Sub-Divisional Officer (SDO) / Assistant Director (Civil) (BPS-17) — 2025 · Solved Past Paper

Body: Balochistan Public Service Commission (BPSC) · **Post:** Sub-Divisional Officer (SDO) / Assistant Director (Civil) (BPS-17) · **Year:** 2025 · **Questions:** 70 in the original paper — **67 solved and verified**, 3 excluded as defective (Q16, Q48, Q61) · **Price:** Free

> **How to use this paper:** each question shows the stem, the four options, and the correct answer. Click “Why each option?” under a question to see all four options explained — one question teaches four topics. General Knowledge answers are as of the 2025 sitting.

Source note: testpointpk reproduction, 'BPSC SDO, AD Civil Past Paper 27-05-2025' (70 items, served order Q1–Q70) primary; Q70 corroborated by the AskFilo BPSC SDO / Assistant Director (Civil) (B-17) solutions page. 4 printed keys corrected openly (including Q2: a pit collecting water for removal is a sump, not a slump, corrected to D None of these; Q13: under IS 456 the beam section must be changed above 20 kg/cm2 shear stress, not 15). 3 DEFECTIVE-excluded (Q16: no option states Terzaghi's bearing-capacity equation; Q48: 1 km = 3,280.84 ft, no option correct; Q61: concrete cover options fall below the IS 456 minimum, no option correct). All decisions by the assistant under the owner's 8 Nov 2026 delegation.

Question 1 Physics

In a transverse wave, the distance between two successive/adjacent crests or troughs of a wave is called _____?

- A. Frequency

- C. Velocity
- D. Wavelength ✓ **Correct answer**

A. Wrong: frequency is the number of waves passing a point per second, not a distance.

B. Wrong: amplitude is the maximum displacement of a particle from its mean position, not the crest-to-crest distance.

C. Wrong: velocity is the speed at which the wave travels, not a distance between crests.

D. Correct: the wavelength is the distance between two successive crests (or two successive troughs) of a wave.

Question 2 Civil Engineering

A pit designed to collect water for removal from an excavation or basement?

- A. Pond
- B. Slump
- C. Eaze
- D. None of these ✓ **Correct answer**

A. Wrong: a pond is a standing body of water, not a pit dug to collect water for pumping out.

B. Wrong: slump is the settlement measured in the concrete slump test (workability), not a pit — this is the printed key, and it is wrong (see verification summary).

C. Wrong: "Eaze" is not a civil engineering term for such a pit.

D. Correct: the pit described is a SUMP (a sump pit), which collects water so a pump can remove it — and "sump" is not among the options, so "None of these" is the only correct choice. Printed-key correction: testpointpk keys B 'Slump'; corrected to D 'None of these' (see verification summary).

3 Fluid Mechanics

To guard against water hammer _____ are built.

- A. Spillway
- B. Sluice gate
- C. Surge tank ✓ **Correct answer**
- D. None of these

A. Wrong: a spillway passes surplus water over or around a dam; it does not absorb pressure surges in a pipeline.

B. Wrong: a sluice gate controls flow in a channel; it does not cushion water hammer.

C. Correct: a surge tank is a reservoir connected to a pipeline or penstock that absorbs the sudden pressure rise (water hammer) when flow is stopped or changed quickly.

D. Wrong: a surge tank is among the options and is correct.

Question 4 Building Materials

Expanded volcanic glass, used as a lightweight aggregate in concrete and plaster and as an insulating fill?

- A. Granite
- B. Fly ash
- C. Perlite ✓ **Correct answer**
- D. None of the above

A. Wrong: granite is a dense igneous rock used as coarse aggregate and stone; it is not expanded volcanic glass.

B. Wrong: fly ash is a fine powder from coal burning, used as a pozzolana in concrete; it is not expanded volcanic glass.

C. Correct: perlite is a volcanic glass that expands greatly when heated, giving a light,

egate used in lightweight concrete and plaster and as insulating fill.

D. Wrong: perlite is among the options and is correct.

Question 5 Strength of Materials

A rod 500 cm long is subjected to an axial pull due to which it elongates about 10 mm. Calculate the amount of strain?

- A. 0.2
- B. 0.1
- C. 0.002 ✓ **Correct answer**
- D. None of these

A. Wrong: 0.2 would mean the rod stretched by a fifth of its length (1,000 mm), not 10 mm.

B. Wrong: 0.1 would mean a stretch of 500 mm, far more than 10 mm.

C. Correct: strain = elongation / original length = 10 mm / 5,000 mm (500 cm) = 0.002.

D. Wrong: 0.002 is among the options and is correct.

Question 6 Physics

When friction is introduced in the force it is called _____ and as a result energy in form of heat is released.

- A. Parallel
- B. Unconservative ✓ **Correct answer**
- C. Conservative
- D. None of these

A. Wrong: "parallel" describes forces acting in the same direction; it has nothing to do with friction dissipating energy.

iction is a non-conservative (printed "Unconservative") force — the work it does depends on the path, and the mechanical energy lost appears as heat.

C. Wrong: a conservative force (like gravity) stores its work as potential energy with no loss; friction does the opposite.

D. Wrong: the non-conservative force is among the options and is correct.

Question 7 Physics

In neutral equilibrium system the potential energy of the system is _____?

- A. Constant ✓ **Correct answer**
- B. Minimum
- C. Maximum
- D. Any of the above

A. Correct: in neutral equilibrium the potential energy does not change when the system is displaced — it stays constant, so the system stays where it is put.

B. Wrong: minimum potential energy is the mark of STABLE equilibrium, not neutral.

C. Wrong: maximum potential energy is the mark of UNSTABLE equilibrium, not neutral.

D. Wrong: only "constant" describes neutral equilibrium.

Question 8 Structural Analysis

A beam is attached with three fix supports, what will be the degree of indeterminacy of the beam?

- A. 9
- B. 3
- C. 6 ✓ **Correct answer**
- D. None of these

is the total number of reactions at three fixed supports (3 each), not the degree of indeterminacy — the three equilibrium equations must be subtracted.

B. Wrong: 3 is the number of equilibrium equations for a beam in a plane, not the indeterminacy.

C. Correct: three fixed supports give 3 × 3 = 9 reactions; minus the 3 equilibrium equations, the beam is indeterminate to the 6th degree.

D. Wrong: 6 is among the options and is correct.

Question 9 Strength of Materials

_____ has highest Poisson's ratio? Copper, Rubber, Steel, Cast iron

- A. Copper
- B. Rubber ✓ **Correct answer**
- C. Steel
- D. Cast iron

A. Wrong: copper's Poisson's ratio is about 0.34, well below rubber's.

B. Correct: rubber has a Poisson's ratio of about 0.49–0.50, the highest of the four — it is nearly incompressible, so it bulges sideways almost as much as it is squeezed.

C. Wrong: steel's Poisson's ratio is about 0.28–0.30, well below rubber's.

D. Wrong: cast iron's Poisson's ratio is about 0.21–0.26, the lowest of the four.

Question 10 Urban Planning

Downtown area refers to the place where most of the _____ takes place.

- A. Offices
- B. Commercial activity ✓ **Correct answer**
- C. Residential activity

A. Wrong: offices are part of a downtown, but the defining activity is commerce in general, not offices alone.

B. Correct: a downtown (central business district) is where most of a city's commercial activity — shops, markets, banks, trade — takes place.

C. Wrong: downtowns are commercial cores; housing is mainly in the suburbs and residential districts.

D. Wrong: commercial activity dominates downtown; residential activity does not, so "all" cannot be right.

Question 11 Geotechnical Engineering

_____ method is the best method for drainage of fine grained soil.

- A. Electro-osmosis ✓ **Correct answer**
- B. Deep well
- C. Vacuum
- D. None of these

A. Correct: in fine-grained soils (clays and silts) water will not flow under gravity, but an electric current drives water from anode to cathode (electro-osmosis), so it is the standard method for draining such soils.

B. Wrong: deep wells dewater coarse, permeable soils; they are ineffective in fine-grained clay.

C. Wrong: vacuum dewatering (wellpoints) suits silty sands, not fine clays.

D. Wrong: electro-osmosis is among the options and is correct.

12 Building Materials

_____ cement is used in coastal areas, mines and canal linings.

- A. Blast furnace slag cement
- B. Low heat cement
- C. Sulphate resistant cement ✓ **Correct answer**
- D. None of these

A. Wrong: slag cement resists sulphates to a degree, but it is not the cement specified for sulphate attack in coastal and canal work.

B. Wrong: low heat cement is chosen for mass concrete (dams) to limit heat of hydration, not for sulphate resistance.

C. Correct: coastal soils and water, mine water and canal linings carry sulphates that attack ordinary cement; sulphate-resisting cement (low C3A) is made for exactly that exposure.

D. Wrong: sulphate resistant cement is among the options and is correct.

Question 13 RCC Design

Dimensions of beam is changed if the shear stress is more than _____ kg/cm^2.

- A. 25
- B. 20 ✓ **Correct answer**
- C. 15
- D. None of these

A. Wrong: 25 kg/cm^2 is above the code limit at which the section must be changed.

B. Correct: under IS 456, if the nominal shear stress exceeds about 20 kg/cm^2 (2 N/mm^2), shear reinforcement alone is not enough and the beam's dimensions must be changed.

C. Wrong: at 15 kg/cm^2 shear reinforcement is provided, but the section need not be

his is the printed key, and it is wrong (see verification summary).

D. Wrong: 20 is among the options and is correct. Printed-key correction: testpointpk keys C '15'; corrected to B '20' (see verification summary).

Question 14 Estimation

In calculating floor area _____ % of area of balcony is included.

- A. 20
- B. 50 ✓ **Correct answer**
- C. 40
- D. None of these

A. Wrong: the standard rule counts half, not a fifth, of the balcony area.

B. Correct: in floor-area (and plinth-area) measurement, 50% of the area of an (unprotected) balcony is included in the floor area.

C. Wrong: 40% is not the rule; the rule is half.

D. Wrong: 50 is among the options and is correct.

Question 15 Highway Engineering

The most important structure of hill road is _____?

- A. Pavement material
- B. Drainage system
- C. Retaining wall ✓ **Correct answer**
- D. None of these

A. Wrong: pavement matters on every road, but it is not what makes a hill road possible.

B. Wrong: drainage is vital on hill roads, but the structure that holds the hillside and the road bench in place is the retaining wall.

n a hill road the cut hillside above and the filled slope below must both be held, and the retaining wall is the structure that does it — it is the most important structure of a hill road.

D. Wrong: a retaining wall is among the options and is correct.

Question 16 Geotechnical Engineering

Accounting to Terzaghi, the general bearing capacity equation for ultimate bearing capacity of footing qf is given by _____?

- A. c' Nc + γDNq + 0.88Nr
- B. c' Nc + γDNq + 0.58Nr
- C. c' Nc + γDNq + 0.78Nr
- D. None of these

No answer is given for this question, and none is taught. DEFECTIVE-excluded — no option is correct (DEFECTIVE-excluded)

A. Wrong: the third term of Terzaghi's equation is 0.5 γ B Nγ, not 0.88 times anything, and the footing width B is missing.

B. Wrong: the coefficient is 0.5, not 0.58, and the footing width B is missing.

C. Wrong: the printed key, but the coefficient is 0.5, not 0.78, and the footing width B is missing.

D. Tempting, because none of A–C states the equation — but "None of these" is not taught as the answer here, because the item is defective as printed: the correct equation (qf = c' Nc + γ D Nq + 0.5 γ B Nγ, Terzaghi 1943) is absent from the options, so no letter is asserted. **DEFECTIVE-excluded — decided by assistant under the owner's 8 Nov 2026 delegation.** This question must never be taught as having a single answer.

17 Building Materials

In which cement the percentage of tricalcium silicate is high?

- A. Low heat cement
- B. Rapid hardening cement ✓ **Correct answer**
- C. Sulphate resistant cement
- D. None of these

A. Wrong: low heat cement has LOW tricalcium silicate (and low tricalcium aluminate) to keep the heat of hydration down.

B. Correct: rapid hardening cement is ground finer and has a high percentage of tricalcium silicate (C3S), which hydrates fast and gives high early strength.

C. Wrong: sulphate resistant cement is low in tricalcium aluminate (C3A), not high in tricalcium silicate.

D. Wrong: rapid hardening cement is among the options and is correct.

Question 18 Estimation

Distempering and dressing is measured in _____?

- A. R m
- B. Cu m
- C. Sq m ✓ **Correct answer**
- D. None of these

A. Wrong: running metres measure length (pipes, skirting), not a surface finish.

B. Wrong: cubic metres measure volume (concrete, earthwork), not a surface finish.

C. Correct: distempering and dressing are surface finishes applied over an area, so they are measured in square metres.

D. Wrong: square metres is among the options and is correct.

19 Irrigation Engineering

The area of land that can be cultivated with a given volume of water is called _____?

- A. Hectors
- B. Delta
- C. Duty ✓ **Correct answer**
- D. None of these

A. Wrong: "Hectors" is a misprint for hectares, a unit of area — not the name for the area served by a volume of water.

B. Wrong: delta is the total depth of water required by a crop over its whole base period, not the area irrigated.

C. Correct: duty is the area of land that can be irrigated (cultivated) with a given volume (or discharge) of water, usually stated in hectares per cumec.

D. Wrong: duty is among the options and is correct.

Question 20 Project Management

The document containing the overall progress of a project with detail of each component is called _____?

- A. PC V
- B. PC II
- C. PC III ✓ **Correct answer**
- D. None of these

A. Wrong: PC-V is the project evaluation (post-completion) document, not the progress report.

B. Wrong: PC-II is the feasibility-study / survey document prepared before a project is approved.

Pakistan's planning system PC-III is the progress report, giving the overall progress of a project with the detail of each component.

D. Wrong: PC III is among the options and is correct.

Question 21 Building Materials

Commonly used oil for drying oil paints is _____?

- A. Linseed oil ✓ **Correct answer**
- B. Kerosene oil
- C. Petrol
- D. None of these

A. Correct: linseed oil is the drying oil used as the vehicle in oil paints — it oxidises and hardens on exposure to air, forming the paint film.

B. Wrong: kerosene is a fuel and a thinner/cleaner; it does not dry into a paint film.

C. Wrong: petrol evaporates quickly and is a fuel; it is not a drying oil for paint.

D. Wrong: linseed oil is among the options and is correct.

Question 22 Concrete Technology

Which concrete mix will have lesser strength in the following?

- A. 1:4:8 ✓ **Correct answer**
- B. 1:1:2
- C. 1:2:4
- D. None of these

A. Correct: 1:4:8 is the leanest mix of the three (one part cement to twelve parts aggregate), so it has the least cement and the lowest strength.

B. Wrong: 1:1:2 is a rich mix (M25 grade), the strongest of the three.

2:4 is a medium mix (M15 grade), stronger than 1:4:8.

D. Wrong: 1:4:8 is among the options and is correct.

Question 23 Surveying

The reduced bearing of 285° whole circle bearing is _____?

- A. N 75° W ✓ **Correct answer**
- B. N 45° E
- C. S 75° E
- D. None of these

A. Correct: a whole circle bearing of 285° lies in the fourth quadrant (270°–360°, north-west); the reduced bearing is N (360° − 285°) W = N 75° W.

B. Wrong: that would be a whole circle bearing of 45°, in the north-east quadrant.

C. Wrong: that would be a whole circle bearing of 105°, in the south-east quadrant.

D. Wrong: N 75° W is among the options and is correct.

Question 24 Geotechnical Engineering

The most cohesive soil in the following is _____?

- A. Compacted soil
- B. Ced earth
- C. Black cotton soil ✓ **Correct answer**
- D. None of these

A. Wrong: "compacted soil" is a condition (densified by rolling), not a soil type, and compaction alone does not make a soil the most cohesive.

B. Wrong: "Ced earth" is printed for "Red earth", a residual soil that is far less cohesive than black cotton soil.

lack cotton soil is an expansive clay (montmorillonite) with very high cohesion — it sticks together strongly, swells when wet and shrinks and cracks when dry.

D. Wrong: black cotton soil is among the options and is correct.

Question 25 Fluid Mechanics

A pitot tube is used to measure _____?

- A. Difference of pressure
- B. Velocity of flow ✓ **Correct answer**
- C. Pressure
- D. None of these

A. Wrong: a pitot tube works BY a pressure difference (stagnation minus static), but what it is used to measure is the velocity — the pressure difference is the means, not the quantity.

B. Correct: a pitot tube measures the velocity of flow (in a pipe or open channel) from the stagnation pressure it creates.

C. Wrong: a pressure gauge or manometer measures pressure directly; a pitot tube converts pressure into a velocity reading.

D. Wrong: velocity of flow is among the options and is correct.

Question 26 Traffic Engineering

A parking sign is an example of _____?

- A. Warning sign
- B. Informatory sign ✓ **Correct answer**
- C. Regulatory sign
- D. All of the above

A. Wrong: warning (cautionary) signs warn of hazards ahead (narrow bridge, bend); a

warns of nothing.

B. Correct: a parking sign tells the road user where parking is available — it gives information (like a bus-stop sign), which is the definition of an informatory sign.

C. Wrong: a regulatory (mandatory) sign imposes a rule — "NO parking" is regulatory, but a plain parking sign, showing that parking is provided, is informatory.

D. Wrong: a parking sign belongs to one class only — informatory.

Question 27 Building Materials

A glass that can change its photogenic properties is called _____?

- A. Chromogenic glass ✓ **Correct answer**
- B. Hydrogenic glass
- C. Lidigenic glass
- D. None of these

A. Correct: chromogenic glass is the general name for glass that changes its appearance (colour / light transmittance) in response to a stimulus such as light, heat or electricity; photochromic glass is one kind of it. (The stem's "photogenic" is evidently printed for "photochromic".)

B. Wrong: there is no such glazing term; hydrogen is not the stimulus that defines this glass.

C. Wrong: "Lidigenic" is not a glazing term at all.

D. Wrong: chromogenic glass is among the options and is correct.

Question 28 Physics

The Basis units in SI System are _____?

- A. Meter, gram, minute

meter, kilogram, second

- C. Meter, gram, second
- D. Meter, kilogram, second ✓ **Correct answer**

A. Wrong: the SI base units use the kilogram (not the gram) for mass and the second (not the minute) for time.

B. Wrong: the SI base unit of length is the metre, not the kilometre (a kilometre is a multiple of it).

C. Wrong: the SI base unit of mass is the kilogram, not the gram.

D. Correct: of the sets offered, only this one is made up entirely of SI base units — metre (length), kilogram (mass), second (time).

Question 29 Foundations

When the columns are of _____ sections the Trapezoidal combined footing is provided.

- A. Different ✓ **Correct answer**
- B. Square
- C. Rectangular
- D. None of these

A. Correct: a trapezoidal combined footing is provided when the two columns carry unequal loads — the footing is made wider under the heavier column so the soil pressure stays uniform; columns of different sections (carrying different loads) are the case the reproduction means. A rectangular combined footing suits equal loads.

B. Wrong: the shape of the column section (square) does not decide the footing shape; equal loads do, and they take a rectangular footing.

C. Wrong: rectangular column sections do not call for a trapezoidal footing; equal loads call for a rectangular footing.

different" is among the options and is the intended answer.

Question 30 Harbour Engineering

_____ is the artificial barrier which makes enclosed area safe for anchorage of ships.

- A. Harbor
- B. Bay
- C. Break water ✓ **Correct answer**
- D. None of these

A. Wrong: a harbour is the sheltered water area itself (with its quays and facilities), not the barrier that creates the shelter.

B. Wrong: a bay is a natural inlet of the sea, not an artificial barrier.

C. Correct: a breakwater is the artificial barrier built across the sea to break the waves and make the enclosed water safe for ships to anchor.

D. Wrong: a breakwater is among the options and is correct.

Question 31 Geotechnical Engineering

The size of mold in Proctor compaction test is _____?

- A. 944cm^3 ✓ **Correct answer**
- B. 911cm^3
- C. 933cm^3
- D. None of these

A. Correct: the standard Proctor mould has a volume of 944 cm^3 (1/30 cubic foot — 100 mm diameter, 127 mm height).

B. Wrong: 911 cm^3 is not the standard Proctor mould volume.

C. Wrong: 933 cm^3 is not the standard Proctor mould volume.

14 cm" is among the options and is correct.

Question 32 Geotechnical Engineering

In AASHTO classification soil is mainly classified in _____ groups.

- A. Five
- B. Six
- C. Seven ✓ **Correct answer**
- D. None of these

A. Wrong: the AASHTO system has more than five groups.

B. Wrong: the AASHTO system has seven main groups, not six.

C. Correct: the AASHTO soil classification divides soils into seven main groups, A-1 to A-7 (with sub-groups).

D. Wrong: seven is among the options and is correct.

Question 33 Hydrology

The period considered for calculation average annual rainfall of region is _____?

- A. 35 years ✓ **Correct answer**
- B. 15 years
- C. 25 years
- D. None of these

A. Correct: in the Indian/Pakistani hydrology textbooks the average annual rainfall of a station or region is the mean of the annual rainfalls over a period of 35 years. (The "normal" annual rainfall is a different figure — the average over the last 30 years.)

B. Wrong: 15 years is far too short a record to average out wet and dry years.

C. Wrong: 25 years is not the textbook period for average annual rainfall; 35 years is.

s years is among the options and is correct.

Question 34 Water Supply Engineering

_____ is the measure of suspended solids in water.

- A. Acidity
- B. Turbidity ✓ **Correct answer**
- C. Viscosity
- D. None of these

A. Wrong: acidity measures the acid content (hydrogen ions) of water, not its suspended solids.

B. Correct: turbidity is the cloudiness of water caused by suspended solids (silt, clay, organic matter), and it is measured to judge how much suspended matter the water carries.

C. Wrong: viscosity measures a fluid's resistance to flow, not its suspended solids.

D. Wrong: turbidity is among the options and is correct.

Question 35 Fluid Mechanics

Velocity at a point in a pipe flow may be measured by installing a _____?

- A. A pitot tube at that point ✓ **Correct answer**
- B. Wall tap
- C. A stagnation probe at the end
- D. None of these

A. Correct: a pitot tube placed at the point reads the stagnation pressure there, from which the velocity AT THAT POINT is found — it is the point-velocity instrument.

B. Wrong: a wall tap (static pressure tapping) reads only the static pressure at the wall, not the velocity at a point.

probe at the end of the pipe reads the velocity at the end, not at the point in question.

D. Wrong: a pitot tube at that point is among the options and is correct.

Question 36 Fluid Mechanics

The direction of lift force on an immersed body is _____?

- A. In horizontal direction
- B. Along the direction of motion of the body
- C. Normal to the direction of the motion of the body ✓ **Correct answer**
- D. None of these

A. Wrong: lift is not always horizontal — its direction depends on the direction of motion, and it is perpendicular to it.

B. Wrong: the force along the direction of motion is drag, not lift.

C. Correct: lift acts at right angles (normal) to the direction of motion (and to the relative flow) — drag acts along it.

D. Wrong: the normal direction is among the options and is correct.

Question 37 Fluid Mechanics

The newton's law of viscosity relates _____?

- A. Stress and strain in a liquid
- B. Shear pressure and velocity
- C. Shear stress and rate of strain ✓ **Correct answer**
- D. None of these

A. Wrong: Newton's law of viscosity does not relate stress to strain (that is Hooke's law for solids); it relates shear stress to the RATE of strain.

e law relates shear stress to the velocity GRADIENT (rate of strain), not to velocity itself, and "shear pressure" is not the term.

C. Correct: Newton's law of viscosity states that shear stress is proportional to the rate of shear strain (the velocity gradient), $\tau = \mu (du/dy)$.

D. Wrong: shear stress and rate of strain is among the options and is correct.

Question 38 RCC Design

The maximum percentage of steel used in beams is _____?

- A. 4% ✓ **Correct answer**
- B. 1%
- C. 2%
- D. None of these

A. Correct: under IS 456 the maximum area of tension reinforcement in a beam is 4% of the gross cross-sectional area — more steel than that cannot be placed and compacted properly.

B. Wrong: 1% is well within the normal range for beams, not the maximum.

C. Wrong: 2% is a common working percentage, not the code maximum.

D. Wrong: 4% is among the options and is correct.

Question 39 Construction Management

A _____ damage is a fixed surcharge per day if the contractor fails to complete the task on time.

- A. Penalty
- B. Time
- C. Liquidated ✓ **Correct answer**
- D. None of these

penalty is a punishment imposed for a breach; the contract term for the agreed daily sum is liquidated damages, not simply "penalty".

B. Wrong: "time damage" is not a contract term.

C. Correct: liquidated damages are the fixed sum per day (agreed in the contract) that the contractor pays for each day of delay beyond the completion date.

D. Wrong: liquidated is among the options and is correct.

Question 40 Building Construction

On a floor plan the dashed line that appears approximately 2ft outside the exterior wall represents?

- A. Wiring
- B. Sidewalk
- C. Roof overhanging ✓ **Correct answer**
- D. None of these

A. Wrong: wiring is shown inside the building on electrical plans, not as a dashed line 2 ft outside the wall on a floor plan.

B. Wrong: a sidewalk is a ground-level path, not a dashed line just outside the wall on a floor plan.

C. Correct: the roof (eaves) projects beyond the exterior wall, and on a floor plan its edge is shown as a dashed line about 2 ft outside the wall.

D. Wrong: roof overhanging is among the options and is correct.

Question 41 Building Materials

Fine-grained sedimentary rock that has no planes of cleavage or sedimentation along which it is likely to split?

- B. Freestone ✓ **Correct answer**
- C. Fieldstone
- D. None of the above

A. Wrong: a pallet is a flat platform for stacking goods, not a rock.

B. Correct: freestone is a fine-grained sedimentary rock (a sandstone) that can be cut freely in any direction because it has no cleavage or bedding planes along which it splits.

C. Wrong: fieldstone is rough stone collected from fields, not the name for this fine-grained rock.

D. Wrong: freestone is among the options and is correct.

Question 42 Building Construction

A frame that holds glass _____?

- A. Anchor
- B. Gem
- C. Sash ✓ **Correct answer**
- D. None of these

A. Wrong: an anchor fixes a member to a wall or structure; it does not hold glass.

B. Wrong: a gem is a precious stone, not a window frame.

C. Correct: a sash is the frame that holds the glass in a window or door (the sliding or fixed frame of a window).

D. Wrong: sash is among the options and is correct.

Question 43 Construction Management

The sequence of tasks that determines the least amount of time in which a construction

be completed?

- A. Critical Path ✓ **Correct answer**
- B. Frequency
- C. Time period
- D. None of the above

A. Correct: the critical path is the longest chain of dependent tasks in a project network — it fixes the shortest possible completion time, and any delay on it delays the whole project.

B. Wrong: frequency is how often something occurs, not a sequence of tasks.

C. Wrong: a time period is a length of time, not the task sequence that determines it.

D. Wrong: critical path is among the options and is correct.

Question 44 Steel Structures

The bar size #8 (American) has a diameter of _____ inches.

- A. 0.850
- B. 1.500
- C. 1.000 ✓ **Correct answer**
- D. None of these

A. Wrong: 0.850 in is not a standard American bar size (a #7 bar is 0.875 in).

B. Wrong: 1.500 in would be a #12 bar, not a #8.

C. Correct: in the American system the bar number is the diameter in eighths of an inch, so a #8 bar is 8/8 = 1.000 inch in diameter.

D. Wrong: 1.000 is among the options and is correct.

Question 45 Building Construction

A stiff straightedge of wood or metal used to level the surface of wet plaster or concrete

- A. Shawl
- B. Darby ✓ **Correct answer**
- C. Boulder
- D. None of these

A. Wrong: a shawl is a garment, not a levelling tool.

B. Correct: a darby is a long, stiff straightedge (of wood or metal) drawn over wet plaster or concrete to level and smooth the surface.

C. Wrong: a boulder is a large rounded stone, not a straightedge.

D. Wrong: darby is among the options and is correct.

Question 46 Building Materials

Cast iron is commonly used for _____?

- A. In beams
- B. Small sized water pipes
- C. Columns & struts ✓ **Correct answer**
- D. None of these

A. Wrong: cast iron is brittle and weak in tension, so it is never used in beams, which work in bending and tension.

B. Wrong: this is the printed key, and it is wrong — small water pipes are the textbook use of WROUGHT iron, not cast iron (see verification summary).

C. Correct: cast iron is strong in compression, so it is commonly used for columns and struts, which carry compressive loads.

D. Wrong: columns and struts is among the options and is correct. Printed-key correction: testpointpk keys B 'Small sized water pipes'; corrected to C 'Columns & struts' (see

ummary).

Question 47 Building Materials

The driving off of the water of hydration from gypsum by the application of heat?

- A. Smoldering
- B. Blazing
- C. Calcination ✓ **Correct answer**
- D. None of these

A. Wrong: smouldering is slow burning without flame, not the heating of gypsum.

B. Wrong: blazing is burning with a flame, not the driving off of water of hydration.

C. Correct: calcination is heating a material to drive off water (or carbon dioxide) — gypsum is calcined to drive off its water of hydration and make plaster of Paris.

D. Wrong: calcination is among the options and is correct.

Question 48 Mathematics

1 kilometer = _____ ft.

- A. 39370
- B. 32890
- C. 32800
- D. None of these

No answer is given for this question, and none is taught. DEFECTIVE-excluded — no option is correct (DEFECTIVE-excluded)

A. Wrong: 39,370 is the number of INCHES in a kilometre (39,370.1 in), not feet.

B. Wrong: 32,890 ft is about ten times the true value (3,280.84 ft).

C. Wrong: the printed key, but 32,800 ft is about ten times the true value (3,280.84 ft)

have an extra zero.

D. Tempting, because the true value (3,280.84 ft) is not listed — but "None of these" is not taught as the answer here, because the item is defective as printed: the correct value is absent from the options, so no letter is asserted. **DEFECTIVE-excluded — decided by assistant under the owner's 8 Nov 2026 delegation.** This question must never be taught as having a single answer.

Question 49 Physics

The period is the time required to complete _____ cycle.

- A. Half
- B. Two
- C. One ✓ **Correct answer**
- D. None of these

A. Wrong: the time for half a cycle is half the period, not the period itself.

B. Wrong: the time for two cycles is twice the period, not the period itself.

C. Correct: the period is the time required to complete one full cycle of a vibration or wave.

D. Wrong: one is among the options and is correct.

Question 50 Mechanics

Moment of inertia is the measure of resistance of a body to _____ acceleration.

- A. Traverse
- B. Angular ✓ **Correct answer**
- C. Planer
- D. All of the above

A. Wrong: resistance to linear (transverse) acceleration is measured by mass, not by moment of inertia.

Moment of inertia is the measure of a body's resistance to angular acceleration — the rotational analogue of mass.

C. Wrong: "planer" (planar) is not a kind of acceleration that moment of inertia resists.

D. Wrong: only angular acceleration is resisted by moment of inertia.

Question 51 Building Materials

An early method of steel manufacturing in which air was blown into a vessel of molten iron to burn out impurities?

- A. Incltation process
- B. Bessemer process ✓ **Correct answer**
- C. Freezer Process
- D. None of these

A. Wrong: "Incltation" is a garbled option with no such steelmaking process.

B. Correct: in the Bessemer process (1850s) air was blown through molten pig iron in a converter, burning out carbon, silicon and manganese impurities to make steel.

C. Wrong: there is no "Freezer Process" in steelmaking.

D. Wrong: the Bessemer process is among the options and is correct.

Question 52 Physics

Mathamically Newton's law of gravitation is Given by, Where G is gravitational constant, m1 & m2 mass of particles, r is distance between the objects?

- A. $F= m1x\ m2/r^2$
- B. $F=G\ m1x\ m2/r^4$
- C. $F=G\ m1x\ m2/r^2$ ✓ **Correct answer**
- D. None of these

is leaves out G, the gravitational constant, so it cannot give the force.

B. Wrong: the force falls off with the square of the distance, not the fourth power.

C. Correct: Newton's law of gravitation is $F = G\ m1\ m2 / r^2$ — the force is proportional to the product of the masses and inversely proportional to the square of the distance between them.

D. Wrong: the correct formula is among the options and is correct.

Question 53 Foundations

The foundation in which a cantilever beam is used to join two footings is called _____?

- A. Strip footing
- B. Strap footing ✓ **Correct answer**
- C. Raft footing
- D. None of these

A. Wrong: a strip footing is a continuous footing under a wall, not two footings joined by a beam.

B. Correct: a strap footing joins two separate footings with a cantilever (strap) beam, used when one column is near a property line and its footing cannot be centred under it.

C. Wrong: a raft (mat) footing is one large slab under the whole building, not two footings joined by a beam.

D. Wrong: strap footing is among the options and is correct.

Question 54 Building Materials

A transparent plastic material widely used in sheet form for glazing windows and skylights?

- A. Potash

/lic ✓ Correct answer

- C. Lime
- D. None of the above

A. Wrong: potash (potassium carbonate) is a chemical used in glassmaking and fertiliser, not a transparent plastic sheet.

B. Correct: acrylic (Perspex / Plexiglas) is a transparent plastic supplied in sheets and widely used for glazing windows and skylights.

C. Wrong: lime is a building material (for mortar and plaster), not a transparent plastic.

D. Wrong: acrylic is among the options and is correct.

Question 55 RCC Design

In a rectangular Reinforced Cement Concrete columns the minimum number of vertical bars are _____?

- A. 5
- B. 6
- C. 4 ✓ **Correct answer**
- D. None of these

A. Wrong: 5 is not the code minimum for a rectangular column.

B. Wrong: this is the printed key, and it is wrong — 6 is the minimum number of bars in a CIRCULAR column, not a rectangular one (see verification summary).

C. Correct: under IS 456 a rectangular column must have at least 4 longitudinal bars, one at each corner.

D. Wrong: 4 is among the options and is correct. Printed-key correction: testpointpk keys B '6'; corrected to C '4' (see verification summary).

Question 56 Building Construction

One of a parallel array of light, closely spaced beams used to support a floor deck or low-slope roof?

- A. Hanger
- B. Apex
- C. Joist ✓ **Correct answer**
- D. None of these

A. Wrong: a hanger is a member that suspends something from above, not one of a parallel array of floor beams.

B. Wrong: the apex is the highest point of a roof, not a floor beam.

C. Correct: a joist is one of a parallel set of light, closely spaced beams that support a floor deck or a low-slope roof.

D. Wrong: joist is among the options and is correct.

Question 57 Sanitary Engineering

An inverted siphon is designed general for _____ pipes.

- A. Five
- B. Two
- C. Three ✓ **Correct answer**
- D. None of these

A. Wrong: five parallel pipes is not the general design for an inverted siphon.

B. Wrong: two pipes is the general design for a SEPARATE sewerage system (one for minimum, one for maximum dry-weather flow), not the general case.

C. Correct: under IS 4111 (Part 3), an inverted siphon for a partially separate or combined sewer is generally designed with three parallel pipes — one for the minimum dry-weather

nd for the flow up to the maximum dry-weather flow, and a third to carry stormwater.

D. Wrong: three is among the options and is correct.

Question 58 Building Construction

A horizontal beam that supports wall cladding between columns?

- A. Grit ✓ **Correct answer**
- B. Flue
- C. Eave
- D. None of these

A. Correct as printed for "Girt": a girt (side girt) is the horizontal beam spanning between columns that supports the wall cladding. (The reproduction prints "Grit" for "Girt".)

B. Wrong: a flue is a passage for smoke from a furnace or fireplace, not a beam.

C. Wrong: an eave is the overhanging edge of a roof, not a beam supporting wall cladding.

D. Wrong: the girt is among the options (as "Grit") and is correct.

Question 59 Building Construction

A passage for smoke and combustion products from a furnace, stove, water heater, or fireplace?

- A. Flue ✓ **Correct answer**
- B. Junction points
- C. Joist
- D. None of the above

A. Correct: a flue is the passage (duct or chimney) that carries smoke and combustion products away from a furnace, stove, water heater or fireplace.

nction points are where pipes or members meet, not a smoke passage.

C. Wrong: a joist is a floor beam, not a smoke passage.

D. Wrong: flue is among the options and is correct.

Question 60 Building Construction

The convex surface of an arch _____?

- A. Intrados
- B. Extrados ✓ **Correct answer**
- C. Cullet
- D. None of these

A. Wrong: the intrados is the CONCAVE inner surface (soffit) of an arch, not the convex outer surface.

B. Correct: the extrados is the convex outer surface of an arch.

C. Wrong: cullet is broken waste glass used in glassmaking, not part of an arch.

D. Wrong: extrados is among the options and is correct.

Question 61 RCC Design

Concrete cover in reinforced structure may not be less than _____?

- A. 8mm
- B. 7mm
- C. 6mm
- D. None of these

No answer is given for this question, and none is taught. DEFECTIVE-excluded — no option is correct (DEFECTIVE-excluded)

A. Wrong: the printed key, but 8 mm is below every code minimum for concrete cover

…es at least 20 mm for mild exposure, and even the smallest value in the code (a slab, for fire resistance) is 15 mm.

B. Wrong: 7 mm is below every code minimum for concrete cover.

C. Wrong: 6 mm is below every code minimum for concrete cover.

D. Tempting, because the true minimum (20 mm, or 15 mm for a slab) is not listed — but "None of these" is not taught as the answer here, because the item is defective as printed: the correct value is absent from the options, so no letter is asserted. **DEFECTIVE-excluded — decided by assistant under the owner's 8 Nov 2026 delegation.** This question must never be taught as having a single answer.

Question 62 Building Materials

A method of molding slightly damp clays and shales into bricks by forcing them into molds under high pressure?

- A. Dry press process ✓ **Correct answer**
- B. Wet pressure process
- C. Moderate press process
- D. None of these

A. Correct: in the dry-press process, slightly damp clay or shale is forced into moulds under high pressure to form bricks (used for stiff, low-moisture clays).

B. Wrong: there is no standard "wet pressure process" for bricks; wet clay is moulded by the soft-mud or stiff-mud process, not by high-pressure pressing.

C. Wrong: there is no standard "moderate press process" for bricks.

D. Wrong: the dry press process is among the options and is correct.

63 Geology

The smaller particles of ash and dust may be blown by wind and spread over large areas in layers they become hardened into rocks that are called _____?

- A. Tuffs ✓ **Correct answer**
- B. Agglomerate
- C. Dykes
- D. All of the above

A. Correct: fine volcanic ash and dust blown by the wind and laid down in layers hardens into tuff (tuffs are the consolidated volcanic ash rocks).

B. Wrong: agglomerate is made of LARGE volcanic fragments and bombs cemented together, not of fine wind-blown ash.

C. Wrong: a dyke is a sheet of igneous rock intruded into a crack in older rock, not a hardened ash layer.

D. Wrong: only tuffs are formed this way.

Question 64 Building Materials

_____ is gaining increasing use as a substitute for mild steel reinforcing in precast concrete products.

- A. Gypsum reinforcing
- B. Carbon fiber reinforcing ✓ **Correct answer**
- C. Plastic reinforcing
- D. None of the above

A. Wrong: gypsum is a plaster material, not a reinforcement that can substitute for steel.

B. Correct: carbon-fibre reinforcing (CFRP bars and grids) is increasingly used in place of mild steel in precast concrete products — it is strong, light and does not corrode.

dinary plastic is not used as a structural substitute for steel reinforcement in precast concrete.

D. Wrong: carbon fiber reinforcing is among the options and is correct.

Question 65 Building Materials

_____ is the process of joining two metals surfaces with a low melting alloy.

- A. Welding
- B. Soldering ✓ **Correct answer**
- C. Annealing
- D. None of these

A. Wrong: welding joins metals by melting the base metals themselves (with or without a filler), not by a low-melting alloy.

B. Correct: soldering joins two metal surfaces with a low-melting-point alloy (solder, usually below 450 °C) without melting the base metals.

C. Wrong: annealing is heating a metal and cooling it slowly to soften it, not a joining process.

D. Wrong: soldering is among the options and is correct.

Question 66 Building Materials

Steel with chromium more than 16 percent is called _____?

- A. Manganese Steel
- B. Stainless Steel ✓ **Correct answer**
- C. Nickel Steel
- D. None of these

A. Wrong: manganese steel is steel alloyed with manganese (about 12–14%) for hardness and wear resistance; it is not defined by chromium.

Stainless steel is steel alloyed with chromium (stainless grades are defined by a chromium content above about 10.5%, and common grades carry 16–18% chromium), which forms the passive film that makes it stainless.

C. Wrong: nickel steel is steel alloyed with nickel for toughness; it is not defined by chromium.

D. Wrong: stainless steel is among the options and is correct.

Question 67 Building Construction

Primarily for domes, shells, and other complex shapes the type of roof membrane is used?

- A. Fluid-applied roof ✓ **Correct answer**
- B. Thermal roof membrane
- C. Both A and B
- D. None of the above membranes

A. Correct: a fluid-applied (liquid) roof membrane is painted or sprayed on as a liquid and cures into a seamless skin, so it follows domes, shells and other complex shapes that sheet membranes cannot.

B. Wrong: a thermal (thermoplastic) sheet membrane comes in flat sheets that cannot be made to follow a dome or shell.

C. Wrong: only the fluid-applied membrane suits complex shapes.

D. Wrong: the fluid-applied roof is among the options and is correct.

Question 68 Strength of Materials

The ability of a member to resist deformation _____?

- A. Stiffness ✓ **Correct answer**
- B. Durability

- D. None of these

A. Correct: stiffness is the ability of a member to resist deformation under load (a stiff member bends or stretches little).

B. Wrong: durability is the ability to last without deteriorating, not resistance to deformation.

C. Wrong: strength is the ability to resist FAILURE (breaking or yielding) under load, not the ability to resist deformation — a strong member can still be flexible.

D. Wrong: stiffness is among the options and is correct.

Question 69 Building Construction

A _____ is essential in colder climates or when enclosing humid spaces in low slope roofs.

- A. Flashings
- B. Air barrier
- C. Vapor retarder ✓ **Correct answer**
- D. None of these

A. Wrong: flashings seal joints against rainwater at roof edges and penetrations; they are not the layer that stops water vapour in a cold-climate roof.

B. Wrong: an air barrier stops air leakage, which matters, but the layer essential for stopping vapour condensing inside a low-slope roof in cold or humid conditions is the vapour retarder.

C. Correct: a vapour retarder (vapour barrier) stops warm, moist air from diffusing into the roof and condensing in the insulation — essential in cold climates and over humid enclosed spaces under low-slope roofs.

vapor retarder is among the options and is correct.

Question 70 Building Construction

Suspended ceilings can be made of almost any material; the ones most widely used are _____?

- A. Plaster
- B. Board
- C. Gypsum
- D. All of the above ✓ **Correct answer**

A. True but partial: suspended plaster ceilings have been in use for many years and are among the most widely used materials.

B. True but partial: proprietary boards (including fibre boards) are listed in the textbooks among the most widely used suspended-ceiling materials.

C. True but partial: gypsum plasterboard is the most commonly used false-ceiling material, but it is not the only one named.

D. Correct: the textbook list of the most widely used suspended-ceiling materials covers plaster, boards and gypsum together, so "All of the above" is the answer the stem asks for — corroborated by the AskFilo BPSC SDO / Assistant Director (Civil) solutions page, which keys this exact item to "All of the above".

This paper remains the paper of the Balochistan Public Service Commission. Ranjha Solutions branding is on this solved presentation only — the paper is not owned by Ranjha Solutions. BPSC publishes no past papers officially.

Past papers are **free** — no charge is taken from any student for papers. General Knowledge answers are as of the 2025 sitting.

Source: https://testpointpk.com/paper-mcqs/6449/bpsc-sdo,-ad-civil-past-paper-27-05-2025 (accessed 8 Nov 2026). See the source note on this page about the fold-in