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Test Booklet Code A **Test Booklet Sr No.**

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TEST PAPER

Marks: 100 **Time: 60 minutes**

ROLL NO.: _____	**NAME:** _____
SIGNATURE: _____	**DATE / TIME:**_____

	INSTRUCTIONS FOR THE CANDIDATES
1.	Before attempting the paper carefully read out all the Instructions & Examples given on Side 1 of Answer Sheet (OMR Sheet) supplied separately.
2.	At the start of the examination, please ensure that all pages of your Test booklet are properly printed; your Test booklet is not damaged in any manner and contains 100 questions. In case of any discrepancy the candidate should immediately report the matter to the invigilator for replacement of Test Booklet. No claim in this regard will be entertained at the later stage.
3.	An **OMR Answer Sheet** is being provided separately along with this Test booklet. Please fill up all relevant entries like Roll Number, Test Booklet Code etc. in the spaces provided on the OMR Answer Sheet and put your signature in the box provided for this purpose.
4.	Make sure to fill the correct Test booklet code on Side 2 of the OMR Answer Sheet. If the space for the Booklet Code is left blank or more than one booklet code is indicated therein, it will be deemed to be an incorrect booklet code & Answer Sheet will not be evaluated. The candidate himself/herself will be solely responsible for all the consequences arising out of any error or omission in writing the test booklet code.
5.	**This Test Booklet consists of 06 pages containing 100 questions**. Against each question four alternative choices (1), (2), (3), (4) are given, out of which one is correct. Indicate your choice of answer by darkening the suitable circle with **BLACK/BLUE pen** in the OMR Answer Sheet supplied to you separately. Use of Pencil is strictly prohibited. More than one answer indicated against a question will be deemed as incorrect response.
6.	The maximum marks are 100. Each question carries one mark. **There will be no negative marking. The total time allocated is 60 minutes.**
7.	Do not fold or make any stray marks on the OMR Answer Sheet. Any stray mark or smudge on the OMR Answer Sheet may be taken as wrong answer. Any damage to OMR Answer Sheet may result in disqualification of the candidate.
8.	**On completion of the test, candidate must hand over the OMR Answer Sheet to the invigilator on duty in the room/hall.**
9.	**Use of Mobile phones and calculators etc. are not allowed.**
10.	**Keep all your belongings outside the Examination hall. Do not retain any paper except the ADMIT CARD.**

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1	The imaginary line passing through the intersection of the cross hairs and the optical centre of the objective, is known as (1) Line of sight (2) Line of collimation (3) Axis of the telescope (4) None of these
2	Contour interval on a map sheet denotes (1) Vertical distance of contour lines above the datum plane (2) Vertical distance between two successive contour lines (3) Slope distance between two successive contour lines (4) Horizontal distance between two successive contour lines
3	A and B are two traverse stations free from local attraction errors. If true bearing of a line AB is 89o, and the magnetic declination at point A is 1o West, then the magnetic bearing of line BA would be (1) 88o (2) 90o (3) 268o (4) 270o
4	The map projection in which the angle between any pair of short lines is represented correctly is called (1) Conformal projection (2) Equidistant projection (3) azimuthal projection (4) equal area projection
5	The number of independent conditions required to be satisfied for the adjustment of a braced quadrilateral in triangulation survey is (1) 2 (2) 4 (3) 6 (4) 8
6	In a shape test of aggregate, which one of the following gives the correct slot for flakiness index of a material passing 50 mm sieve and retained on 40 mm sieve? (1) 25 mm (2) 27 mm (3) 81 mm (4) 30 mm
7	Plywood is specified by (1) weight (2) volume (3) thickness (4) number of layers
8	Knots reduce tensile strength of wood (1) along the grain (2) across the grain (3) tangential to the grain (4) at 60o to the grain
9	For a given environment, the most significant factor that influence the total shrinkage of the concrete is (1) cement content of mix (2) total amount of water added at the time of mixing (3) size of the member concreted (4) maximum size of the coarse aggregate used
10	The vertical members fixed between steps and hand rail are known as (1) balusters (2) strings (3) newel posts (4) soffits
11	The local swelling of a finished plaster, is termed as (1) cracking (2) dubbing (3) blistering (4) peeling
12	In case of multi-storeyed buildings, the forms to be removed first are (1) sides of beams and girders (2) column forms (3) bottom of beams and girders (4) all the above at the same time
13	A vehicle is stopped in two seconds by fully jamming the brakes. The skid marks measured 9.8 meters. The average skid resistance coefficient will be (1) 0.7 (2) 0.5 (3) 0.4 (4) 0.25
14	For carrying out bituminous patch work during the rainy season, the most suitable binder is (1) Road tar (2) Hot bitumen (3) Cutback bitumen (4) Bituminous emulsion
15	In a BG railway track, the specified ruling gradient is 1 in 250. The horizontal curve of 3oon a gradient of 1 in 250 will have the permissible compensated gradient of (1) 1 in 257 (2) 1 in 357 (3) 1 in 457 (4) 1 in 512
16	When two roads with two lanes, two way traffic, cross at an uncontrolled intersection, the total number of potential major conflict points would be (1) 32 (2) 24 (3) 16 (4) 4
17	An ascending gradient of 1 in 100 meets a descending gradient of 1 in 50, The length of summit curve required to provide overtaking sight distance of 500 m will be (1) 938 m (2) 781 m (3) 470 m (4) 170 m
18	The runway length after correcting for elevation and temperature is 2845 m. If the effective gradient on runway is 0.5 %, then the revised runway length will be (1) 2845 m (2) 2910 m (3) 3030 m (4) 3130 m
19	For a sleeper density of (n+5), the number of sleepers required for constructing a broad gauge (BG) railway track of length 650 m is (1) 975 (2) 918 (3) 900 (4) 880
20	In cement concrete pavements, tie bars are installed in (1) Expansion joints (2) Contraction joints (3) Warping joints (4) Longitudinal joints
21	Pitote tube is used for measurement of (1) Stagnation pressure (2) flow (3) velocity at a point (4) discharge
22	An equipotential line (1) has no velocity component tangent to it (2) is same as streamline (3) has constant dynamic pressure (4) has no velocity component normal to it
23	The velocity distribution in laminar flow through circular pipe follows the (1) parabolic law (2) linear law (3) logarithmic law (4) Exponential law
24	The boundary layer separation takes place if (1) Pressure gradient is zero (2) Pressure gradient is positive (3) Pressure gradient is negative (4) None of above

25	The head over V-notch at the end of a channel is 0.75 m. If an error of 1.5 mm is possible in the measurement of the head then the percentage error in computing the discharge would be (1) 0.3 (2) 0.5 (3) 1.0 (4) 1.5
26	A pipe of diameter D is to be replaced by n pipes, each of diameter d laid in parallel. The value of d is given by (1) d = (D/n) (2) d = (D/n 2/5) (3) d = (D/n 1/2) (4) D = (D/n 3/2)
27	Pelton turbines are mostly (1) Horizontal (2) inclined (3) vertical (4) enclosed
28	A turbine develops 7225 kW power under a head of 25 meters at 135 r.p.m. Choose the pecific speed of the turbine (1) 196.2 (2) 205.28 (3) 213.46 (4) 208.65
29	The nearest object from a rain-gauge should be at a minimum distance equal to (1) Its height (2) Twice its height (3) Thrice its height (4) Any arbitrary distance
30	The wind velocity at a height of 2 m above the ground is 15 km/h. What would be the velocity at a height of 10 m above the ground? (1) 19 km/h (2) 75 km/h (3) 3 km/h (4) 50 km/h
31	The 4-h unit hydrograph of a basin can be approximated as a triangle with a base period of 48-h and a peak ordinate of 200 m3/s. Then the area of the basin is (1) 1728 km2 (2) 3456 km2 (3) 864 km2 (4) 5184 km2
32	An S-curve hydrograph is derived for a basin of 540 km2 from a 6-h unit hydrograph. The equilibrium discharge in the S-curve is (1) 277.8 m3/s (2) 250 m3/s (3) 540 m3/s (4) 3240 m3/s
33	"Economic height of a Dam" is that height, for which (1) Cost per unit storage is minimum (2) Benefit cost ratio is maximum (3) Net benefits are maximum (4) None of these
34	The sewer which transports the sewage to the point of treatment is called (1) House sewer (2) Out-fall sewer (3) Branch sewer (4) Main sewer
35	If dissolved oxygen (D.O.) concentration falls down to zero in any natural drainage, it indicates the zone of (1) degradation (2) active decomposition (3) recovery (4) cleaner water
36	The digested sludge from the septic tanks is removed after a maximum period of (1) 3 years (2) 3.5 years (3) 4 years (4) 5 years
37	Perched aquifer generally occur (1) Below water table (2) Above water table (3) In aquicludes (4) In artesian aquifers
38	The strainer type tube well is unsuitable for (1) Coarse gravels (2) Fine sandy strata (3) Clean gravels (4) None of these
39	In an artesian aquifer, the draw downs in two observation wells at distances 100 m and 200 m were found same after one hour and x hour respectively. The value of x, is (1) 2 hours (2) 4 hours (3) 9 hours (4) 16 hours
40	In a well planned city, the layout of distribution pipes generally adopted is (1) Grid iron system (2) Interlaced system (3) Reticulation system (4) All of above
41	The optimum kor water depth for kharif crop is 19 cm with an allowed kor water period of 3 weeks, the outlet discharge factor for this crop will be (1) 955 hactare/cumec (2) 782 hactare/cumec (3) 860 hactare/cumec (4) 654 hactare/cumec
42	The CCA for a particular state is 5 Mha; out of which 4.5 Mha is being sown in Rabi season and 3.5 Mha in kharif season. These areas are being irrigated to the extent of 90% and 80% respectively. The annual intensity of irrigation for this state is (1) 80.7% (2) 167.5% (3) 121% (4) None of these
43	An area of 300 hactare is to be irrigated from a channel. CCA is 80% of the total area, intensity of irrigation for Rabi and Kharif is 50% and 30% respectively. Duty for Rabi and Kharif is 1500 ha/cumec and 1000 ha/cumec. Design discharge in cumec for the channel is (1) 0.064 (2) 0.072 (3) 0.084 (4) 0.08
44	Field capacity of soil = 30%, PWP = 12%, density of soil = 1.25 gm/cc, effective depth of root zone = 60 cm, daily consumptive use of water for given crop = 12.5 mm, readily available moisture = 80% of available moisture. You will irrigate after (1) 7 days (2) 17 days (3) 12 days (4) 9 days
45	For a regime channel having discharge 50 cumecs, silt factor 1.1, side slopes 1/2H : 1V, velocity according to lacey's theory will be (1) 0.869 m/sec (2) 0.545 m/sec (3) 0.657 m/sec (4) 0.994 m/sec
46	The sinuosity of a meander is the ration of (1) Meander length and the width of meander (2) Meander length and half width of river (3) Curved length and straight distance (4) None of these
47	The method, which uses dead furrows on cropped farms for drainage of excess irrigation or rain water, is called (1) Surface inlet (2) Tile drainage (3) bedding (4) french drain

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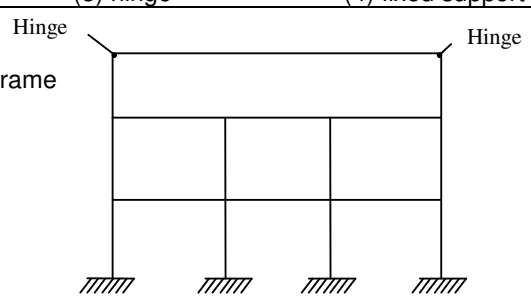
48	The critical exit gradient suggested in Khosla's theory of design of weirs and barrages, is (1) less for more porous soils (2) more for more porous soils (3) equal for all kind of soils (4) none of these
49	The back water effect of a weir is best called (1) retrogression (2) afflux (3) back water curve (4) splashing
50	The clay soil mainly consists of (1) kaolinites (2) montmorillonite (3) illites (4) all of these
51	The rock which is not calcareous is (1) lime stone (2) macl (3) chalk (4) laterite
52	The specific gravity of quartz is (1) 2.65 (2) 2.72 (3) 2.85 (4) 2.90
53	A two-dimensional stress system has like stresses σx = 100 N/mm2 and σy = 200 N/mm2 in two mutually perpendicular directions. The x, y co-ordinates of the centre of the Mohr's circle are (1) (0,150) (2) (150,0) (3) (-50,0) (4) (0,50)
54	The moment of inertia if a rectangular section b x d about the bottom most fibre is (1) bd3/12 (2) bd3/4 (3) bd3/3 (4) bd3/6
55	A solid shaft rotating at 180 rpm is subjected to a mean torque of 5000 Nm. What is the power transmitted by the shaft in kW? (1) 25π (2) 20π (3) 60π (4) 30π
56	If the value of Poisson's ratio is zero, then it means that (1) the material is rigid (2) the material is perfectly plastic (3) there is no longitudinal strain in the material (4) the longitudinal strain in the material is infinite
57	A cantilever beam of span L is carrying a uniformly distributed load of intensity w/unit length on the entire span. The deflection at the free end is given by (1) $\frac{wL^4}{6EI}$ (2) $\frac{wL^4}{8EI}$ (3) $\frac{5wL^4}{384EI}$ (4) $\frac{wL^4}{48EI}$
58	A fixed beam of span L, sinks by Δ at right hand support. The fixed end moment at right hand support will be (1) +6EIΔ/L2 (2) -6EIΔ/L2 (3) +3EIΔ/L2 (4) -3EIΔ/L2
59	The conjugate of an intermediate pin/ roller support in real beam is (1) pin/ roller support (2) free (3) hinge (4) fixed support
60	The degree of static indeterminacy of the frame Shown in figure is  (1) 2 (2) 9 (3) 19 (4) 23
61	The influence line diagrams for redundant structures can be obtained using (1) Castigliano's Theorem (2) Principle of Parity (3) Superposition Principle (4) Muller Breslau's Principle
62	A simply supported beam carrying a concentrated load W at mid-span deflects by –1 under the load. If the same beam carries the load W such that it is distributed uniformly over entire length and undergoes a deflection –2 at the mid-span. The ratio δ1:δ2 is (1) 2:1 (2) √2:1 (3) 1:1 (4) 1:2
63	The carry over factor for a beam whose far end is guided roller is (1) ½ (2) 0 (3) 1 (4) -1
64	Welded connections are preferred to riveted connections because (1) they are economical (2) of the ease of connection (3) the loss of member strength is smaller (4) they reduce the secondary stresses
65	Channel-section purlins are subjected to (1) uniaxial bending (2) biaxial bending (3) axial forces and by axial bending (4) all the above
66	The maximum shear stress of steel member in flexure shall not exceed (1) 0.40fy (2) 0.66 fy (3) 0.55 fy (4) 0.45 fy
67	At the location of plastic hinge (1) radius of curvature is infinite (2) curvature is infinite (3) moment is infinite (4) flexural stress is infinite

68	The permissible stresses in case of water tanks are (1) As given in IS: 800 (2) Increased by 80% as given in IS: 800 (3) Decreased by 80% as given in IS: 800 (4) Increased by 33.3 %
69	The Shear force in beams is resisted by (1) web only (2) Whole section (3) Compression flange and web (4) Compression flange
70	The modulus of elasticity of M25 grade of concrete in N/mm2 as per IS 456:2000 is (1) 20,000 (2) 22,000 (3) 25,000 (4) 28,500
71	The anchorage value of a hook is assumed 16 times the diameter of the bar if the angle of the bend is (1) 60o (2) 45o (3) 90o (4) 180o
72	The percentage of minimum reinforcement (Fe 415) of gross sectional area in slabs is (1) 0.10% (2) 0.12% (3) 0.15% (4) 0.20%
73	The maximum percentage of steel in a RCC beam is (1) 1 % (2) 2 % (3) 3 % (4) 4 %
74	The maximum spacing of the vertical stirrups to resist shear in beam is restricted to (1) d (2) 0.75 d (3) 0.5 d (4) 3 d
75	The approx. ratio of 7 days to that of 28 days compressive strength of the cement concrete of is (1) 0.65 (2) 0.85 (3) 1.0 (4) 1.15
76	The type of column most suitable for resisting dynamic (earthquake) loads is (1) Short column (2) Tied column (3) Circular column with lateral ties (4) Spiral column
77	For large span bridge structures, it is economical use (1) RCC Beams (2) Prestressed beams (3) Steel girders (4) Cables stayed
78	The area of the staging over which the wind force is assumed to act for purpose of design is taken as (1) 15 % of area of staging (2) 20 % of area of staging (3) 25 % of area of staging (4) 30 % of area of staging
79	As per International classification of soil, the hydrometer analysis is valid for the particle size range of (1) 0.02 mm to 0.002 mm (2) 0.02 mm to 0.0002 mm (3) 2.0 mm to 0.002 mm (4) 2.0 mm to 0.0002 mm
80	The hydrostatic pressure on the phreatic line within a dam section is (1) Equal to atmospheric pressure (2) Less than atmospheric pressure (3) Greater than atmospheric pressure (4) None.
81	The plasticity characteristics of clay are due to (1) absorbed water (2) capillary water (3) free water (4) All the above.
82	As ϕ increases, co-efficient of active earth pressure (1) increases (2) decreases (3) remains same (4) None of these.
83	A soil sample has a void ratio of 0.5 and its porosity will be close to (1) 33% (2) 50% (3) 66% (4) 100%
84	Which soil is expected to have least bearing capacity? (1) Laminated rocks (2) Laminated rocks (3) Loose fine sand (4) Loose fine sand
85	The stresses produced at the time of impact in the foundation base should be (1) less than allowable stress (2) less than 80 % of allowable stress (3) less than 90 % of allowable stress (4) less than 70 % of allowable stress
86	Land acquisition act first came into force on (1) 1st day of March 1984 (2) 1st day of March 1948 (3) 1st day of March 1894 (4) 1st day of March 1884
87	If you check the Nonassociative button in the Boundary Hatch dialog box, the resulting hatch lines are drawn (1) as individual objects, but still maintain associativity (2) as individual objects, but lose associativity (3) as one object, but still maintain associativity (4) as one object, but lose associativity
88	According to the standards and conventions of section view drawing, cutting plane lines should be drawn with a _____ or _____ linetype. (1) Continuous, Hidden (2) Hidden, Phantom (3) Phantom, Dashed (4) Hidden, Dashed
89	The arrows drawn on the ends of a cutting plane line indicate ____. (1) the portion of the object that imaginarily gets "cut away" (2) the direction to look to locate the section view in the drawing (3) the line of sight for the section view (4) the half of the object to keep after "cutting"
90	PERT is _____ oriented (1) critical path (2) activity (3) event (4) all of the above

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91	Project cost is proportional to the project duration in (1) PERT (2) CPM (3) Both CPM and PERT (4) Depends on other factors
92	Time estimates are accurate in (1) PERT (2) CPM (3) Both a & b (4) None of these
93	Earnest money is deposited (1) At the time of submission of tender (2) After submission of tender (3) During construction (4) After completion of work
94	Geographic Information systems handles (1) Spatial data (2) Non-spatial data (3) Both spatial and non-spatial data (4) None of these
95	Sewerage treatment plant is normally design for (1) 40-50 years (2) 30-40 years (3) 15-20 years (4) 5-10 years
96	Chances of development of ozone hole are more at (1) Arctic and Antarctic regions (2) Equatorial regions (3) Mid latitude (4) None of these
97	The u/s face of an earthen dam is (1) an equipotential line (2) a flow line (3) a cubic parabolic (4) a phreatic line
98	As per IRC, the maximum possible width of a vehicle will be (1) 2.44m (2) 3.44m (3) 1.88m (4) 4.0 m
99	Total float for any activity is defined as the difference between (1) the latest finish time and earliest start time for the successor activity (2) the latest start time and earliest start time (3) the latest start time and earliest finish time (4) the earliest finish time and earliest start time of the successor activity
100	The thickness of web for unstiffened plate girder with clear distance d between the flanges shall not be less than (1) d/200 (2) d/160 (3) d/100 (4) d/85