement due to subsoil moisture movement?

- A. Increasing the height of the masonry wall structure
- B. Adding additional reinforcement within the foundation system
- C. Reducing the thickness of the foundation wall structure
- D. Providing plinth protection and proper compaction ✓

Q15 Technical Abilities

Which of the following is a direct health effect of prolonged exposure to high levels of noise pollution?

- A. Improved memory
- B. High blood pressure ✓
- C. Increased appetite
- D. Skin irritation

Q16 Technical Abilities

How does a barrage differ from a dam?

- A. A dam controls only floods, while a barrage is used for irrigation.
- B. A barrage is used for hydroelectric power generation, whereas a dam is not.
- C. A dam is always smaller in height compared to a barrage.
- D. A barrage regulates river flow using gates, while a dam stores water in a reservoir. ✓

Q17 Technical Abilities

In a micro-optic theodolite, the optical path used for reading angles is typically:

- A. Optical and magnified via micrometer eyepiece ✓
- B. Interferometric
- C. Satellite via micrometer eyepiece
- D. Manual and scale-based

Q18 Technical Abilities

In urban planning, GIS is commonly used to:

- A. analyse traffic patterns and optimise signal timings ✓
- B. determine the color scheme of buildings
- C. measure the weight of vehicles directly
- D. calculate the cost of concrete per cubic meter



Q19 Technical Abilities

What is the importance of the narrower bottom in oval-shaped sewers during low-flow conditions?

- A. Reduced construction cost
- B. Enhanced structural strength
- C. Maintained higher flow velocity ✓
- D. Easier maintenance access

Q20 Technical Abilities

During a rapid field test for identifying fine-grained soil, a wetted sample is shaken vigorously in the palm of the hand. If the surface quickly becomes glossy or wet (exhibits 'quicker' behavior), and the gloss disappears immediately upon squeezing the sample, which soil type is the sample most likely to be?

- A. Highly plastic clay (CH)
- B. Lean clay (CL)
- C. Organic clay (OH)
- D. Inorganic silt (ML) ✓

Q21 Technical Abilities

In fluid mechanics, zero absolute pressure corresponds to which condition?

- A. Superheated steam
- B. Perfect vacuum ✓
- C. Atmospheric pressure
- D. Gauge pressure

Q22 Technical Abilities

A door designed with inclined slats to permit ventilation while restricting direct visibility is classified as which type?

- A. Collapsible door
- B. Louvered door ✓
- C. Panel door
- D. Flush door

Q23 Technical Abilities

In a multi-story portal frame, how does increasing the number of stories affect the moment distribution in the frame?

- A. The moment at the base of the frame decreases as more stories are added
- B. The moments in the lower stories increase, while the upper stories experience lesser moments ✓
- C. The moments are uniformly distributed across all stories
- D. The number of stories does not affect the moment distribution

Q24 Technical Abilities

The amber signal in traffic control is meant to:

- A. Indicate that vehicles must continue moving without interruption for same movement
- B. Indicate that crossing traffic has the right of way
- C. Indicate transition between stop and go, warning drivers to clear or prepare to stop ✓
- D. Function as a flashing warning light during off-peak hours

Q25 Technical Abilities

Which of the following RCC elements transfers the Floor finish load to supporting beams?

- A. Parapet wall
- B. Lintel
- C. Slab ✓
- D. Column

Q26 Technical Abilities

In energy recovery systems, which of the following pollutants is/are carefully monitored due to health hazards during incineration?

- A. Oxygen
- B. Dioxins ✓
- C. Methane
- D. Nitrogen

Q27 Technical Abilities

Which of the following flooring is most suitable for a luxurious appearance in a high-end hotel lobby?

- A. Cement concrete flooring
- B. Marble flooring ✓
- C. PVC flooring
- D. Linoleum flooring



Q28 Technical Abilities

The cut section in the method of sections must satisfy which of the following conditions? (Consider that not more than two members are meeting at a joint.)

- A. It should pass through at least four members.
- B. It should pass through at most three members of a truss. ✓
- C. It should be taken only at the midpoint of the truss.
- D. It should be made parallel to the support reactions.

Q29 Technical Abilities

The minimum slope for an accessible ramp as per most building codes is ____.

- A. 1 : 20
- B. 1 : 25
- C. 1 : 12 ✓
- D. 1 : 15

Q30 Technical Abilities

A drafter needs to create a parallel copy of an existing line at a specified distance while keeping the original line unchanged. Which AutoCAD command is most suitable for this task?

- A. Stretch
- B. Extend
- C. Offset ✓
- D. Break

Q31 Technical Abilities

In disaster management, GIS plays an important role mainly because it:

- A. calculates settlement in shallow foundations for hazard mapping
- B. determines tensile strength of steel reinforcement for hazard mapping
- C. integrates spatial and attributes data for hazard mapping ✓
- D. measures permeability of soil samples for hazard mapping

Q32 Technical Abilities

The primary function of the switch rails in a turnout is to:

- A. Maintain proper gauge
- B. Provide structural stability
- C. Provide a smooth passage through the crossing
- D. Guide wheels from main line to turnout line ✓

Q33 Technical Abilities

Which of the following sets of details is typically shown in a building section drawing?

- A. Location of furniture, electrical switch positions, drainage lines, and door numbers
- B. Site boundaries, north direction, plot dimensions, and road access information
- C. Plinth height, storey heights, thickness of walls, and sizes of structural members ✓
- D. Carpet area, number of rooms, exterior color, and type of flooring used

Q34 Technical Abilities

The short piece that connects the ledger to the structure itself in single-frame scaffolding is called ____.

- A. Brace
- B. Guardrail
- C. Putlog ✓
- D. Toe board

Q35 Technical Abilities

Which type of soil requires deeper excavation to avoid structural damage due to swelling and shrinkage?

- A. Loamy soil
- B. Black cotton soil ✓
- C. Sandy soil
- D. Gravelly soil

Q36 Technical Abilities

When reactions are found graphically for a simply supported beam with vertical point loads, the length of the reaction vector is proportional to:

- A. The magnitude of reaction force at the support ✓
- B. The beam's deflection at mid span
- C. The span length of the beam only
- D. The distance between loads

Q37 Technical Abilities

Which material is preferred for railway track ballast?

- A. Crushed stone ✓
- B. Sand
- C. Lime
- D. Gravel



Q38 Technical Abilities

The maximum stress induced in a member is always:

- A. zero in tension
- B. greater than or equal to the average stress ✓
- C. less than the average stress
- D. equal to the minimum stress

Q39 Technical Abilities

A body is resting on a rough inclined plane. If the frictional force is equal to the component of weight along the plane, the body is in:

- A. uniform motion
- B. free fall
- C. equilibrium ✓
- D. acceleration

Q40 Technical Abilities

Which of the following best explains why timber with straight grains is often preferred for structural use?

- A. Straight grains reduce the weight of the timber.
- B. Straight grains provide uniform strength. ✓
- C. Straight grains make the timber more flexible.
- D. Straight grains increase the hardness significantly.

Q41 Technical Abilities

What is a common shape of steel fibers used in fiber-reinforced concrete?

- A. Cylindrical
- B. Hooked-end ✓
- C. Cubic
- D. Round

Q42 Technical Abilities

As per IRC:SP:90-2010, the minimum vertical clearance requirement for road underpasses is:

- A. 4.5 m in all cases
- B. 5.0 m in general and 5.5 m in urban areas ✓
- C. 6.25 m above railway track level
- D. 3.5 m for minor roads only

Q43 Technical Abilities

The assumption in pure bending that plane sections remain plane after bending leads to which stress distribution?

- A. Exponential stress variation
- B. Uniform stress throughout the depth
- C. Linear stress variation ✓
- D. Parabolic stress variation

Q44 Technical Abilities

A summit curve is provided on a road profile where:

- A. Two ascending gradients intersect smoothly
- B. An ascending gradient meets a falling one ✓
- C. Two descending gradients come together
- D. A descending gradient meets a level section

Q45 Technical Abilities

If the calculated nominal shear stress τ_v in a reinforced concrete beam exceeds the maximum permissible shear stress in concrete $\tau_{c,max}$ as per IS 456:2000, what is the appropriate course of action?

- A. Provide additional shear reinforcement only
- B. Increase the beam width only
- C. Increase the effective depth of the beam or redesign the section ✓
- D. Use a lower grade of concrete to reduce stress

Q46 Technical Abilities

Which equipment is most suitable for tunnel excavation in medium-strength rock where precise profiling is required?

- A. Tunnel Boring Machine (TBM) ✓
- B. Explosives
- C. Dragline excavator
- D. Hydraulic hammer

Q47 Technical Abilities

Which of the following is a limitation of the Direct Shear Test?

- A. The failure plane is predetermined and may not be the weakest plane in the soil specimen. ✓
- B. It can only be used for clayey soils and not for sandy soils.
- C. It requires a very long time to conduct, making it unsuitable for quick analysis.
- D. The test cannot measure shear strength parameters like cohesion and angle of internal friction.



Q48 Technical Abilities

Removal of topsoil, grading to formation level, and forming cuttings or embankments during earthworks is most effectively carried out using which of the following equipment?

- A. Pile driver
- B. Tractor shovel with a 4-in-1 bucket ✓
- C. Tower crane
- D. Concrete mixer

Q49 Technical Abilities

What is the primary purpose of pressure grouting in building foundation treatment work?

- A. Applying protective surface coating for improving appearance of foundation surfaces
- B. Increasing thermal insulation performance within external foundation wall assemblies
- C. Improving soil strength and reducing water penetration below foundation structures ✓
- D. Supporting internal wall finishes against mechanical damage during building service

Q50 Technical Abilities

A louvered door is ideal for which type of location within a building?

- A. Emergency exit
- B. Main entrance
- C. Laundry room ✓
- D. Garage door

Q51 Technical Abilities

As per IS 17953 : 2023 (uPVC Profiles for Windows and Doors — Specification), for the determination of resistance to weathering, the range of the radiant exposure wavelength used is _____.

- A. 150 nm to 300 nm
- B. 200 nm to 500 nm
- C. 50 nm to 150 nm
- D. 300 nm to 800 nm ✓

Q52 Technical Abilities

A water pipe has a smooth interior. Over the time, scaling increases the roughness. What happens to the frictional head loss for the same flow rate?

- A. Remains same
- B. Increases ✓
- C. Decreases
- D. Becomes zero

Q53 Technical Abilities

In a building drawing, a sectional elevation is prepared by imagining a vertical cut through the structure from top to bottom. Which additional information is mainly obtained from a sectional elevation compared to a front elevation?

- A. External appearance of walls, front architectural style, and side view details
- B. Plot boundaries, setback distances, and site alignment details
- C. Cut portions of structural elements, plinth levels, and foundation details ✓
- D. Location of rooms, circulation passages, and furniture arrangement details

Q54 Technical Abilities

In a homogenous and prismatic continuous beam under uniformly distributed load, the bending moment at an intermediate support is:

(Consider that the length of each intermediate span measures the same.)

- A. zero
- B. equal to the midspan moment
- C. hogging ✓
- D. sagging

Q55 Technical Abilities

Which roof type is most suitable for covering spans greater than 9 m?

- A. King post truss
- B. Aisle Roof
- C. Queen post truss ✓
- D. Couple Roof



Q56 Technical Abilities

Pipes of different diameters and lengths connected end to end to form a pipe line are called _____.

- A. Branched pipes
- B. Equivalent pipes
- C. Compound pipes ✓
- D. Pipes in parallel

Q57 Technical Abilities

In a reinforced concrete beam, the development length is provided to prevent _____.

- A. slipping of reinforcement ✓
- B. crushing of concrete
- C. torsional failure
- D. excessive deflection

Q58 Technical Abilities

Which of the following is the function of a head regulator in a barrage?

- A. To serve as one side wall of fish ladder
- B. To admit water into the off taking canal ✓
- C. To prevent erosion of riverbanks
- D. To prevent the river from outflanking the barrage

Q59 Technical Abilities

During maintenance, a valve in a water supply system needs to be shut. To avoid water hammer, the valve should be:

- A. Closed immediately
- B. Closed gradually ✓
- C. Left open
- D. Closed halfway

Q60 Technical Abilities

Higher water absorption in coarse aggregates indicates:

- A. higher durability of concrete
- B. increased workability of concrete
- C. higher porosity and lower strength ✓
- D. better bonding with cement

Q61 Technical Abilities

A uniform bar is heated uniformly but prevented from expanding in any direction. What type of internal stress develops as a result?

- A. Compressive stress ✓
- B. Bending stress
- C. No stress
- D. Tensile stress

Q62 Technical Abilities

Which of the following is a necessary condition for plane table surveying?

- A. All the stations must be established on a slope of the terrain
- B. The plane table must be levelled and properly oriented at each station ✓
- C. Contours must be measured and plotted before starting the survey
- D. Only a single station is required for the entire survey

Q63 Technical Abilities

The primary purpose of a seal coat in bituminous pavement construction is to:

- A. strengthen the granular base
- B. provide skid resistance and waterproofing ✓
- C. replace the bituminous binder layer
- D. improve the compaction of subgrade soil

Q64 Technical Abilities

Which of the following types of flooring is preferably used in dancing halls and in auditoriums?

- A. Ceramic Tile flooring
- B. Timber Flooring ✓
- C. Brick Flooring
- D. Porcelain Tile flooring

Q65 Technical Abilities

In the context of brick masonry, what distinguishes modular bricks from traditional bricks?

- A. Traditional bricks are produced in larger standard sizes
- B. Traditional bricks are manufactured using lightweight materials
- C. Modular bricks are produced with standardized dimensions ✓
- D. Modular bricks are manufactured mainly by manual methods



Q66 Technical Abilities

What is the recommended sequence for setting CAD software on a computer without operating system (OS)?

- A. Download drawing - Start drawing - Install CAD
- B. Install OS - Install CAD software - Configure settings ✓
- C. Launch Software - Install key drivers - Install OS
- D. Create layers - Save file - Install OS

Q67 Technical Abilities

Identify the correct statement(s) about a change point in a levelling operation.

Statement I : It is also known as turning point.

Statement II : The plus sight is taken on the change point on one set of instrument to ascertain the elevation of the point.

Statement III : The minus sight is taken on the change point to establish the new height of the instrument.

- A. Statement I and II only
- B. Statement III only
- C. Statement I and III only ✓
- D. Statement I only

Q68 Technical Abilities

Which of the following is NOT a type of clay tile for roofing?

- A. Mangalore pattern tile
- B. Spanish tile
- C. Allahabad tile
- D. Terracotta Jali ✓

Q69 Technical Abilities

In geometric design of highways, while on rolling terrain, design speeds are generally:

- A. Higher than plain terrain
- B. Unrelated to terrain type
- C. Same as mountainous terrain
- D. Lower than plain terrain ✓

Q70 Technical Abilities

Which method is primarily used to fill cracks, voids, and fissures in loose gravels and rocky strata?

- A. Gunting
- B. Cavity wall construction
- C. Grouting ✓
- D. Surface treatment

Q71 Technical Abilities

In soil mechanics, the seepage velocity is related to the discharge velocity and porosity of the soil. Which of the following statements is correct?

- A. Seepage velocity is independent of soil porosity.
- B. Seepage velocity is equal to discharge velocity multiplied by porosity.
- C. Seepage velocity is always less than discharge velocity.
- D. Seepage velocity is equal to discharge velocity divided by porosity. ✓

Q72 Technical Abilities

Which of the following advanced technologies is commonly used to ensure uniform compaction of concrete in modern construction projects?

- A. Vibratory compaction equipment ✓
- B. High-pressure water jets
- C. Laser levelling devices
- D. Manual tamping methods

Q73 Technical Abilities

Which of the following correctly represents the concrete contribution to shear strength V_c in Limit State Method (LSM) design?

- A. V_c is calculated based on concrete grade (f_{ck}) ✓
- B. V_c is always taken equal to the total applied shear force
- C. V_c depends only on the tensile strength of concrete
- D. V_c is neglected entirely in shear design

Q74 Technical Abilities

Which type of glass is commonly used in doors and windows?

- A. Borosilicate glass
- B. Lead glass
- C. Flint glass
- D. Soda-lime glass ✓



Q75 Technical Abilities

The layout for substructure work must consider nearby underground based utilities because:

- A. They make excavation operations easier on site
- B. Existing underground services may get damaged during excavation ✓
- C. They reduce need for detailed site survey work during excavation
- D. They improve overall appearance of building layout during excavation

Q76 Technical Abilities

Which layer prevents leachate migration in landfills?

- A. Impermeable Liner ✓
- B. Gas Vent
- C. Waste Layer
- D. Soil Cover

Q77 Technical Abilities

Which is the most appropriate definition of the origin point in an AutoCAD 2D co-ordinate system?

- A. Effective diameter of the cursor on screen
- B. Measured distance from a fixed reference point
- C. Measured distance from the cursor to previous location
- D. 0,0 location ✓

Q78 Technical Abilities

For a symmetrical channel section with a moment of inertia $I_{xx} = 9.45 \times 10^7 \text{ mm}^4$ and an area $A = 4500 \text{ mm}^2$, what is its radius of gyration k_{xx} ?

- A. 116.34 mm
- B. 175.48 mm
- C. 159.56 mm
- D. 144.92 mm ✓

Q79 Technical Abilities

Which of the following should be minimized in the design of a tension member?

- A. Gross sectional area
- B. Net sectional area
- C. Deduction for rivet and bolt holes ✓
- D. Allowable stress in tension

Q80 Technical Abilities

Which type of shoring is used when a building needs to be temporarily supported due to excavation nearby?

- A. Dead shoring
- B. Flying shoring
- C. Raking shoring ✓
- D. Underpinning

Q81 Technical Abilities

The quantity estimation of structural timber work (wooden beams) is generally calculated based on:

- A. Volume of timber used ✓
- B. Floor area of building
- C. Number of rooms
- D. Weight of timber used

Q82 Technical Abilities

Which of the following is the non-recording type of rain gauge prescribed by the India Meteorological Department?

- A. Weighted bucket rain gauge
- B. Tipping bucket rain gauge
- C. Symon's rain gauge ✓
- D. Float type rain gauge

Q83 Technical Abilities

Which of the following is an essential component commonly included in a construction tender document?

- A. Technical specifications describing project requirements ✓
- B. Financial records of all participating contractors
- C. Project drawings prepared without technical specifications
- D. Promotional brochures issued for project advertisement

Q84 Technical Abilities

A simply supported beam has a span of 6 m with an overhang of 4 m. A uniformly distributed load (UDL) of 6 kN/m acts over the overhang length of 4 m. What is the reaction at the nearest support?

- A. 32 kN ✓
- B. 6 kN
- C. 10 kN
- D. 24 kN



Q85 Technical Abilities

With respect to shear strength of soils, refer to the following Assertion and Reason and select the correct statement from the options given.

Assertion (A): For cohesionless soils, the failure does not occur on the plane of maximum shear stress.

Reason (R): Failure in soil takes place due to shear failure when compressive load is applied.

- A. A is true and R is false.
- B. A is false and R is true.
- C. Both A and R are true and R is not the correct explanation of A. ✓
- D. Both A and R are true and R is the correct explanation of A.

Q86 Technical Abilities

Under which of the following types of the dampness-checking materials categories, does cement concrete fall?

- A. grout
- B. flexible
- C. temporary
- D. rigid ✓

Q87 Technical Abilities

The bending moment diagram (BMD) for a simply supported beam carrying a uniformly distributed load over its entire span is:

- A. rectangular in shape
- B. triangular in shape
- C. parabolic in shape ✓
- D. linear in shape

Q88 Technical Abilities

Soda-lime glass is predominantly utilised in architectural construction for:

- A. structural load-bearing components
- B. fire-resistant partitions
- C. thermal insulation boards
- D. transparent window panes and glazing ✓

Q89 Technical Abilities

Which of the following statements is NOT correct about working drawings?

- A. They are detailed drawings of the building.
- B. They are fully dimensioned.
- C. They do not include schedule of openings. ✓
- D. They are drawn to a suitable scale.

Q90 Technical Abilities

The property of timber which enables it to absorb sudden shocks or impact loads is called _____.

- A. Tenacity
- B. Elasticity
- C. Hardness
- D. Toughness ✓

Q91 Technical Abilities

Which of the following types of welds is primarily designed to transmit shear forces in a connection?

- A. Fillet weld ✓
- B. Slot weld
- C. Groove weld
- D. Butt weld

Q92 Technical Abilities

According to IS 1892:2021, for a compact building site of about 0.4 hectare area, what is the recommended minimum number and location of boreholes or test pits for soil investigation?

- A. Boreholes spaced uniformly every 50 meters over the site
- B. One borehole or test pit at the center of the site only
- C. One borehole or test pit at each corner and one at the center ✓
- D. At least ten boreholes evenly spaced regardless of site size

Q93 Technical Abilities

The friction factor used in geometric design of highways is provided by the:

- A. Indian Road Congress (IRC) ✓
- B. National Highways Authority
- C. Bureau of Indian Standards (BIS)
- D. Ministry of Railways



Q94 Technical Abilities

Which types of piles are typically used in areas with expansive soils?

- A. Sheet piles
- B. Friction piles
- C. Screw piles
- D. Under-reamed piles** ✓

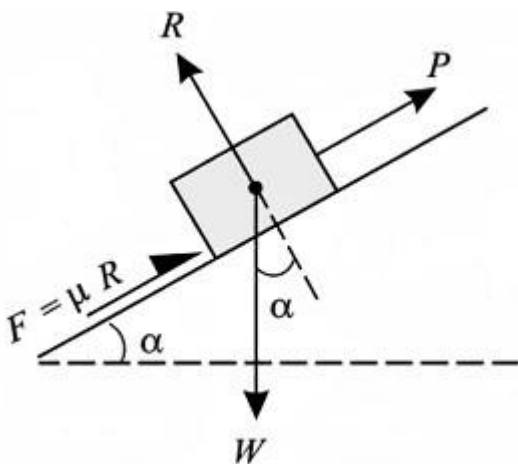
Q95 Technical Abilities

_____ formwork is used for continuous vertical structures like chimneys, silos, and towers.

- A. Timber
- B. Plastic
- C. Slip** ✓
- D. Steel

Q97 Technical Abilities

A block of weight (W) rests on a rough inclined plane with an angle of inclination α shown in the figure. The coefficient of friction between the block surface and the plane is μ , R is the normal reaction perpendicular to the inclined plane. A force (P) is applied parallel to the plane to prevent the block from sliding down. Which of the following represents the minimum value of (P) required to maintain equilibrium?



- A. $P = W (\cos \alpha - \tan \alpha)$
- B. $P = W (\sin \alpha - \mu \cos \alpha)$** ✓
- C. $P = W (\sin \alpha + \mu \cos \alpha)$
- D. $P = W (\cos \alpha - \mu \sin \alpha)$

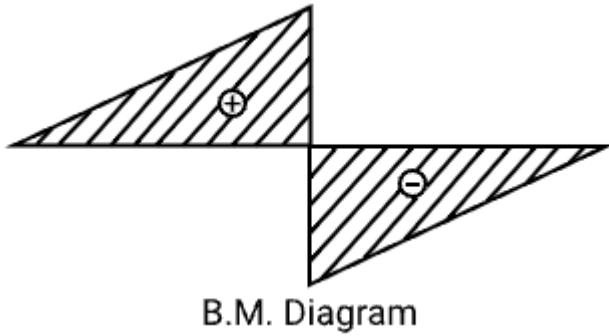
Q96 Technical Abilities

Which combination of factors is most likely to result in cracks due to shrinkage in plaster?

- A. Thin coat with slow drying conditions
- B. Application of thick coat and rapid drying** ✓
- C. Thin coat and moist curing process
- D. Thick coat with slow drying conditions

Q98 Technical Abilities

The following bending moment diagram corresponds to a simply supported beam. The diagram shows a sudden jump (discontinuity) in bending moment at a point between the supports. Which of the following loading conditions produces this type of bending moment diagram?



- A. A concentrated load acting at the midpoint of the beam
- B. Equal and opposite vertical forces acting at the supports
- C. A couple acting at a point between the supports
- D. A uniformly distributed load acting over the entire span



Q99 Technical Abilities

Which material in section is represented by the hatch shared below as per IS 982 (1989)?



- A. Wood
- B. Earth
- C. Brick
- D. Concrete



Q100 Technical Abilities

For a column with both ends hinged (pinned–pinned), the effective length L_{eff} is _____ times the actual length of the column.

- A. equal to 2
- B. equal to 1
- C. equal to 1.5
- D. equal to 0.5

