

Questions Bank for Water Resources Engineering

Sr. #	MCQ	Answer
1	<p>Suppose a gas flow with no variation in its density then the flow is known as:</p> <p>A. Compressible fluid B. Unsteady flow C. Incompressible fluid D. Steady flow</p>	C
2	<p>If we use mercury in a differential manometer what is its value?</p> <p>A. 1 B. 13.55 C. 26 D. 2.6</p>	B
3	<p>The_____ is measure of fluid's resistance to shear or angular deformation.</p> <p>A. Kinematic Viscosity B. Dynamic Viscosity C. Absolute Viscosity D. Both B & C</p>	D
4	<p>The value of the Bulk Modulus of elasticity for an in compressible fluid is?</p> <p>A. Zero B. Infinity C. Unity D. Very low</p>	B
5	<p>The venture meter is a device used for measuring_____.</p> <p>A. Head loss B. Discharge C. Reynolds Number D. Roughness</p>	B
6	<p>The Sheet of water flowing over the weir crest is known as:</p> <p>A. Nappe B. Vein C. Head D. Both A & B</p>	D
7	<p>When a body floating in a liquid is displaced slightly, it oscillates about</p> <p>A. Center of gravity B. Center of buoyancy C. Center of pressure</p>	D

	D. Metacenter	
8	The buoyant force on anybody is equal to ----- of fluid displaced. A. Mass B. Volume C. Weight & Volume D. Weight	C
9	As diameter of the pipe increases, the head loss will A. Increases B. Decreases C. Remains same D. None of these	B
10	_____ is used to demonstrate water surge. A. Orifice Apparatus B. Water Hammer Apparatus C. Hydraulic Bench D. Cut-throat flume	B
11	The sum of pressure head and the elevation head is called. A. Energy Head B. Hydraulic Head C. Piezometric Head D. All of these	D
12	Kinematic viscosity is usually measured in cm ² /sec which is also called. A. Poise B. Joule C. Stoke D. Pascal-Second	C
13	Differential manometer gives theamong two pressures. A. Variation B. Difference C. Absolute D. Both A & B	D
14	When water hits the anti-pump device the hydraulic energy is converted to A. Electrical Energy B. Mechanical Energy C. Hydraulic Energy D. None of the Above	A
15	The combination of elevation head and velocity head is known as A. Hydraulic grade line	D

	<p>B. Energy grade line C. Both A & B D. None of the Above</p>	
16	<p>The figure contains irregularity and inertia forces is known as A. Roughness factor chart B. Pie-chart C. Moody Diagram D. None of the above</p>	C
17	<p>The energy grade line is always.....than the hydraulic grade line. A. Above B. Below C. At same level D. None of these</p>	A
18	<p>The -----type of turbine works on the principal of centrifugal force. A. Inward flow B. Outward flow C. Axial flow D. Radial flow</p>	B
19	<p>If buoyancy force is equal to the weight of body, then the body will A. Sink B. Float C. Both A & B D. None of these</p>	B
20	<p>The total energy head in HGL is A. $Z + \frac{p}{\gamma} + \frac{v^2}{2g}$ B. $Z^2 + \frac{p}{\gamma} + \frac{v^2}{2g}$ C. $Z + 2\frac{p}{\gamma} + \frac{v^2}{2g}$ D. $Z + \frac{v^2}{2g}$</p>	A
21	<p>The mechanics of liquids and gases which is based on the same fundamental principles that are employed in the mechanics of solids is called_____. A. A. Fluid Flow System B. B. Solid Mechanics C. C. Liquid and gas Mechanics D. D. Plasma mechanics</p>	C
22	<p>The combining of classical hydrodynamics with the study of real fluid is</p>	B

	related to the science, called _____. A. Hydraulics Engineering B. Hydrodynamics Engineering C. Water Engineering D. Classical Hydraulics	
23	_____ having temperature and pressure very near to the liquid phase. A. Solid B. Gases C. Liquids D. Vapors	D
24	Glycerin at a specific gravity of 1.44 has _____ density in g/cm ³ and _____ specific weight in kN/m ³ . A. 1440 and 14126.4 B. 1.44 and 14.1264 C. 1.44 and 14126.4 D. 14400 and 14.1264	C
25	The R ² _____ with the increase in the distance from earth's center A. Increases B. Reduces C. No change D. None of the above	B
26	The change in pressure during compressibility of a liquid is _____ to its bulk modulus of elasticity. A. In a straight line B. Inversely C. No change D. None of the above	A
27	The _____ is measure of fluid's resistance to shear or angular deformation. A. Kinematic viscosity B. Dynamic viscosity C. Absolute viscosity D. Both B and C	D
28	Specific weight water at 20°C (1013 m.bar, abs) with g = 9.8m/s ² is_____. A. 63.01 lb/ft ³ B. 9.8kN/m ³ C. 8.91 kN/m ³ D. None of the above	A
29	For air the value of gas constant R is _____. A. 8312 287 N.m/(kg.K) B. 287 N.m/(kg.K) C. 8132 287 N.m/(kg.K) D. 278 287 N.m/(kg.K)	B

30	Two clean glass plates separated by 1.3mm the water will rise for _____ for a surface tension value of 0.0745 N/m. A. 11.61m B. 23.23m C. 0m D. 11.61mm	B
31	The unit of viscosity is poise which is equal to _____ Ns/m ² . A. 1 B. 0.01 C. 0.10 D. 0.001	C
32	Kinematics viscosity is usually measured in m ² /s which is equal to _____ stoke. A. 0.0001st B. 1 C. 0.001st D. 1000st	A
33	A fluid for which the constant of proportionality (i.e. the viscosity) does not change with rate of deformation is said to be a _____. A. Non Newtonian fluid B. Newtonian Fluid C. Viscous Fluid D. None of the above	A
34	Bernoulli's equation cannot be applied when the flow is A. rotational B. turbulent C. steady D. Both A and B	D
35	According to Archimede's principle, if a body is immersed partially or fully in a fluid then the buoyancy force is _____ the weight of fluid displaced by the body. A. equal to B. less than C. more than D. unpredictable	D
36	What is the correct formula for absolute pressure? A. $P_{abs} = P_{atm} - P_{gauge}$ B. $P_{abs} = P_{vacuum} - P_{atm}$ C. $P_{abs} = P_{vacuum} + P_{atm}$ D. $P_{abs} = P_{atm} + P_{gauge}$	D
37	If the mass of an identical fluid volume along with its local average velocity are alike at all points in a flow field then it is known as A. Uniform B. Varied	D

	<p>C. Steady D. Spatially Constant</p>	
38	<p>Suppose a gas flow with no variation in its density then the flow is known as</p> <p>A. Compressible B. Unsteady C. Incompressible D. Steady</p>	C
39	<p>In a flowing water if the front of eddies is towards the front more than the backside then the flow is known as</p> <p>A. Gravity flow B. Supercritical flow C. Steady flow D. Subcritical flow</p>	B
40	<p>The temperature above which a fluid changes its phase permanently is known as</p> <p>A. Absolute temperature B. Critical pressure C. Both A and B D. None of the above</p>	D
41	<p>Steady flow is also</p> <p>A. Inviscid B. Stream line C. IR-Rotational D. Both B and C</p>	D
42	<p>..... always develop whenever there is a motion relative to a body.</p> <p>A. Shearing force B. Tangential force C. Internal force D. Both B and C</p>	D
43	<p>The flow around a body is one example of</p> <p>A. Streamline flow B. Streamline and equipotential lines flow C. Flow net D. Both B and C</p>	D
44	<p>Differential manometer gives theamong two pressures</p> <p>A. Variation B. Difference C. Both A and B D. None of the above</p>	C

45	<p>..... component is responsible of flow when a fluid flows due to gravity.</p> <p>A. Component tangent to the plane B. Component along the plane C. Sign component D. Both B and C</p>	D
46	<p>The flows from the gates of a barrage changes from</p> <p>A. Supercritical to critical and then subcritical B. Subcritical to critical C. After hydraulic jump changes to Subcritical D. All of the options</p>	D
47	<p>When water hits the anti-pump device the hydraulic energy is converted to</p> <p>A. Electric energy B. B. Mechanical energy C. Hydraulic energy D. None of the above</p>	A
48	<p>The combination of elevation head and velocity head is known as</p> <p>A. Hydraulic grade line B. Energy grade line C. Both A and B D. None of the above</p>	D
49	<p>For a fully-developed pipe flow, how does the pressure vary with the length of the pipe?</p> <p>A. Linearly B. Parabolic C. Exponential D. Constant</p>	A
50	<p>The critical value of RN for uniform pipes with unusual irregularities is equal to</p> <p>A. 2000 B. 0..002m²/s C. 0.08m/s D. None of the above</p>	D
51	<p>Which of the following is a dimensionless equation?</p> <p>A. Reynold's equation B. Euler's equation C. Weber's equation D. All of the above</p>	D
52	<p>Which of the following equations is not dimensionally homogeneous? Consider standard symbols for quantities.</p> <p>A. (Force) $F = m \times a$ B. (Head Loss due to friction) $h_f = (f L V^2) / (2 g d)$ C. (Torque) $T = F \times \text{Distance}$</p>	D

	D. None of the above	
53	<p>What is the effect of change in Reynold's number on friction factor in turbulent flow?</p> <p>A. As the Reynold's number increases the friction factor increases in turbulent flow</p> <p>B. As the Reynold's number increases the friction factor decreases in turbulent flow</p> <p>C. change in Reynold's number does not affect the friction factor in turbulent flow</p> <p>D. unpredictable</p>	A
54	<p>The friction factor in fluid flowing through pipe depends upon</p> <p>A. Reynold's number</p> <p>B. relative roughness of pipe surface</p> <p>C. both a. and b.</p> <p>D. none of the above</p>	C
55	<p>Friction factor for laminar flow is given by</p> <p>A. $(Re / 64)$</p> <p>B. $(64 / Re)$</p> <p>C. $(Re / 16)$</p> <p>D. $(16 / Re)$</p>	B
56	<p>Shear stress in a turbulent flow is given by the formula: $\tau = \eta (du / dy)$</p> <p>Where η (eta) is,</p> <p>A. eddy viscosity</p> <p>B. apparent viscosity</p> <p>C. virtual viscosity</p> <p>D. all of the above</p>	D
57	<p>The cylindrical portion of short length, which connects converging and diverging section of venturimeter, is called as</p> <p>A. diffuser</p> <p>B. connector</p> <p>C. throat</p> <p>D. manometer tube</p>	C
58	<p>Which of the following devices does not use Bernoulli's equation as its working principle?</p> <p>A. Venturimeter</p> <p>B. Orifice-meter</p> <p>C. Pitot tube</p> <p>D. None of the above</p>	D
59	<p>Blood circulation through arteries is</p> <p>A. laminar flow</p> <p>B. turbulent flow</p> <p>C. rotational flow</p> <p>D. None of the options</p>	A
60	<p>Newtonian fluid is defined as the fluid which</p> <p>A. Obeys Hook's law</p> <p>B. Is compressible</p>	C

	<p>C. Obeys Newton's law of viscosity D. Is incompressible</p>	
61	<p>If the Reynolds number is less than 2000, the flow in a pipe is</p> <p>A. Turbulent B. Laminar C. Transition D. None of the above</p>	B
62	<p>A flow is called super-sonic if the</p> <p>A. velocity of flow is very high B. discharge is difficult to measure C. Mach number is between 1 and 5 D. Mach number is less than 1</p>	C
63	<p>The unit of pressure one bar is</p> <p>A. 1 Pascal B. 1 kilo Pascal C. 100 kPascal D. 1000 kPascal</p>	C
64	<p>The dynamic viscosity of a liquid is 1.2×10^{-4} Ns/m², whereas, the density is 600 kg/m³. The kinematic viscosity in m²/s is</p> <p>A. 72×10^{-3} B. 20×10^{-8} C. 7.2×10^3 D. 70×10^6</p>	B
65	<p>The location of the centre of pressure over a surface immersed in a liquid is</p> <p>A. always above the centroid B. will be at the centroid C. will be below the centroid D. for higher densities it will be above the centroid and for lower densities it will be below the centroid</p>	C
66	<p>The continuity equation is the result of application of the following law to the flow field</p> <p>A. First law of thermodynamics B. Conservation of energy C. Newtons second law of motion D. Conservation of mass</p>	D
67	<p>Reynolds number signifies the ratio of</p> <p>A. gravity forces to viscous forces B. inertial forces to viscous forces C. inertia forces to gravity forces D. buoyant forces to inertia forces</p>	B
68	<p>In pipe flow the critical Reynolds number is about</p> <p>A. 640 B. 5×10^5 C. 2000 D. 64000</p>	C

69	Anemometer is used to measure A. Velocity B. Pressure C. Viscosity D. Density	A
70	Property of fluid that describes its internal resistance is known as: A. Viscosity B. Friction C. Resistance D. Internal energy	A
71	Which fluid does not experience shearing stress during flow? A. Pseudoplastic B. Dilatant C. Newtonian D. Inviscid	D
72	Viscous forces are not present in A. rotational flow B. irrotational flow C. laminar flow D. none of the above	B
73	The fluid will rise in capillary when the capillary is placed in fluid, if A. the adhesion force between molecules of fluid and tube is less than the cohesion between liquid molecules B. the adhesion force between molecules of fluid and tube is more than the cohesion between liquid molecules C. the adhesion force between molecules of fluid and tube is equal to the cohesion between liquid molecules D. None of these	B
74	What is an ideal fluid? A. A fluid which has no viscosity B. A fluid which is incompressible C. A fluid which has no surface tension D. All of the above	D
75	Newton's law of viscosity states that A. the shear stress applied to the fluid is directly proportional to the velocity gradient (du/dy) B. the shear stress applied to the fluid is inversely proportional to the velocity gradient (du/dy) C. the shear stress applied to the fluid is directly proportional to the specific weight of the fluid D. the shear stress applied to the fluid is inversely proportional to the specific weight of the fluid	A
76	What are the dimensions of force? A. $[M L T^{-2}]$ B. $[M L T^{-1}]$ C. $[M L^2 T^{-2}]$	A

	D. [M L 2 T 2]	
77	Minor losses do not make any serious effect in A. short pipes B. long pipes C. both the short as well as long pipes D. cannot say	B
78	Minor losses occur due to A. sudden enlargement in pipe B. sudden contraction in pipe C. bends in pipe D. all of the above	D
79	The head loss through fluid flowing pipe due to friction is A. the minor loss B. the major loss C. both a. and b. D. none of the above	B
80	Coefficient of friction for laminar flow is given as Where, Re = Reynold's number A. $(Re / 32)$ B. $(32 / Re)$ C. $(Re / 16)$ D. $(16 / Re)$	D
81	How should be the viscosity of the flowing fluid for laminar flow? A. viscosity of the fluid should be as low as possible, for laminar flow B. viscosity of the fluid should be as high as possible, for laminar flow C. change in viscosity of the flowing fluid does not affect its flow D. unpredictable	B
82	The flow of fluid will be laminar when, A. Reynold's number is less than 2000 B. the density of the fluid is low C. both a. and b. D. none of the above	C
83	In a steady, ideal flow of an incompressible fluid, total energy at any point of the fluid is always constant. This theorem is known as A. Euler's theorem B. Navier-stockes theorem C. Reynold's theorem D. Bernoulli's theorem	D
84	The study of force which produces motion in a fluid is called as A. fluid statics B. fluid dynamics C. fluid kinematics D. none of the above	B

85	The imaginary line drawn in the fluid in such a way that the tangent to any point gives the direction of motion at the point, is called as A. path line B. streak line C. filament line D. stream line	D
86	The actual path followed by a fluid particle as it moves during a period of time, is called as A. path line B. streak line C. filament line D. stream line	A
87	Which property of the fluid offers resistance to deformation under the action of shear force? A. density B. viscosity C. permeability D. specific gravity	B
88	The specific weight of the fluid depends upon A. gravitational acceleration B. mass density of the fluid C. both A and B D. none of the above	C
89	Inter molecular cohesive force in the fluids is A. less than that of the solids B. more than that of the solids C. equal to that of the solids D. unpredictable	A
90	Which branch of fluid mechanics deals with translation, rotation and deformation of the fluid element without considering the force and energy causing such motion is called as A. fluid dynamics B. fluid kinematics C. fluid kinetics D. hydraulics	B
91	Shear stress in static fluid is A. always zero B. always maximum C. between zero to maximum D. unpredictable	B
92	A same specification pump operates better in.... A. Faisalabad B. Karachi C. Gujranwala D. Jhelum	D
93	Which one of the following is a correct statement?	C

	<p>A. In juice factory the open impeller pumps are best choice</p> <p>B. Drain water should be handled with closed impeller pumps</p> <p>C. Canal water should be handled with semi-open impeller pumps</p> <p>D. Milk must be handled with open impeller pumps</p>	
94	<p>A centrifugal pump with same specifications can give the better performance when treat one of the following with same percentage of water/milk in case of juices/milk shake.</p> <p>A. Orange juice</p> <p>B. Date milk shake</p> <p>C. Apple juice</p> <p>D. Apple milk shake</p>	A
95	<p>The most influential pressure in pumps that can be responsible to damage the pumps internal parts is known as</p> <p>A. NPSH required</p> <p>B. NPSH Available</p> <p>C. Water pressure</p> <p>D. Suction pressure</p>	B
96	<p>In pumps, water/liquid moves from to</p> <p>A. Lower pressure to higher pressure</p> <p>B. Higher pressure to lower pressure</p> <p>C. Lower inlet pressure to higher outlet pressure</p> <p>D. Higher inlet pressure to lower outlet pressure</p>	C
97	<p>Hand pump operates under the</p> <p>A. Positive displacement phenomena</p> <p>B. Reciprocating and pressure difference phenomena</p> <p>C. Rotary pump phenomena</p> <p>D. Plunge type pump</p>	B
98	<p>Piston assembly and cylinder are main components of pumps.</p> <p>A. Turbine</p> <p>B. Reciprocating</p> <p>C. Submersible</p> <p>D. None of the options</p>	B
99	<p>The pump with diffuser type casing are commonly known as _____.</p> <p>A. Submersible pumps</p> <p>B. Turbine pumps</p> <p>C. Reciprocating</p> <p>D. Golden pumps</p>	B
100	<p>Kg/cm^2 with the increase in the specific gravity of a liquid.</p> <p>A. Option 1 (Decrease)</p> <p>B. Option 2 (Increases)</p> <p>C. Option 3 (Proportional)</p> <p>D. Both 2 and 3</p>	D
101	<p>The flow comes in the forms of pulses from the following pump.....</p> <p>A. Option 1 (Hand pump)</p> <p>B. Option 2 (Reciprocating pump)</p>	C

	<p>C. Both option 1 and 2 D. None of the options</p>	
102	<p>The density of the liquid isproportional to the pressure produced by a pump. A. Inversely B. Constant C. Directly D. None of the above</p>	C
103	<p>----- type of pumps are not suitable to handle the viscous fluid A. Gear pump B. Plunger type pump C. Reciprocating pump D. All of the above</p>	D
104	<p>Q_1/Q_2.....$(P_1)^{1/3} / (P_2)^{1/3}$ A. Equal to B. Less than C. Greater than D. None of the above</p>	A
105	<p>If a curve falls after rising to a limiting height upto a designed point with the increase in the discharge is known as A. Overlapping curves B. Discharge vs head curves C. Non-overlapping curves D. None of the above</p>	C
106	<p>The pump with open impeller can handle sewage water. A. Centrifugal pump B. Gear pump C. Rotary pump D. None of the options</p>	D
107	<p>.....are necessary to overcome.....phenomena A. Automatic quick closing valves, water hammer B. Fly wheels, cavitation C. Automatic controlled bypass, cavitation D. Net positive suction head, cavitation</p>	A
108	<p>Coal slurry can be handled by..... pump A. Open impeller centrifugal pump B. Special duties C. Plunger type pump with open casing D. None of the above</p>	B
109	<p>If the multiple of pipe diameter and velocity is directly proportional to 1 or less than 1, the flow is known as A. Viscous flow B. Steady flow C. Non viscous flow D. None of the options</p>	B
110	<p>The frictional resistance for fluids in motion is....?</p>	A

	<p>A. Proportional to the velocity in laminar flow and to the square of the velocity in turbulent flow</p> <p>B. Proportional to the square of the velocity in laminar flow and to the velocity in turbulent flow</p> <p>C. Proportional to the velocity in both laminar flow and turbulent flow</p> <p>D. Proportional to the square of the velocity in both laminar flow and turbulent flow</p>	
111	<p>Calculate the mean hydraulic radius for a channel having 20m² cross sectional area and 50m of wetted perimeter.</p> <p>A. 0.4m</p> <p>B. 0.5m</p> <p>C. 0.6m</p> <p>D. 0.7m</p>	A
112	<p>$kV^2/2g$ represents the..... losses in very long pipes</p> <p>A. option 1 (significant)</p> <p>B. option 2 (insignificant)</p> <p>C. none of the options</p> <p>D. Both option 1 and 2</p>	B
113	<p>The figure contains irregularity and inertia forces is known as</p> <p>A. Roughness factor chart</p> <p>B. Pie-chart</p> <p>C. Moody diagram</p> <p>D. None of the above</p>	C
114	<p>In which type of turbines, the water flows axially in and axially out.</p> <p>A. Pelton</p> <p>B. Francis</p> <p>C. Kaplan</p> <p>D. Turgo</p>	C
115	<p>Water hammer phenomena occurs in:</p> <p>A. Penstock</p> <p>B. Rotors</p> <p>C. Buckets</p> <p>D. Propeller</p>	A
116	<p>In the hydroelectric power station, function of runner is</p> <p>A. Convert kinetic energy to pressure energy</p> <p>B. Convert pressure energy to kinetic energy</p> <p>C. Convert liquid to gas</p> <p>D. Convert gas to liquid</p>	A
117	<p>In parallel pipes Q=?</p> <p>A. $Q_1+Q_2-Q_3$</p> <p>B. $Q_1+Q_2+Q_3$</p> <p>C. $Q_1-Q_2-Q_3$</p> <p>D. None</p>	B
118	<p>Which among the following does not depend on the friction factor?</p> <p>A. Pipe diameter</p>	D

	<p>B. Fluid density C. Viscosity D. Weight</p>	
119	<p>Example of turbulent flow? A. Smoking rises from cigarette B. Flow on a symmetric airfoil C. Laminar flow D. Turbulent flow on the airfoil</p>	A
120	<p>Value of Z in elevation head of potential energy? A. non absolute B. absolute C. both A and B D. none of these</p>	B
121	<p>Vertical Centrifugal pumps are also known as: A. Cantilever pumps B. Hydrodynamic pump C. Mechanical pump D. Hydroelectric pump</p>	A
122	<p>The maximum volumetric efficiency of a pump (100cc) is: A. 60% B. 70% C. 80% D. D. 90%</p>	D
123	<p>Which statement is correct in case of a centrifugal pump? A. The centrifugal pump is suitable for large discharge and smaller heads. B. The centrifugal pump requires less floor area and simple foundation as compared to reciprocating pump. C. The efficiency of centrifugal pump is less as compared to reciprocating pump. D. All the above.</p>	D
124	<p>Which of the following is not a type of positive displacement pumps? A. Reciprocating pump B. Rotary displacement pump C. Centrifugal pump D. None of the above</p>	C
125	<p>Reciprocating pump is also known as the....? A. Negative displacement pump B. Emulsion pump. C. Diaphragm pump D. D. Positive Displacement pump</p>	D
126	<p>In centrifugal pumps, maximum efficiency is obtained when the blades are_____? A. straight B. bent forward</p>	C

	<p>C. bent backward D. D. radial</p>	
127	<p>Reciprocating pumps are no more to be seen in industrial applications as compared to centrifugal pumps because of:</p> <p>A. High initial and maintenance cost. B. Necessity of air vessel C. Lower discharge D. All of above</p>	D
128	<p>Which of the following is taken into account during a characteristic curve?</p> <p>A. Flow rate B. Cavitation C. Tolerances D. Casing</p>	A
129	<p>With the increase in the input power of a pump, efficiency _____?</p> <p>A. Increases B. Decreases C. Same D. Independent</p>	B
130	<p>One mechanical horsepower is equal to:</p> <p>A. 102 watts B. 735.5 watts C. 745.7 watts D. Both b and c</p>	C
131	<p>The process of filling the liquid into the suction pipe and pump casing up to the level of delivery valve is called as _____</p> <p>A. Filling B. Pumping C. Priming D. Leveling</p>	C
132	<p>According to Darcy's Law, the flow rate through a porous media is inversely proportional to:</p> <p>A. Head loss B. Cross sectional area C. Length of flow paths D. None of the options</p>	C
133	<p>Water from a valley with 1510m a.m.s.l flows towards a mountain with 1505m a.m.s.l, with no change in discharge in the valley is known as</p> <p>A. Unsteady flow B. Gravity flow C. Steady gravity flow D. Steady flow</p>	D
134	<p>Suppose a gas flow with no variation in its density then the flow is known as</p> <p>A. Compressible fluid B. Unsteady flow</p>	C

	<p>C. Incompressible fluid D. Steady flow</p>	
135	<p>In a flowing water if the front of eddies is towards the front more than the backside then the flow is known as</p> <p>A. Sub critical flow B. Super critical flow C. Critical flow D. None of the options</p>	B
136	<p>The temperature above which a fluid changes its phase permanently is known as</p> <p>A. Absolute temperature B. Critical pressure C. Both the options D. None of the options</p>	D
137	<p>The steady flow has the value of coefficient of velocity</p> <p>A. 1.01 B. 1.06 C. 2 D. None of the above</p>	C
138	<p>A liquid flows through pipes 1 and 2 with the same flow velocity. If the ratio of their pipe diameters $d_1 : d_2$ be 3:2, what will be the ratio of the head loss in the two pipes?</p> <p>A. 3:2 B. 9:4 C. 2:3 D. 4:9</p>	C
139	<p>$h_L = f(L/D) (V^2/2g)$ is known as</p> <p>A. Pipe friction equation (Option 1) B. Darcy Weisbach equation (Option 2) C. Both Option 1 & 2 D. Hazen Williams equation</p>	C
140	<p>When a body floating in a liquid is displaced slightly, it oscillates about</p> <p>A. Center of gravity B. Center of buoyancy C. Center of pressure D. Metacenter</p>	D
141	<p>The buoyant force on anybody is equal to ----- of fluid displaced.</p> <p>A. Mass B. Volume C. Weight and Volume D. Weight</p>	C
142	<p>As diameter of the pipe increases, the head loss will</p> <p>A. Increases B. Decreases C. Remains same D. None of these</p>	B

143	<p>Steam turbines are not used in:</p> <ul style="list-style-type: none"> A. Thermal Power Plants B. Textile Factory C. Jet Engines D. Sugar Factory 	C
144	<p>In which type of turbines, the water flows axially in and axially out.</p> <ul style="list-style-type: none"> A. Pelton B. Francis C. Kaplan D. Turgo 	C
145	<p>The Froude's number for a flow in a channel section is 1. What type of flow is it?</p> <ul style="list-style-type: none"> A. Sub Critical B. Critical C. Super critical D. Laminar 	B
146	<p>Which geometric parameter determines the efficiency of the channel?</p> <ul style="list-style-type: none"> A. Hydraulic depth B. Hydraulic radius C. Section factor D. Normal depth 	B
147	<p>True one-dimensional flow occurs when</p> <ul style="list-style-type: none"> A. The direction and magnitude of the velocity at all points are identical B. The velocity of successive fluid particles, at any point, is the same at successive periods of time C. The magnitude and direction of the velocity do not change from point to point in the fluid D. The fluid particles move in plane or parallel planes and the streamline patterns are identical in each plane 	A
148	<p>The discharge in an open channel corresponding to critical depth is</p> <ul style="list-style-type: none"> A. Zero B. Minimum C. Maximum D. None of these 	C
149	<p>The critical depth meter is used to measure</p> <ul style="list-style-type: none"> A. Velocity of flow in an open channel B. Depth of flow in an open channel C. Hydraulic jump D. Depth of channel 	C
150	<p>Fluid is a substance which offers no resistance to change of</p> <ul style="list-style-type: none"> A. Pressure B. Flow C. Shape D. Volume 	C
151	<p>The pressure less than atmospheric pressure is known as</p>	D

	<ul style="list-style-type: none"> A. Suction pressure B. Vacuum pressure C. Negative gauge pressure D. All of these 	
152	<p>In open channel flow in a rectangular channel, the ratio between the critical depth and the initial depth, when a hydraulic jump occurs is _____?</p> <ul style="list-style-type: none"> A. 0.5 B. 0.84 C. 1.84 D. 1.25 	C
153	<p>Pick out the wrong statement?</p> <ul style="list-style-type: none"> A. A fluid mass is free from shearing forces, when it is made to rotate with a uniform velocity B. Newton's law of viscosity is not applicable to the turbulent flow of fluid with linear velocity distribution C. Laminar flow of viscous liquids is involved in the lubrication of various types of bearings D. Rise of water in capillary tubes reduces with the increasing diameter of capillary tubes 	B
154	<p>Pick out the wrong statement?</p> <ul style="list-style-type: none"> A. The eddy viscosity is a function of the type of turbulence involved B. The eddy viscosity is a fluid property C. The viscosity of gas increases with increase in temperature D. The viscosity of a liquid increases with decrease in temperature 	B
155	<p>Pick out the correct statement pertaining to Venturimeter ?</p> <ul style="list-style-type: none"> A. A Venturimeter with a fixed pressure drop discharges more, when the flow is vertically downward, than when the flow is vertically upward B. The co-efficient of contraction of a Venturimeter is always unity C. For a fixed pressure drop, the discharge of a gas through a Venturimeter is greater, when compressibility is taken into account, than when it is neglected D. None of these 	D
156	<p>The unit of surface tension is</p> <ul style="list-style-type: none"> A. N/m B. N/m² C. N/m³ D. N-m 	A
157	<p>The flow of water through the hole in the bottom of a wash basin is an example of</p> <ul style="list-style-type: none"> A. Steady flow B. Uniform flow C. Free vortex 	C

	D. Forced vortex	
158	The value of coefficient of discharge is _____ the value of coefficient of velocity. A. Less than B. Same as C. More than D. None of these	A
159	The hydraulic mean depth for a circular pipe of diameter (d) is A. $d/6$ B. $d/4$ C. $d/2$ D. d	B
160	Differential manometer gives theamong two pressures A. Variation B. Difference C. Both a and b D. None of the option	C

Sr. #	MCQs	Answer
161	The difference between reference and potential ET lies in the A. Soil B. Climate C. Vegetation D. Water	C
162	The value of Crop coefficient K_c lies between A. $0.2 = k_c = 1.3$ B. $0.2 = k_c = 0.3$ C. $0.12 = k_c = 1.3$ D. $1.0 = k_c = 0.3$	A
163	Product of soil coefficient, reference evapotranspiration, and crop coefficient resulted in A. Potential evapotranspiration B. Actual evapotranspiration C. Reference evapotranspiration D. All of the above	B
164	which is not a component of the hydrograph A. Base flow B. Surface Runoff C. Infiltration D. Peak Point	C

165	The hydrograph gradually rises and reaches its peak value after A. lag time B. time of concentration C. basin lag D. both A & C	D
166	Total runoff ordinate are actually the values of A. Direct runoff B. Gauged discharge of stream C. Baseflow D. Unit hydrograph ordinates	B
167	The sum of overland flow, interflow, and the groundwater flow constitutes the A. Direct runoff B. Total runoff C. Streamflow D. Both B & C	D
168	The lines joining all points in a basin of some key time elements in a storm, such as beginning of precipitation, are called A. Isochrones B. Isobars C. Isohyets D. Isotherm	A
169	which one is not a method for the estimation of runoff A. Empirical Formulas, Curves & Tables B. Infiltration method C. Rational method D. Energy balance method	D
170	Procedure to determine the outflow hydrograph of a river given the inflow hydrograph at one or more upstream points is known as A. Flow Routing B. Flow duration curves C. Hyetograph D. Flow measurement	A
171	The water falling on the earth surface in any form is called A. Atmosphere B. Climate C. Weather D. Precipitation	D
172	Hails are the falling of A. Water B. Lumps C. Vapors D. Rain	B

173	<p>Frontal Rain is caused by</p> <ul style="list-style-type: none"> A. Convection currents B. Winds from sea C. Cyclonic activity D. Condensation of water evaporated from mountains 	C
174	<p>In which region does the rainfall occur throughout the year</p> <ul style="list-style-type: none"> A. Equatorial region B. Polar region C. Sub polar region D. Middle latitude region 	A
175	<p>The main factor which affects the infiltration capacity is</p> <ul style="list-style-type: none"> A. Thickness of saturated layer B. Depth of surface detention C. Soil moisture D. All the above 	D
176	<p>The surface runoff is due to</p> <ul style="list-style-type: none"> A. Initial rain B. Residual rain C. Rain in the net supply interval D. All the above 	C
177	<p>Hydrology is the science which deals with</p> <ul style="list-style-type: none"> A. Surface Water B. Underground water C. River water D. Both A & B 	D
178	<p>18. Which of the following are used to store water during peak periods?</p> <ul style="list-style-type: none"> A. Sews B. Canals C. Storage drums D. Storage Reservoirs 	D
179	<p>Isohyets are the imaginary lines joining the points of equal</p> <ul style="list-style-type: none"> A. Pressure B. Height C. Humidity D. Rainfall 	D
180	<p>Which of the following is the largest reservoir within the hydrologic cycle?</p> <ul style="list-style-type: none"> A. Ice sheets B. The oceans C. Groundwater D. The atmosphere 	B

181	A rainfall of 1.5 cm occurred in a 6-hr storm and if ϕ index was 0.20 cm/h. the rainfall excess was A. 0.0 cm B. 0.30 cm C. 1.20 cm D. -0.30 cm	B
182	Spillway of major storage projects are usually designed for a fold of A. 100 years B. 1000 years C. 30 years D. 60 years	B
183	Mean precipitation over an area is best obtained from the rain gauges observations by the following method: A. Arithmetic mean B. Thiessen polygon C. Isohyetal map D. Orographically weighted isohyetal map	D
184	A lysimeter is used to measure A. infiltration B. evaporation C. evapotranspiration D. surface run-off	D
185	The volume of water that can be released by gravitational flow from a unit volume of aquifer is called A. porosity B. specific yield C. specific retention D. specific capacity	B
186	Hydrology is the science which deals with A. rain water B. river water C. sea water D. surface and groundwater	D
187	The main factor which affects the infiltration capacity, is A. thickness of saturated layer B. depth of surface detention C. soil moisture D. all the above	D
188	Precipitation includes A. rain B. snow C. hail D. all the above	D

189	Sharp crested weirs are generally used for A. for large flows B. for small flows C. for streams with high sediment load D. for medium flow	A
190	The average mean velocity of a stream having depth, h , may be obtained by taking the average of the readings of a current meter at a depth of $0.1 h$ and $0.9 h$ A. $0.2h$ and $0.8h$ B. $0.3h$ and $0.7h$ C. $0.4h$ and $0.6h$	A
191	The time required by rain water to reach the outlet of drainage basin is generally called A. time of concentration B. time of overland flow C. concentration time of overland flow D. duration of rainfall	A
192	Consumptive use of a crop during growth is the amount of A. interception B. transpiration C. evaporation D. all the above	D
193	The principle of continuity is based on A. law of conservation of energy B. law of conservation of mass C. law of conservation of momentum D. all of the above	B
194	Useful moisture for plant growth is A. capillary water B. gravity water C. hygroscopic water D. chemical water	A
195	The field capacity of a soil depends on A. capillary tension in the soil B. porosity of soil C. both a and b D. none of the above	C
196	The useful soil moisture within root zone is equal to A. field capacity B. saturation capacity C. moisture at permanent wilting point D. difference between field capacity and permanent wilting point	D

197	A land is said to be water logged if its soil pores within A. a depth of 40cm are saturated B. a depth of 50cm are saturated C. root zone of the crop are saturated D. all of above	D
198	An intense storm involves A. greater intensity B. greater kinetic energy C. greater potential energy D. both A and B	D
199	Peak runoff rate determined by rational method for 10 years return period from watershed area of 75 hectares having run off coefficient as 0.44 with rainfall intensity of 75 mm/h is A. 6.875 m ³ /h B. 6.875 m ³ /s C. 68.75 m ³ /s D. none of above	B
200	The instrument used for measuring the velocity of flow, is known as A. venture meter B. orifice meter C. pitot tube D. weir	C
201	The movement of water through the soil profile is called A. Infiltration B. Percolation C. Runoff D. Transpiration	B
202	Infiltration rate is high; ----- water will pass through the soil surface and erosion will----- A. Less, increase B. More, reduce C. Less, reduce D. More increase.	B
203	The rate of evaporation has been found to ----- with ----- in the salt content of the water A. Increase, decrease B. Decrease, increase C. Decrease, decrease D. Increase, increase.	D
204	To find the evaporation from reservoirs the calculated evaporation should be multiplied A. 0.77 B. 0.67 C. 7.7 D. 6.7	A

205	The ratio of weight of water transpired to the weight of dry matter in the plant is called A. Transportation ratio B. Evapotranspiration ratio C. Infiltration ratio D. None of those	A
206	Run off will occur only when the rate of -----exceeds the rate at which water infiltrate in the soil A. Precipitation B. Infiltration C. Evaporation D. None of these	A
207	The ratio of the peak run off rate to the rainfall intensity is called A. Run of co-efficient B. Intensity co-efficient C. Infiltration co-efficient D. none of these.	A
208	Ratio of actual ET of a specific crop to potential ET is called: A. ET ratio B. crop coefficient C. pan coefficient D. depletion factor	B
209	The period of direct surface runoff of the unit hydrograph is called: A. time base B. base width C. unit period D. both (a) & (b)	D
210	When volume of direct surface runoff is divided by the area of drainage basin under study, we get: A. net rainfall B. unit hydrograph ordinates C. base flow D. total runoff	A
211	Unit hydrograph ordinates are multiplied by P_{net} to get direct runoff ordinates; this process is called: A. UG derivation B. UG alteration C. UG application D. base flow separation	C

212	While converting a 3-hr UG having time base of 24 hours to 6-hr UG using S-curve method, what will be required number of successions to be developed? A. 8 B. 4 C. 10 D. 12	A
213	While converting a 4-hr UG into 6-hr UG using S-curve method, the ordinates of S-curve difference will be multiplied by: A. 6/4 B. 4/6 C. 2 D. 10	B
214	Fraction of total incoming radiation, which is reflected back by the earth to atmosphere, is called: A. albedo B. lapse rate C. insulation D. both A & B	A
215	Precipitation which occurs due to clash of two air masses having contrasting temperatures and densities, is called: A. convectonal precipitation B. frontal precipitation C. orographic precipitation D. cyclonic precipitation	B
216	Which of the following is non-recording raingauge? A. tipping bucket gauge B. weighing type C. float type D. Symon's gauge	D
217	Formation of a layer or film of water before it starts flowing to generate runoff, is called: A. depression storage B. percolation C. detention storage D. none of these	C
218	When an air mass is cooled at constant vapor pressure, it gets condensed at a temperature, called: A. lapse rate B. saturation point C. dew point D. none of these	C

219	A constant infiltration rate, which is achieved after the soil is saturated, is called: A. maximum infiltration rate B. basic infiltration rate C. lapse rate D. none of these	B
220	Which of the following has same units as that of infiltration rate? A. runoff B. evapotranspiration C. rainfall intensity D. both (b) & (c)	B
221	In hydrograph theory, groundwater contribution to the stream is called: A. base flow B. sub-surface flow C. surface flow D. both b& c	A
222	Which of the following is part of direct runoff? A. base flow B. sub-surface flow C. surface flow D. both (b)& (c)	D
223	In hydrologic cycle filling of undulations on the earth surface by water before it starts flowing, is called: A. infiltration B. percolation C. depression storage D. seepage	C
224	Difference between saturated vapor pressure and actual vapor pressure is called: A. relative humidity B. absolute humidity C. specific humidity D. saturation deficit	D
225	Ratio of actual vapor pressure to saturation vapor pressure is called: A. relative humidity B. absolute humidity C. specific humidity D. saturation deficit	A
226	Rate of decrease in atmospheric temperature per unit rise in vertical direction through troposphere is called: A. albedo B. lapse rate C. insulation D. both (a) & (b)	B

227	<p>Lines of equal atmospheric pressure are known as:</p> <p>A. isohyets B. isobars C. isotherms D. contours</p>	B
228	<p>Which of the following instruments is used for measuring relative humidity?</p> <p>A. barograph B. bimetallic actinography C. hair hygograph D. pyranometer</p>	C
229	<p>Which of the following instruments is used for measuring radiation heat?</p> <p>A. barograph B. thermograph C. hair hygograph D. pyranometer</p>	D
230	<p>Which of the following rain gauges cannot be used for recording snow?</p> <p>A. weighing type B. float type C. tipping bucket type D. both (a) & (b)</p>	C
231	<p>The capacity of one bucket in tipping bucket raingauge is:</p> <p>A. 0.25 mm B. 0.5 mm C. 1.5 mm D. 1.25 mm</p>	C
232	<p>For saturated condition, when humidity is 100%, the difference between dry bulb and wet bulb temperatures is:</p> <p>A. maximum B. relatively high C. negative D. zero</p>	A
233	<p>Precipitation that occurs due to lifting of moist air after striking with mountain barriers is called:</p> <p>A. convectional precipitation B. frontal precipitation C. orographic precipitation D. cyclonic precipitation</p>	D
234	<p>Ratio of rainfall in a particular year to average annual rainfall is called:</p> <p>A. rainfall ratio B. index of wetness C. percentage rainfall D. specific rainfall</p>	C

235	An index of wetness of 60% shows that in a particular year, there is: A. 40% more rainfall B. 60% more rainfall C. 40% less rainfall D. 60% less rainfall	C
236	Which of the following methods is used for adjustment of rainfall records at a station? A. station-year method B. isohyetal method C. double mass analysis D. arithmetic average method	C
237	In which method of determining mean aerial depth of precipitation, the addition or removal of a raingauge will change the whole scenario? A. arithmetic average method B. Thiessen polygon method C. isohyetal method D. both (a) & (b)	B
238	If coefficient of variation calculated from rainfall data of different raingauge stations in an area is 40% and permissible error in estimating average depth of rainfall is 10%, what would be the optimum number of raingauge stations to be established in the area? A. 4 B. 16 C. 30 D. 3	B
239	The graph between rainfall intensity and time is called: A. hietograph B. hydrograph C. mass curve of rainfall D. both (a) & (b)	A
240	Time from the centeroid of net rainfall to the peak of hydrograph is called: A. time of concentration B. lag time C. basin lag D. both (b) & (c)	D

Sr. #	MCQ	Answer
241	Colluvial soils (talus) are transported by: A. Water B. Wind C. Gravity D. Ice	C
242	Water-transported soils are termed: A. Acoline	B

	B. Alluvial C. Colluvial D. Till	
243	Glacier-deposited soils are called: A. Talus B. Loess C. Drift D. None of above	C
244	Cohesionless soils are formed due to: A. Oxidation B. Hydration C. Physical disintegration D. Chemical decomposition	C
245	When the products of rock weathering are not transported but remain at the place of formation, the soil is called: A. Alluvial soil B. Talus C. Residual soil D. Acolian soil	C
246	The following type of soil is not glacier-deposited.: A. Drift B. Till C. Outwas BRGFh D. Bentonite	D
247	The water content of a highly organic soil is determined in an oven at a temperature of: A. 105°C B. 80°C C. 60°C D. 27°C	C
248	Pycnometer method for water content determination is more suitable for: A. Clay B. Loess C. Sand D. Silt	C
249	The gas formed by the reaction of calcium carbide with water is: A. Carbon dioxide B. Sulphur dioxide C. Ethane D. Acetylene	D
250	The ratio of the volume of voids to the total volume of soil is: A. Voids ratio B. Degree of saturation C. Air content D. Porosity	D
251	Dry density of soil is equal to the: A. Mass of solids to the volume of solids.	B

	<p>B. Mass of solids to the total volume of soil.</p> <p>C. Density of soil in the dried condition.</p> <p>D. None of the above</p>	
252	<p>The most accurate method for the determination of water content in the laboratory is:</p> <p>A. Sand bath method</p> <p>B. Oven-drying method.</p> <p>C. Pycnometer method.</p> <p>D. Calcium carbide method.</p>	B
253	<p>A soil has a bulk density of 1.80 g/cm^3 at a water content of 5%. If the void ratio remains constant then the bulk density for a water content of 10% will be:</p> <p>A. 2.00 g/cm</p> <p>B. 1.88 g/cm</p> <p>C. 1.82 g/cm</p> <p>D. 1.95 g/cm</p>	B
254	<p>In a wet soil mass, air occupies one-sixth of its volume and water occupies one-third of its volume. The void ratio of the soil is:</p> <p>A. 0.25</p> <p>B. 0.50</p> <p>C. 1.50</p> <p>D. 1.00</p>	D
255	<p>A soil sample has a specific gravity of 2.60 and a void ratio of 0.78. The water content required to fully saturate the soil at that void ratio will be:</p> <p>A. 20%</p> <p>B. 30%</p> <p>C. 40%</p> <p>D. 60%</p>	B
256	<p>In Stokes' law, the terminal velocity of the particle is:</p> <p>A. Proportional to the radius of the particle.</p> <p>B. Proportional to the square of the radius of particle.</p> <p>C. Inversely proportional to the square of the radius of particle.</p> <p>D. None of the above.</p>	B
257	<p>Stoke's law does not hold good if the size of particles is:</p> <p>A. Greater than 0.2 mm</p> <p>B. less than $0.2 \mu\text{m}$</p> <p>C. Neither A Nor B</p> <p>D. Both A and B</p>	D
258	<p>Pretreatment of soil to remove the organic matter by oxidation is done with:</p> <p>A. Sodium hexametaphosphate</p> <p>B. Oxygen</p> <p>C. Hydrogen peroxide</p> <p>D. Hydrochloric acidc</p>	C
259	<p>The particle-size distribution curve with a hump is obtained for a:</p> <p>A. Uniform soil</p> <p>B. Well-graded soil</p> <p>C. Gap-graded soil</p> <p>D. Poorly-graded soil</p>	C

260	For a well-graded sand, the coefficient of curvature should be: A. More than 3 B. Between 1 and 3 C. Less than 1 D. None of above	B
261	For a dense sand, the relative density is: A. Between 35 and 65 B. Between 65 and 85 C. Between 85 and 100 D. Greater than 100	B
262	A well-graded sand should have: A. $C_u \geq 4.00$ B. $C_u \geq 6.00$ C. $C_u \geq 1.00$ D. $C_u \geq 3$	B
263	In hydrometer analysis for a soil mass: A. Both meniscus correction and dispersing agent correction are negative B. Both meniscus correction and dispersing agent correction are positive C. Meniscus correction is positive while dispersing agent correction is negative D. Meniscus correction is negative while dispersing agent correction is positive	C
264	At shrinkage limit, the soil is: A. Dry B. Partially saturated C. Saturated D. None of above	C
265	The shrinkage index is equal to: A. Liquid limit minus plastic limit. B. Liquid limit minus shrinkage limit. C. Plastic limit minus shrinkage limit. D. None of above.	C
266	Toughness index of a soil is the ratio of: A. Plasticity index to the flow index. B. Liquidity index to the flow index. C. Consistency index to the flow index. D. Shrinkage index to the flow index.	A
267	A stiff clay has a consistency index of: A. 50-75 B. 75-100 C. Greater than 100 D. Less than 50	B
268	The plasticity index of a highly plastic soil is about: A. 10-20 B. 20-40 C. Greater than 40 D. Less than 10	B
269	The activity of the mineral montmorillonite is: A. Less than 0.75	D

	<p>B. Between 0.75 and 1.25</p> <p>C. Between 1.25 and 4</p> <p>D. Greater than 4</p>	
270	<p>A soil sample has $I_p = 45\%$, $P = 25\%$ and $SL = 15\%$. For a natural water content of 30%, the consistency index will be:</p> <p>A. 75%</p> <p>B. 50%</p> <p>C. 40%</p> <p>D. 25%</p>	A
271	<p>For the soil with $LL = 45\%$, $P = 25\%$ and $S_u = 15\%$, the plasticity index is:</p> <p>A. 50%</p> <p>B. 20%</p> <p>C. 60%</p> <p>D. 40%</p>	B
272	<p>IS classification of soil in many respects is similar to:</p> <p>A. AASHTO classification</p> <p>B. Textural classification</p> <p>C. Unified soil classification</p> <p>D. MIT classification</p>	C
273	<p>The maximum size of particles of silt is:</p> <p>A. 75μ</p> <p>B. 60μ</p> <p>C. 2μ</p> <p>D. 0.2μ</p>	A
274	<p>The maximum size of particles of clay is:</p> <p>A. 0.2 mm</p> <p>B. 0.02 mm</p> <p>C. 0.002 mm</p> <p>D. 0.0002 mm</p>	C
275	<p>According to IS classification system, the soils can be classified into:</p> <p>A. 15 groups</p> <p>B. 18 groups</p> <p>C. 3 groups</p> <p>D. 7 groups</p>	B
276	<p>The soils which plot above the A line in the plasticity chart are:</p> <p>A. clays</p> <p>B. silts</p> <p>C. sands</p> <p>D. organic soils</p>	A
277	<p>A silty soil gives a positive reaction in:</p> <p>A. Toughness test</p> <p>B. Dilatancy test</p> <p>C. Dry strength test</p> <p>D. None of above</p>	B
278	<p>The maximum value of the term (F-15) in the group index is taken as:</p> <p>A. 20</p> <p>B. 30</p>	C

	C. 40 D. 60	
279	The behavior of clay is governed by: A. Mass energy B. Surface energy C. Both A. and B. D. Neither A. and B.	B
280	Honey-combed structure is found in: A. Gravels B. Coarse sands C. Fine sands and silts D. Clay	C
281	The weakest bond in soils is: A. Ionic bond B. Covalent bond C. Hydrogen bond D. Secondary valance bond	D
282	An octahedral unit has: A. Four negative charges B. Three negative charges C. One negative D. No negative charge	B
283	In illite mineral, the bond between structural units is: A. Hydrogen bond B. Potassium ion bond C. Water molecules bond D. Covalent bond	B
284	The plasticity characteristics of clays are due to: A. Adsorbed water B. Free water C. Capillary water D. None of above	A
285	In fine sands and silts, the most common type structure is: A. Single B. Honey comb C. Flocculated D. Dispersed	B
286	The base exchange capacity of the mineral montmorillonite is about: A. 70 meq/100 g B. 700 meq/100 g C. 7 meq/100 g D. 40 meq/100 g	A
287	Capillary rise in a small tube is due to: A. Cohesion B. Adhesion C. Both cohesion and adhesion D. Neither A. nor B.	C

288	The surface tension of water at normal temperatures is about: A. 0.73 dynes/m B. 0.73 N/m C. 0.073 N/m D. 0.073 kN/m	C
289	The capillary rise in clay is usually between: A. 0.10 and 0.15 m B. 0.3 and 1.0 m C. 1.0 and 10.0 m D. greater than 10 m	D
290	A pF value of zero corresponds to a soil section of: A. 1 m B. zero metre C. 1 cm D. 10 cm	C
291	The frost heave in the following type of soils is generally high: A. Coarse sands B. clays C. Fine sands and silts D. gravels	C
292	Bulking of sands is usually: A. Less than 10% B. Between 20 to 30% C. Greater than 30% D. Between 10 to 20%	B
293	The frost heave depth as percentage of the soil depth in fine sands and silts is about: A. 4 to 5% B. 5 to 10% C. 10 to 15% D. 20 to 30%	D
294	The permeability of soil varies: A. inversely as square of grain size B. as square of grain size C. as grain size D. inversely as void ratio.	B
295	The maximum particle size for which Darcy's law is applicable is: A. 0.2 mm B. 0.5 mm C. 1.0 mm D. 2.0 mm	B
296	According to U.S.B.R, a soil with a coefficient of permeability of 10 mm/sec will be classified as: A. Pervious B. Impervious C. Semi-pervious D. Highly pervious	C

297	The coefficient of permeability of clay is generally: A. Between 10 and 10 ⁻² mm/s B. Between 10 and 10 mm/s C. Between 10 and 10 mm/s D. Less than 10 mm/s	C
298	A constant-head permeameter is used for: A. Coarse grained soils B. Silty soils C. Clayey soils D. Organic soils	A
299	The coefficient of permeability of a soil: A. increases with an increase in temperature, B. increases with a decrease in temperature. C. increases with a decrease in unit weight of water. D. decreases with an increase in void ratio.	A
300	For a sphere of 0.5 mm diameter, the specific surface is: A. 12 mm ⁻¹ B. 6 mm ⁻¹ C. 8 mm ⁻¹ D. 9 mm ⁻¹	A
301	Disintegration of rocks into smaller particles due to ice is a type of _____ weathering. A. Chemical B. Mechanical C. Biological D. None of these	B
302	With the decrease in particle size with same volume of solids, soil porosity _____? A. Increases B. Decreases C. Remains Constant D. None of these	A
303	A fully saturated soil has _____. A. No air voids B. No voids C. Only water voids D. Both a and c	D
304	Soil compaction test is performed to find maximum density of soil at specific _____. A. Moisture content B. Compactive effort C. Volume D. Both a and b	D
305	_____ density of soil has the highest value. A. Bulk B. Dry C. Particle	A

	D. Saturated	
306	Material transported and deposited by running water is known as: A. Colluvial B. Loess C. Aeolian D. Alluvial	D
307	A rock composes of minerals that resist chemical weathering is called: A. Stable rock B. Balance rock C. Steady rock D. None of these	A
308	Atterberg limits are used for the classification of _____ particles. A. Coarse B. Finer C. Medium D. All of these	B
309	For soil, the two main physical properties are: A. Temperature & Density B. Surface tension & capillarity C. Color and texture D. All of them	C
310	Formation of soil depends upon: A. Weather B. Parent material C. Time D. Both a and b	D
311	In unified classification system, Boulders are particles with size above than_____. A. 200 mm B. 300 mm C. 75 mm D. 4.25 mm	B
312	Void ratio tells us about the: A. Viscosity B. Density C. Both a & b D. None of them	B
313	In grain size analysis test, effective size is: A. D10 B. D30 C. D60 D. D70	A
314	Porosity of soil is defined as the ratio of volume of voids to the total volume of soil. Its value is always: A. <1 B. >1 C. $0 < n < 1$	C

	D. -1	
315	In _____ aquifer, hydraulic conductivity is equal in all directions. A. Isotropic B. Anisotropic C. Homogenous D. Heterogenous	A
316	The moisture content of soil at the boundary between solid and semi solid state is called: A. Shrinkage limit B. Plastic limit C. Liquid limit D. None of these	A
317	_____ rollers provide greater compaction pressure and kneading effect. A. Smooth wheel B. Sheepsfoot C. Pneumatic D. Vibratory	B
318	If the soil voids are full of air, the soil is termed as: A. Air entered soil B. Partially saturated air C. Dry soil D. Dehydrated air	C
319	Which of the following soils has more plasticity index? A. Sand B. Silt C. Clay D. Gravel	C
320	Compaction of soil at a water content _____ than Optimum Water content results in random particle orientations. A. Higher B. Lower C. Equal D. Higher or equal	B

Sr. #	MCQ	Answer
321	The outlet type provided at the end in immediate vicinity of fall is _____ a) AOSM b) Open flume c) pipe d) all of these	b
322	For the design of a lined channel, the formula commonly used is _____ a) Kennedy's formula b) Lacey's formula c) Manning's formula d) Lindley's formula	c

323	In a gravity dam, slightly curved in plan, the external forces are resisted by _____ a) reinforcement provided in the dam body b) weight of dam c) arch action d) none of these	b
324	If two canals are taken off from both the flanks of a river at the site of a diversion head works, then the number of under sluices and divide wall will respectively, be _____ a) 1 and 1 b) 1 and 2 c) 2 and 1 d) 2 and 2	d
325	Gravity dams transfer load to foundation by _____ a) cantilever action b) arch action c) arch and cantilever action d) none of these	a
326	In a barrage project, a divide wall is provided to: a) separate the lower crest undersluice side from the higher crest weir side b) separate the higher crest undersluice side from the higher crest weir side c) keep the cross-currents away from the barrage body d) serve none of the above purposes	a
327	In a diversion headworks project, the canal head regulator is usually aligned _____ a) parallel to the barrage axis b) perpendicular to the divide wall c) parallel to the divide wall d) None of these	c
328	For more or less equitable distribution of supply, the outlet types preferred, from head reach to tail are _____ a) AOSM, open flume, pipe b) AOSM, pipe, open flume c) pipe, open flume, AOSM d) open flume, AOSM, pipe	a
329	In a gravity dam, the quantity of concrete is determined by _____ a) strength of concrete b) dead weight of dam c) both strength and weight of concrete d) none of them	b
330	Head sluices are the gate-controlled openings, in _____ a) the entire length of the barrage b) the undersluice length of the barrage c) the regulator the main off taking canal d) none of these	c

331	For proportionality, weir type outlets should be set at _____ depth: a) 0.3 b) 0.5 c) 0.6 d) 0.9	d
332	The Garret's diagrams are based on _____ a) Lacey's theory b) Khosla's theory c) Bligh's theory d) Kennedy's theory	d
333	The tunnel openings provided in front of a canal head regulator at a diversion headworks _____ a) Discharge sedimented water into the canal b) discharge sediment load into the undersluices, from where ejects out to the downstream river c) discharge clear water into the canal d) none of these	b
334	Lacey's silt factor is proportional to _____ a) $d^{0.5}$ b) $d^{1.5}$ c) d^2 d) none of these where d is the grain size	a
335	A good irrigation module is one, which _____ a) draws heavy silt from the canal b) draws clear water from the canal c) draws fair share of silt from the canal d) none of these	c
336	An irrigation outlet is said to be proportional, when it's _____ a) sensitivity is 1 b) flexibility is 1 c) setting is 1 d) all of these	b
337	Downstream section of straight drop spillway is called as _____ a) apron b) stilling basin c) both (a) and (b)	c

	d) none of above	
338	Rational method is suitable to compute peak runoff rate from_____ <ul style="list-style-type: none"> a) large watersheds b) small watersheds c) medium watersheds d) none of these 	b
339	In plain areas, the irrigation canals are usually aligned along_____ <ul style="list-style-type: none"> a) Across the contours b) Contour lines c) Valley lines d) Ridge line 	d
340	The canal which is not supposed to do any irrigation is called_____. <ul style="list-style-type: none"> a) minor distributary b) watercourse c) major distributary d) main canal 	d
341	What is the value of Bligh's coefficient for coarse-grained soil? <ul style="list-style-type: none"> a) 15 b) 12 c) 5 to 9 d) 8 	b
342	If the value of Bligh's coefficient for a particular soil is equal to 12 then, what is the safe hydraulic gradient for that soil? <ul style="list-style-type: none"> a) 1/12 b) 1/9 c) 1/15 d) 1/5 	a
343	A dam reservoir which is not provided with gate controls on its spillway and other sluices is called _____ <ul style="list-style-type: none"> a) detention dam b) storage reservoir c) retarding basin d) flood control reservoir 	c
344	A hydel power project has been envisaged to serve the water supply and irrigation needs of the area at its inception stage. The dam reservoir so constructed is known as _____ <ul style="list-style-type: none"> a) multipurpose reservoir b) single-purpose reservoir c) distribution reservoir d) retarding reservoir 	a
345	In which of the following reservoir the flood crest downstream can be better controlled and regulated properly? <ul style="list-style-type: none"> a) Distribution reservoir b) Multipurpose reservoir 	C

	c) Storage reservoir d) Retarding reservoir	
346	The vertical component of the earthquake wave which produces adverse effects on the stability of a dam when is acting in _____ a) upward direction b) downward direction c) both upward and downward direction d) any direction	B
347	A gravity dam is subjected to hydrodynamic pressure caused by _____ a) the rising waves of the reservoir when a flood wave enters into it b) the rising waves in the reservoir due to high winds c) the increase in water pressure momentarily caused by the horizontal earthquake acting towards the reservoir d) the increase in water pressure momentarily caused by the horizontal earthquake acting towards the dam	c
348	The upward acceleration of dam due to seismic activity will _____ a) increase the base pressure b) decrease the base pressure c) not affect the effective weight of the dam d) increase the horizontal dynamic force	a
349	The factor of safety against overturning generally varies between _____ a) 2 to 3 b) 1.5 to 2 c) 0.5 to 1.5 d) 1 to 2	a
350	The bottom portion of a concrete or a masonry gravity dam is usually stepped in order to _____ a) increase the overturning resistance of the dam b) increase the shear strength c) decrease the shear strength d) increase the frictional resistance	b
351	What is the maximum permissible tensile stress for high concrete gravity dam under worst conditions? a) 500 KN/m ² b) 500 kg/cm ² c) 5 kg/m ² d) 50 KN/m ²	a
352	What is the recommended value of shear friction factor against sliding? a) More than unity b) Less than unity c) More than 3 to 5 d) Less than 3	c
353	Presence of tail-water in a gravity dam _____ a) increases the principal stress and decreases the shear stress b) increases both the principal stress and the shear stress c) decreases the principal stress and increases the shear stress d) decreases both the principal stress and the shear stress	d
354	An ungated spillway starts functioning as soon as the water level in the reservoir crosses the _____	c

	a) maximum reservoir level b) minimum reservoir level c) maximum conservation level d) full Supply level	
355	The spillway can be best built independently of the dam when there is _____ a) deep narrow gorge with steep slopes b) deep narrow gorge with gradual slopes c) wide gorge with a gradual slope d) wide valley with moderate slopes	a
356	Which of the following is a secondary safety arrangement? a) Safety valves b) Spillway gates c) Subsidiary spillway d) Energy dissipaters	c
357	Which of the following spillway is least suitable to earthen dams? a) Ogee spillway b) Chute spillway c) Side-channel spillways d) Shaft spillway	a
358	In the functioning of an ogee spillway, the operating head _____ a) frequently exceeds the design head b) rarely exceeds the design head c) never exceeds the design head d) has no connection with the design head	b
359	The spillway which can be called as an overflow spillway is essentially _____ a) an ogee spillway b) a shaft spillway c) a chute spillway d) a syphon spillway	a
360	What is Bazin's profile? a) Profile for the lower nappe of a free-falling jet b) The profile obtained for the upper nappe of a free-falling jet c) Crest profile d) Profile of both upper and lower nappe	a
361	If the spillway is constructed in continuation to the dam at one end, it may be called as _____ a) saddle weir b) flank weir c) waste weir d) temporary weir	b
362	The spillway which can be adopted with ease on gravity as well as earthen dams is _____ a) ogee spillway b) chute spillway c) both ogee and chute spillway d) straight drop spillway	b
363	The side slope of approach channel of chute spillway is _____	a

	<ul style="list-style-type: none"> a) 1:1 b) 1:1.5 c) 1:3 d) 1:2.5 	
364	<p>The portion of a chute spillway which is known as its control structure is _____</p> <ul style="list-style-type: none"> a) low ogee weir b) chute channel c) approach channel leading the water from the reservoir to the ogee weir d) silting basin at its bottom 	a
365	<p>What is the path represented by the streamlines?</p> <ul style="list-style-type: none"> a) Hydraulic Jump b) Flow Net c) Energy Dissipation d) Water Flow 	d
366	<p>How many corrections are needed for the complex profile broken from simple forms, to be valid?</p> <ul style="list-style-type: none"> a) 1 b) 2 c) 3 d) 4 	c
367	<p>What is the name of the gradient pressure at the exit end?</p> <ul style="list-style-type: none"> a) Gradient of Pressure b) Exit Gradient c) Streamline Gradient d) Equipotential Gradient 	b
368	<p>Which method is evolved by khosla for designing of hydraulic structures?</p> <ul style="list-style-type: none"> a) Method of Gradients b) Method of Variables c) Method of Independent Variables d) Method of Flow Nets 	c
369	<p>By how many considerations the depth downstream vertical cutoff is governed?</p> <ul style="list-style-type: none"> a) 2 b) 1 c) 3 d) 4 	a
370	<p>Which type of weir is suitable for any type of foundation?</p> <ul style="list-style-type: none"> a) Sloping Weir b) Vertical Drop Weir c) Parabolic Weir d) Masonry Sloping Weir 	b
371	<p>What is the main difference between a dam and weir?</p> <ul style="list-style-type: none"> a) Height and Duration of Storage b) Capacity of Water c) Material used for Construction d) Location of the Structure 	a
372	<p>In which type of weir energy dissipation takes place?</p> <ul style="list-style-type: none"> a) Barrage b) Vertical Drop Weir c) Sloping Weir 	d

	d) Parabolic Weir	
373	Which type of weir is of recent origin? a) Vertical Drop Weir b) Masonry or Concrete Sloping Weir c) Parabolic Weir d) Barrage	b
374	What is the difference between a weir and a barrage? a) Discharge Capacity b) No Solid Obstruction c) Storage Capacity d) Velocity of Flow	b
375	What type of losses can be mainly avoided by lining the canals? a) Evaporation Losses b) Seepage Losses c) Erosion of Canal Bed d) Discharge Losses at Branch Canals	b
376	What is the name given to the land unfit for agriculture due to waterlogging? a) Desert b) Tundra c) Waterlogged Area d) Thur	d
377	Depending on what factor does the lining of a canal can increase the capacity of the canal? a) Width of the Canal b) Type of Flow c) Velocity d) Side Slope	c
378	What type of major dangers can the lining of canals extinguish? a) Leakages b) Floods c) Water-logging d) Seepage Losses	b
379	Calculate the central depth of a triangular channel section to carry a discharge of 15 cumecs. Consider the available slope as 1 in 9000. Assume the side slopes of the channel be 1.25:1 and manning's constant is 0.015 for good brick work in lining. a) 2.94 m b) 3.14 m c) 2.25 m d) 2.77 m	a
380	What is the safe limiting velocity for cement concrete lining? a) 1.5 m/s b) 2.2 m/s c) 2.7 m/s d) 1.8 m/s	c
381	Drainage relief pockets are provided _____ a) at isolated locations in the bed as well as sides of the lined canal b) in the bed of the canal c) in the sides of the canal d) anywhere in the canal	a

382	Pressure relief valves may help in _____ a) releasing the hydrostatic pressure b) holding the hydrostatic pressure c) increasing the hydrostatic pressure d) may increase or decrease the hydrostatic pressure	a
383	Pipe drains run _____ a) longitudinally on the bed and transverse to the length of canal on the side slopes b) longitudinally to the length of the canal on the side slopes and transverse to the bed c) longitudinally to the length of the canal d) transverse to the bed	a
384	Which type of lining is adopted when the channels have become stable and no danger of scouring is expected? a) Brick lining b) Single burnt clay tile lining c) In-situ cement concrete lining d) Flexible membrane lining in the bed and rigid lining on the sides	d
385	What are the types of sediment load? a) Bedload and Suspended load b) Bedload and Dissolved load c) Bedload, Dissolved load and Suspended load d) Suspended load and Dissolved load	c
386	On increasing velocity beyond the threshold stage of motion, the bed develops _____ shape. a) dunes with ripples b) saw-tooth ripples c) anti-dunes d) flat surface	b
387	When the velocity is further increased beyond the stage where sand waves are formed in association with the surface waves, the waves are then called as _____ a) dunes b) ripples c) flat surface d) antidunes	d
388	On which factor does the movement of bedload depends? a) Velocity of Flow b) Type of Flow c) Depth of Flow d) Width of the River	a
389	What type of force is completely responsible for the bedload movement? a) Forces of Turbulence b) Drag Force c) Capillary Force d) Gravity Force	b
390	Which type of force is needed for suspension of suspended load in flowing water? a) Capillary Force b) Drag Force c) Forces of Turbulence d) Gravity Force	c
391	What cause is prime responsible for the heavy movement of water from main canal	a

	<p>to branch canal?</p> <p>a) Existence of Favorable Gradient b) Velocity of Flow c) Type of Flow d) Depth of the Canal</p>	
392	<p>Water in which condition or state carry a maximum amount of sediment?</p> <p>a) Uniform State b) Vapor State c) Floods d) Ice</p>	c
393	<p>What minimum value of shear stress is needed to move the sediment?</p> <p>a) Critical Velocity Ratio b) Critical Shear Stress c) Critical Velocity d) Drag Force</p>	b
394	<p>What is the main purpose of the canal escape?</p> <p>a) To Maintain Uniform Flow in the Canal b) To Remove Surplus Water c) To Maintain Constant Velocity of the Flow d) To Help for Proper Hydraulic Jump</p>	b
395	<p>What type of escape is preferred these days?</p> <p>a) Weir Type Escape b) Venturi Flume c) Regular Type Escape d) Tail Escape</p>	c
396	<p>What is the other name given to weir type escape?</p> <p>a) Surplus Water Escape b) Venturi Flume c) Tail Escape d) Scouring Escape</p>	c
397	<p>What is the purpose of the regulator type escape?</p> <p>a) To Remove Excess Silt b) To Maintain Uniform Flow in the Canal c) To Perform Proper Hydraulic Jump d) For Distribution of Discharge for the Canals</p>	a
398	<p>Scouring escapes have become obsolete because of?</p> <p>a) Piers b) Weir Walls c) Falls d) Silt Ejectors</p>	d
399	<p>The canal water flows freely under gravity in which of the following cross drainage works?</p> <p>a) Aqueduct and Super passage b) Super passage and Syphon c) Canal Syphon and Aqueduct d) Level-crossing and inlets outlets</p>	a
400	<p>A canal may be identified as a link canal or irrigation canal by visual inspection based on the following:</p> <p>a) Link canal is always in trapezoidal cross-section b) Irrigation canal is always lined</p>	c

	<p>c) Link canal is below the ground surface elevation, while the irrigation canal is above the ground surface</p> <p>d) Link canal is above the ground surface, while the irrigation canal is below the ground surface elevation</p>	
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Sr. #	Question	Answer
401	<p>What is surplus in cut and fill method through grid data</p> <p>a) it is the difference between volume all cuts and fills</p> <p>b) it is the difference between area all cuts and fills</p> <p>c) it is the difference of all rise and fall based on BS/IS/FS of grid data</p> <p>d) it is the difference of RL of all points with respect to BM</p>	D
402	<p>What is surplus in cut and fill method through grid data</p> <p>a) it is the difference between volume all cuts and fills</p> <p>b) it is the difference between area all cuts and fills</p> <p>c) it is the difference of all rise and fall based on BS/IS/FS of grid data</p> <p>d) it is the difference of RL of all points with respect to BM</p>	D
403	<p>In reiteration method of angle measurement through theodolite</p> <p>a) The final reading of the vernier should be same as its initial reading.</p> <p>b) The final reading of the vernier should have 90 degree difference from its initial reading.</p> <p>c) The final reading of the vernier should have 180-degree difference from its initial reading.</p> <p>d) The final reading of the vernier should have 270 degree difference from its initial reading.</p>	A
404	<p>Tick the wrong statement</p> <p>a) Level Surface is one where water do not move</p> <p>b) Level surface and horizontal surface are always same</p> <p>c) Level surface and horizontal surface are sometimes same</p> <p>d) horizontal surface is tangent to level surface</p>	B
405	<p>Tick the wrong statement</p> <p>a) BS is a positive sight</p> <p>b) IS is negative sight</p> <p>c) If instrument is shifted after 5th reading, then there are three IS</p> <p>d) IS can be the last reading</p>	D
406	<p>What is true for contour lines</p> <p>a) All points on contour line have same elevation</p> <p>b) Two contour lines may intersect under some special case</p> <p>c) If contour lines are close to each other, it indicates gentle slope</p> <p>d) Closed contour lines with higher elevation towards the center indicate flat surface</p>	C
407	<p>In contour map, gradient is based on</p> <p>a) Contour interval and contour level</p> <p>b) Horizontal Equivalent and contour level</p> <p>c) Horizontal Equivalent and contour interval</p> <p>d) contour level only</p>	C
408	<p>Tick the wrong statement</p> <p>a) RL of Change point cannot be calculated</p> <p>b) FS is equal to RL subtracted from HI</p> <p>c) BM and RL are not the same</p> <p>d) CP have both FS and BS</p>	A

409	<p>Tick the wrong statement</p> <ul style="list-style-type: none"> a) All contour lines must close either within the map boundary or outside b) Index contour line are the main contour lines which are thick and elevations are mention on it c) Intermediate contour lines are placed between regular contour lines to visualize small but important forms d) All contour lines have different elevation 	C
410	<p>Tick the right statement</p> <ul style="list-style-type: none"> a) if the staff rod is not vertical, then it will cause error in readings b) Cross hair of level is also called stadia hairs c) there will be collimation error if line of sight is horizontal d) there is no need to check the bubble of auto level after each reading 	A
411	<p>Rise and fall method based on</p> <ul style="list-style-type: none"> a) BS and FS b) IS c) two consecutive readings d) HI 	B
412	<p>Contour map provide</p> <ul style="list-style-type: none"> a) physical characteristics of an area b) information of altitude of a point with respect to its location c) information regarding point of equal distance d) information regarding size of an object 	B
413	<p>The number mentioned on contour lines are</p> <ul style="list-style-type: none"> a) contour time b) elevation of points on contour line c) contour interval d) Horizontal equivalent 	B
414	<p>the difference between level of two consecutive contour is called</p> <ul style="list-style-type: none"> a) contour level b) elevation of points on contour line c) contour interval d) Horizontal equivalent 	C
415	<p>The horizontal equivalent is based on</p> <ul style="list-style-type: none"> a) scale of the map b) number of contour lines on map c) contour interval d) shape of contour 	A
416	<p>Type of error when line of sight is not parallel is called</p> <ul style="list-style-type: none"> a) parallax error b) collimation error c) loop misclosure d) dual error 	B
417	<p>The height of a point above datum is called</p> <ul style="list-style-type: none"> a) Height of instrument b) Back sight c) Fore sight d) Reduced level 	D
418	<p>In case the line of collimation is not horizontal due to improper adjustment then</p> <ul style="list-style-type: none"> a) error will be proportional to the distance between the point at which reading was taken from the instrument 	A

	<ul style="list-style-type: none"> b) there is no relationship between error and distance c) there will a fix error to be added in all readings d) it will not cause an error 	
419	<p>During leveling operation in a loop of 10 km, it was observed that the new height of 100 m Benchmark was 99.9 m. which statement will be true</p> <ul style="list-style-type: none"> a) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is no need of adjustment of error b) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is a need of adjustment of error there is no need of adjustment of error c) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is a need of adjustment of error there is a need of adjustment of error d) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is no need of adjustment of error there is a need of adjustment of error 	A
420	<p>the supplementary contour lines are</p> <ul style="list-style-type: none"> a) the main contour lines which are thick and elevations are mention on it b) the thinner, more common, lines between the index lines c) placed between regular contour lines to visualize small but important forms that regular contour lines are unable to show d) there is no such lines 	C
421	<p>drawing of right angle from a point outside of the line on the line when point is not accessible</p> <ul style="list-style-type: none"> a) is not possible b) can be estimated c) possible by selecting two points on the line, then drawing two offsets and interaction of offsets is projected as required angle d) possible by selecting four points on the line, then drawing two offsets and interaction of offsets is projected as required angle 	C
422	<p>when chaining is obstructed but vision is free than</p> <ul style="list-style-type: none"> a) parallel line cannot be drawn b) can be estimated c) parallel line can be drawn by taking two offsets of same length from the base line d) parallel line can be drawn by taking offsets of different length from the base line 	C
423	<p>when chaining and vision is obstructed</p> <ul style="list-style-type: none"> a) parallel line cannot be drawn b) can be estimated c) parallel line can be drawn by taking two offsets of same length from the base line and projecting the line after obstacle and taking again two offsets back to the base line d) parallel line can be drawn by taking one offset of same length from the base line and projecting the line after obstacle and taking again one offset back to the base line 	C
424	<p>Whole circle bearings and quadrantal bearings have same numeric values when</p> <ul style="list-style-type: none"> a) angle is less than 90 degree measured counter clock wise from north b) angle is less than 90 degree measured clock wise from north c) angle is less than 90 degree measured counter clock wise from south 	B

	d) angle is less than 90 degree measured clock wise from south	
425	Keeping view, the concept of Chain Traversing, which statement is true a) this traversing is not possible without angular measuring devices b) It is adopted when area cannot be divided into triangles like lake or standing crops c) it is done by tape only d) it is not suitable for closed traverse	B
426	Which statement is true a) fore bearing and back bearing has 360-degree difference b) using quadrantal bearings, changing the north into south is enough to convert fore bearing into back bearing c) if an angle is greater than 90 than it is considered as exterior angle d) None is true	D
427	Keeping in view the area calculation which statement is true a) area obtained by mid ordinate method and Simpson rule is same in all cases b) when baseline cuts the boundary line, Trapezoidal rule cannot be used c) when baseline cuts the boundary line, Trapezoidal rule be used by taking length of offset as Zero d) Simpson rule is not suitable for odd number of offsets	C
428	If there are offsets at irregular intervals a) mid ordinate method is used b) Trapezoidal method is used c) Simpson method is used d) None of these	D
429	Which type of survey is mostly adopted in the field of Agriculture on small scale a) Geodetic Survey b) Trigonometric Survey c) plane surveying d) Marine Surveying	C
430	the distance measured by tape is called a) Chaining b) Taping c) Both d) None	A
431	if the chain is longer than the actual length then a) the length measured will be smaller than the actual length b) the length measured will be greater than the actual length c) the area measured will be greater than the actual area d) the area measured will be equal to the actual area	A
432	Subsidiary Stations are a) Located at the start or end of the boundary b) located to run auxiliary lines for internal detail c) located outside of the area to run tie lines d) same as main station	B
433	Main stations should be located in such a way that a) many lines are to be drawn for locating internal details b) few lines are to be drawn for locating internal details c) many lines have to draw instead of one single main line d) None of these	B

434	The longest Survey line is called a) base line b) check line c) tie line d) offset	A
435	Offsets are a) Perpendicular b) Oblique c) Both d) None	C
436	check lines are used a) as proof lines b) to locate exterior details c) to check accuracy d) as base line	A
437	Gunter's Chain has a) 66 links b) 33 links c) 100 links of 1 ft long d) 100 links of 0.66 ft long	D
438	Engineers Chain is a) 100 ft in length b) 66 ft in length c) 33 ft in length d) 1000ft in length	A
439	Keeping in view the practical of pacing, which statement is true a) in 100 ft length, the number of paces of every surveyor are same b) in 100 ft length, the number of paces of every surveyor are not the same c) one pace is of 2.75 ft for every surveyor's irrespective of physic of surveyor d) none is true	B
440	Keeping in view the practical of offset, which statement is true a) perpendicular offsets cannot be drawn in the field b) oblique off set cannot be drawn in field c) length of perpendicular and oblique offset is same d) none is true	D
441	In reconnaissance survey a) detailed map of an area is prepared b) exact map of the area is prepared c) a hand sketch is prepared d) none is true	C
442	A pentagon constructed in the field should a) have all internal angles same b) have all internal angles as 90 degrees each c) sum of angles should be 540 d) sum of angles should be 500	C
443	Local attraction in the field can be observed when a) back bearing and fore bearing of a line have 180-degree difference b) back bearing and fore bearing of a line don't have 180-degree difference c) cannot be assessed in the field	B

	d) can be estimated	
444	In radiation method plane table is placed a) in the approximate center of the area b) placed at each corner point of the area c) placed at two points in the area d) placed at least at four different points	A
445	In intersection method plane table is placed a) in the approximate center of the area b) placed at each corner point of the area c) placed at two points in the area d) placed at least at four different points	C
446	In traverse method plane table is placed a) in the approximate center of the area b) placed at each corner point of the area c) placed at two points in the area d) placed at least at four different points	B
447	in compass traversing a) surveyor's compass and prismatic compass is same in use b) prismatic compass is used for accurate measurement of angles c) Surveyor's compass is used for accurate measurement of angles d) none is true	B
448	Abney Hand level is used for a) distance measurement b) offset drawing c) measurement of horizontal angles d) measurement of vertical angles	D
449	In resection Method of plane tabling a) positions of all points is exactly known b) points are already located on the plan before resection method c) points were first estimated and later are confirmed on the plan d) detailed map is prepared by estimation	C
450	Resection Method of plane tabling a) is same as intersection method b) is same as radiation method c) is used to draw plan directly d) is used to locate the stations	D
451	in cross staff survey a) readings outside of the rectangle are the distance of offsets from starting point to locate the position of offsets b) readings inside of the rectangle are the length of offsets c) triangle represents the corner with offset length as maximum d) readings inside of the rectangle are distances and outsiders are length of offsets	D
452	in cross staff survey a) readings outside of the rectangle are the distance of offsets from starting point to locate the position of offsets b) readings outside of the rectangle are the length of offsets c) triangle represents the corner with offset length as maximum d) it makes no difference of writing the values on left or right side of rectangle on sketch	B

453	<p>in cross staff survey</p> <ul style="list-style-type: none"> a) readings outside of the rectangle are the distance of offsets from starting point to locate the position of offsets b) readings inside of the rectangle are the length of offsets c) triangle represents the corner with offset length as Zero d) it makes no difference of writing the values on left or right side of rectangle on sketch 	C
454	<p>What is the relationship of the offset with check tie?</p> <ul style="list-style-type: none"> a) check ties are always used while locating an object b) check ties are never used while locating an object c) check ties may be used while locating an object depending upon situation d) there is no relationship between these two 	C
455	<p>In order to draw a perpendicular from a chain line following method is used</p> <ul style="list-style-type: none"> a) 3,4,5 method b) tape swing method c) both d) None 	A
456	<p>In order to draw a perpendicular from a point on chain line following method is used</p> <ul style="list-style-type: none"> a) 3,4,5 method b) tape swing method c) both d) None 	B
457	<p>If two ends of chain line may not visible from intermediate point, then the length of the line</p> <ul style="list-style-type: none"> a) cannot be measured b) is estimated only c) can be accurately find by developing a right angle triangle d) did not exists 	C
458	<p>When chainage is obstructed but vision is free between two points on chain line then the length of the line between such points can be found by</p> <ul style="list-style-type: none"> a) by drawing a large right angle triangle b) Estimation c) Guessing d) None 	A
459	<p>if there is a small cliff in the way of an established chain line, the length of line segment across the cliff</p> <ul style="list-style-type: none"> a) cannot be measured b) can be measured by developing a triangle and using law of sine c) can be measured by developing a triangle and using double angle formula d) can be measured by developing a triangle and using law of cosine 	D
460	<p>which tool is best to measure distance in a windy zone</p> <ul style="list-style-type: none"> a) cloth tape b) fiber tape c) Engineer's chain d) Measuring Wheel 	C
461	<p>The number of links in Engineer's and Gunter's Chain</p> <ul style="list-style-type: none"> a) are the same b) Gunter's Chain has more links c) Engineer's Chain has more links 	A

	d) it depends upon the surveyor to adjust the number of links	
462	The ratio of Hoop stress and axial stress varies for thin walled pressure vessel a) 2 to 1 b) 0 to 1 c) 2 to 1.5 d) 3 to 2	A
463	The difference between thin walled and thick walled pressure vessel is a) the vessels having thickness greater than 0.1 are thick walled pressure vessel b) the vessels having thickness greater than 0.1m are thick walled pressure vessel c) the vessels having thickness to diameter ratio greater than 0.1m are thick walled pressure vessel d) the vessels having thickness to diameter ratio greater than 0.1 are thick walled pressure vessel	D
464	Using the concept of thin shell of revolution, which statement is true for radius used a) radius associated to axial stress has a constant value b) radius associated to hoop stress has a constant value c) both radius has variable values d) None	C
465	for the calculation of stress in thin walled pressure vessel a) only external pressure is important b) only internal pressure is important c) external and internal both pressure is important d) there is no role of pressure	B
466	Keeping in view the torsional loading, tick the false statement a) plane segment remain plane after application of load on circular rods b) maximum shear stress is developed at the surface of the shaft c) maximum shear strain is developed at the surface of the shaft d) plane segment remain plane after application of load on square rods	D
467	Keeping in view the torsional loading, the polar moment of inertia depends upon a) the mass of the shaft b) the material of the shaft c) the shape of the shaft d) torque transmission of the shaft	C
468	The diameter of the shaft is selected on the basis of a) allowable shear stress b) allowable angle of twist c) modulus of elasticity d) on the basis of shear stress or angle of twist which returns the higher value of diameter	D
469	the shear stress developed in shafts are based on a) torque only b) size only c) torque and size both d) none of these	D
470	hollow shaft will transfer more torque if it_____ is same as solid shaft a) Size b) Weight	D

	<ul style="list-style-type: none"> c) Length d) none of these 	
471	<p>Simply supported beam is</p> <ul style="list-style-type: none"> a) having both end fixed b) both end free c) one end fix one end free d) both end roller supported 	D
472	<p>Point Load is one</p> <ul style="list-style-type: none"> a) which act on an area negligible as compare to the total area of object b) which act on an area 2 percent compare to the total area of object c) which act on one place d) which is distributed over an area 	A
473	<p>Bending moment is produced</p> <ul style="list-style-type: none"> a) due to external forces only b) due to external forces and moments c) due to shape d) due to bending 	B
474	<p>shear force is</p> <ul style="list-style-type: none"> a) working perpendicular to the beam axis b) working parallel to the beam axis c) working perpendicular x axis d) working parallel to the Y axis 	A
475	<p>Distributed load is converted to point load</p> <ul style="list-style-type: none"> a) to maintain real field conditions b) to make calculation easy c) to increase the efficiency of the load d) to draw BM and SF dia 	B
476	<p>A beam is of 10 m length out of a distributed load of 100 N was spread over 8 m. The equivalent point load is</p> <ul style="list-style-type: none"> a) 100 N b) 800 N c) 1000 N d) 8000 N 	A
477	<p>Which statement for Neutral Axis is not true</p> <ul style="list-style-type: none"> a) an axis passing through the geometric center of the body b) an axis with zero shear c) an axis that divide compressional and tensional region d) an axis passes through max stress region 	D
478	<p>Maximum bending moment is</p> <ul style="list-style-type: none"> a) always at the center of the beam b) always at the end of the beam c) depends upon loading d) depends upon shape only 	C
479	<p>In case of T beam, the stress distribution is based on</p> <ul style="list-style-type: none"> a) distance from mid-point of the beam b) distance from the geometrical center of the beam c) material of the beam d) none of these 	B
480	<p>Maximum bending moment is</p> <ul style="list-style-type: none"> a) at the point where shear force is zero 	A

	<ul style="list-style-type: none"> b) at the point where shear force is maximum c) at the center of the beam d) at the end of the simple supported beam 	
481	<p>For distributed load</p> <ul style="list-style-type: none"> a) both shear force and bending moment diagram are drawn with curve lines b) both shear force and bending moment diagram are drawn with straight lines c) shear force diagram is drawn with curve lines d) Bending moment diagram is drawn with curve lines 	D
482	<p>If there are point and distributed load acting together on a beam, then</p> <ul style="list-style-type: none"> a) both shear force and bending moment diagram are drawn with curve lines b) both shear force and bending moment diagram are drawn with straight lines c) shear force diagram is drawn with curve lines d) Bending moment diagram is drawn with curve lines 	D
483	<p>If there are point and distributed load acting together on a beam, then</p> <ul style="list-style-type: none"> a) the shear force diagram will have inclined lines only b) the shear force diagram will have horizontal lines only c) the shear force diagram will have inclined lines with a sudden decline as vertical line at the point where point load is acting d) none of the above 	C
484	<p>Bending moment and shear force diagram depends upon</p> <ul style="list-style-type: none"> a) the material of the beam b) the shape of the beam c) forces acting on the beam only d) acting forces and end supports types 	D
485	<p>output of strain gage is</p> <ul style="list-style-type: none"> a) the magnitude of strain b) is processed to get the magnitude of strain c) deformation produced d) magnitude of the force 	B
486	<p>Spring torsion testing machine is used to</p> <ul style="list-style-type: none"> a) measure the deformation in spring at a given torque b) measure the torque produced in the spring at different speeds c) measure the deformation in spring at a speed d) measure the torque produced in the spring at different angles 	D
487	<p>In torsional testing machine of shafts</p> <ul style="list-style-type: none"> a) load can be changed b) the torque can be changed c) angle of twist can be changed d) none of these 	C
488	<p>Which thing decided the category of column as short, intermediate or long</p> <ul style="list-style-type: none"> a) length of column b) diameter of column c) buckling load d) slenderness ratio 	D
489	<p>the relationship between equivalent length and actual length of the column is</p> <ul style="list-style-type: none"> a) both are always same b) equivalent length is always greater than actual length c) equivalent length is always smaller than actual length 	D

	d) depends upon the end connections	
490	the relationship between maximum allowable load and Euler buckling load for column is a) Both are same b) Euler Buckling load is greater than maximum allowable load c) Euler Buckling load is smaller than maximum allowable load d) depends upon the situation	B
491	the machine used to draw stress strain relationship is called a) Universal Testing Machine b) Torsional Testing Machine c) Charpy Impact tester d) Hardness testing Machine	A
492	Cement briquette testing machine apply a) compressional load b) tensional load c) twisted load d) perpendicular load	A
493	While calculating the deformation under axial loading; which parameter will be changed if the shape of the object (machine element) under axial loading changed a) Load b) Modulus of elasticity c) Length d) Cross sectional area	D
494	While calculating the deformation under axial loading, which parameter will be changed if the material of the object (machine element) under axial loading changed a) Load b) Modulus of elasticity c) Length d) Cross sectional area	B
495	What would be factor of safety if stress developed in a machine element under axial loading is 80 MPa if the element is made of steel having allowable axial stress is 200 MPa a) 2.5 b) 0.4 c) 16 d) 4	A
496	How many types of stress are there in thin walled cylindrical shape pressure vessel? a) Two types; normal and shear b) Two types; axial and meridional c) Two types; hoop and tangential d) Two types; axial and hoop stress	D
497	In parabolic shape pressure vessel, the radius associated with stresses are a) Function of equation generating parabola and point at which stress are to be calculated b) Function of equation generating parabola only c) Function of the point at which stress are to be calculated d) Function of magnitude of the stresses	A
498	For a thin walled pressure vessel ration of thickness to radius is	C

	<ul style="list-style-type: none"> a) equal to 0.1 b) greater than 0.1 c) less than 0.1 d) less than or equal to 0.1 	
499	<p>Why square shafts are not in practice?</p> <ul style="list-style-type: none"> a) It is difficult to construct b) It will waste the material more as compared to circular shaft c) Plane segments are not plane after twisting d) The edges can damage the other part 	C
500	<p>During torsional loading in shafts, at what point the shear stress is maximum</p> <ul style="list-style-type: none"> a) Shear stress is not present in this case b) It remains constant c) At the center of the shaft d) At the surface of the shaft 	D
501	<p>Which assumption is to prove the torsional formula?</p> <ul style="list-style-type: none"> a) Tan of angle is equal to the angle in radians as the angles are so small b) Tan of angle is equal to the angle in degree as the angles are so small c) Sin of angle is equal to the angle in radians as the angles are so small d) sin of angle is equal to the angle in degrees as the angles are so small 	A
502	<p>Hollow shaft transfers more power than solid shaft only if</p> <ul style="list-style-type: none"> a) the size and material of both shafts will be the same b) the weight and size of both shafts will be the same c) the weight and material of both shafts will be the same d) the material of both shafts will be the same 	C
503	<p>the size of a steel shaft having 2m length designed to transmit 4000 Nm torque will depend upon</p> <ul style="list-style-type: none"> a) Angle of twist and axial stress b) Maximum allowable shearing stress and radius of the shaft c) Angle of twist and Maximum allowable shearing stress d) Axial strength of the material and radius of the shaft 	C
504	<p>The size of hollow and solid shaft of same weight and length will be</p> <ul style="list-style-type: none"> a) Same b) Solid will be greater in size as compared to hollow shaft c) Hollow will be greater in size as compared to solid shaft d) Not enough information to make such conclusion 	C
505	<p>Why a uniformly distributed load is replaced with a point load while solving numerical problems</p> <ul style="list-style-type: none"> a) To make the calculation simple b) There is no uniformly distributed load in rea life problems c) It is not replaced d) Uniformly distributed load has more weight but less effect but point load has more effect 	A
506	<p>While developing the free body diagram, A fixed end is replaced with</p> <ul style="list-style-type: none"> a) A vertical reaction b) A vertical and a couple c) Vertical and horizontal reaction d) Vertical and horizontal reaction with a couple 	D
507	<p>For a simply supported beam AB, if a point load P is acting acentric near to B support then</p> <ul style="list-style-type: none"> a) Reaction at A will be higher 	B

	<ul style="list-style-type: none"> b) Reaction at B will be higher c) Moment at A will be higher d) Moment at B will be higher 	
508	<p>If a uniformly distributed load is acting on a simply supported beam AB then</p> <ul style="list-style-type: none"> a) Reaction at A will be higher b) Reaction at B will be higher c) Both reactions will be equal d) Cannot be judged with the given data 	C
509	<p>If the end moment of a loaded beam having two supports only is zero, then it is due to</p> <ul style="list-style-type: none"> a) It is due to load b) It is due to support type c) It cannot be zero d) There is some calculation error 	B
510	<p>If a uniformly distributed load of 50 N/ft is acting on 2 m length, its equivalent point load will be</p> <ul style="list-style-type: none"> a) 100 N b) 25 N c) 328 N d) 0 N 	C
511	<p>If a point load P is acting on simply supported beam AB then</p> <ul style="list-style-type: none"> a) The shear force diagram will cross the zero-shear force line at the point where load is acting b) The shear force diagram will cross the zero-shear force line at mid span c) The shear force diagram will not cross the zero-shear force line d) There is no relationship between load and shear force diagram 	A
512	<p>If a point load P is acting on simply supported beam AB then</p> <ul style="list-style-type: none"> a) The bending moment will be maximum at the point where load is acting b) The bending moment will be maximum at the point where load is acting and the diagram will continue at its maximum value till the end support comes c) The bending moment will be maximum at mid span d) There is no relationship between load and bending moment diagram 	A
513	<p>If the point load acting at mid span is replaced with uniformly distributed load throughout the span on a simply support beam AB then</p> <ul style="list-style-type: none"> a) The shear force diagram will not change b) The Shear force diagram will change the shape from linear to curvilinear c) The sudden decrease in shear force diagram at mid span will be changed from gradually decreasing trend forming a sloping line which will cross zero shear line at midspan d) The sudden decrease in shear force diagram at mid span will be changed from gradually decreasing trend forming a sloping line which will not cross zero shear line 	C
514	<p>If the point load acting at mid span is replaced with uniformly distributed load throughout the span on a simply support beam AB then</p> <ul style="list-style-type: none"> a) The bending moment diagram will not change b) The diagram will change the shape from linear to curvilinear c) The point of maximum bending will be shifted d) It cannot be assessed from the given data 	B
515	<p>For a simply supported beam AB it is observed that</p>	A

	<ul style="list-style-type: none"> a) The shear force diagram will cross the zero shear force line at one point which will have maximum bending moment b) The shear force diagram will cross the zero shear force line at one point but it will not be the point with maximum bending moment c) The shear force diagram will cross the zero shear force line at many points d) It cannot be assessed from the given data 	
516	<p>For Neutral axis it is observed that</p> <ul style="list-style-type: none"> a) There is compression force above the axis and tension forces below the axis b) There is tension force above the axis and compression forces below the axis c) There are only tension forces on both sides of axis d) There are only compression forces on both sides of axis 	A
517	<p>The behavior of forces either in compression or in tension from neutral axis is</p> <ul style="list-style-type: none"> a) Shows a decreasing trend as moves away from neutral axis b) Shows an increasing trend as moves away from neutral axis c) Compression forces shows increasing trend and tension forces shows decreasing trend d) Compression forces shows decreasing trend and tension forces shows increasing trend 	B
518	<p>The location of neutral axis depends upon the</p> <ul style="list-style-type: none"> a) Length of beam b) Loading criteria of beam c) Shape of beam d) End support of the beam 	C
519	<p>The maximum flexural stress is located</p> <ul style="list-style-type: none"> a) At the surface and mid span of beam b) At the center of cross section and mid span of beam c) At the surface of a point in the beam with maximum bending moment d) At the center a point in the beam with maximum bending moment 	C
520	<p>For designing of beam, that orientation of shape of beam is selected for which</p> <ul style="list-style-type: none"> a) Moment of inertia is maximum b) Moment of inertia is minimum c) No relation with moment of inertia d) Any orientation is suitable 	A
521	<p>When parallel axis theorem is applied for the calculation of moment of inertia;</p> <ul style="list-style-type: none"> a) in case of T beams b) in case of rectangular beams c) in case of circular beams d) in case of square beams 	A
522	<p>Changing the cross section (shape) of a loaded beam will</p> <ul style="list-style-type: none"> a) change the flexural stress b) change the bending moment c) change the shear force diagram d) have no effect 	A
523	<p>for circular beams I_{xx} and I_{yy} is</p> <ul style="list-style-type: none"> a) Same b) I_{xx} is greater than I_{yy} c) I_{xx} is smaller than I_{yy} d) Cannot be assessed without dimension 	A

524	The bending of long columns is called a) Moment of inertia b) Slenderness ratio c) Buckling d) Crashing	C
525	For designing of columns, that orientation of shape of beam is selected for which a) Moment of inertia is maximum b) Moment of inertia is minimum c) No relation with moment of inertia d) Any orientation is suitable	B
526	In Euler's formula L is a) Length of column independent of end types b) Equivalent length of column which depends upon end types c) It is load d) It is moment of inertia	B
527	Short, intermediate and long columns are differentiated on a) Slenderness ratio b) Length of the column c) Cross sectional area of the column d) Load on the columns	A
528	The structural member which is called a compression member is a) Beam b) Column c) Shaft d) Pressure vessel	B
529	Failure in short columns is known as a) Buckling b) Crushing c) Tilting d) Bending	B
530	The moment of inertia of solid and hollow cross section is a) Same b) Hollow has higher values c) Solid has higher values d) Cannot be assessed	C
531	Section modulus is a) Type of modulus of elasticity b) Relationship between stress and strain c) Shape factor d) Power factor	C
532	The x component of a force making an angle θ with Y axis is equal to a) $F \cos \theta$ b) $F \sin \theta$ c) $F \tan \theta$ d) None	B
533	At what angles under Centric Loading Normal and Shear Stresses are equal in magnitude a) 45, 90 b) 45, 90 and 135 c) 0, 90	B

	d) 0, 190	
534	In case of arbitrary loading, stresses are converted into force by multiplying with a) the given area b) cos of the area c) sin of the area d) with the component of the area at which stress is acting	D
535	while finding the stresses on a given plan by converting the stresses into force, the direction of required normal and shear stresses are assumed. In this case the answer a) should be positive b) should be negative c) there is no role of sign of the answer d) with negative sign represent that the assume direction was wrong	D
536	while finding the stresses on a given plan by using formula approach, sign of shear stress a) depends upon its upward or downward direction b) depends upon its upward or downward direction as well as on the direction of normal stress acting on the same plan c) is positive in upward direction when normal stress (acting on the same plane) is in compression d) is positive in upward direction when normal stress (acting on the same plane) is in tension	B
537	On orthogonal planes a) shear stresses have same magnitude b) shear stresses have same direction c) normal stresses are same d) None of above	A
538	Max in plane shear stress and max shear stress a) are always the same b) in some cases, they are same and in some cases they are not c) has no relationship with principal stresses d) None	B
539	how many stresses are shown to draw max shear stress when it is not equal to max in plane shear stress a) 11 b) 3 c) 7 d) 9	A
540	Which statement is true a) strain and deformation are the same b) strain and stress are same c) strain has units d) strain has no unit	D
541	minimum number of strain gages required for plane strain analysis are a) 3 b) 5 c) 7 d) 9	A
542	When a field is called level it means a) all the points in the field are at the same distance from auto level b) all the points will have same height of instrument	C

	<p>c) all the points will have same staff reading if there is no change point</p> <p>d) all the points have same staff readings even if there are change points</p>	
543	<p>The field readings are noted as 2, 2.1, 2.2, 1.3, 1.5, 1.6 and 1.8. of the instrument is shifted after 3rd reading then the first intermediate sight after change point will be</p> <p>a) 1.3</p> <p>b) 2.2</p> <p>c) 1.5</p> <p>d) 1.8</p>	C
544	<p>Horizontal equivalent in contour map</p> <p>a) is constant all over the map</p> <p>b) is a variable quantity depending upon the contour interval</p> <p>c) is a variable quantity depending upon the contour line</p> <p>d) is a variable quantity depending upon the contour level</p>	C
545	<p>the supplementary contour lines are</p> <p>a) the main contour lines which are thick and elevations are mention on it</p> <p>b) the thinner, more common, lines between the index lines</p> <p>c) placed between regular contour lines to visualize small but important forms that regular contour lines are unable to show</p> <p>d) there are no such lines</p>	C
546	<p>In case of even number of areas. the prismoidal formula</p> <p>a) is not applicable</p> <p>b) can be applied to odd number of areas only</p> <p>c) can be applied to odd number of areas and area of rest of sections were calculated by trapezoidal formula</p> <p>d) is applied to even sections and left over volume is calculated by trapezoidal formula</p>	D
547	<p>When prismoidal correction is used for volumetric calculation</p> <p>a) in all volumetric calculations</p> <p>b) when we have two level surface</p> <p>c) when area was by trapezoidal formula</p> <p>d) when volume was calculated by trapezoidal formula</p>	D
548	<p>Which type of theodolite is now absolute</p> <p>a) transit type</p> <p>b) non transit type</p> <p>c) Vernier type</p> <p>d) micrometer type</p>	B
549	<p>the axis in which a telescope of the theodolite can be rotated in horizontal plane</p> <p>a) horizontal</p> <p>b) vertical</p> <p>c) trunnion</p> <p>d) parallel</p>	B
550	<p>foundation level depends upon</p> <p>a) ground level</p> <p>b) soil type</p> <p>c) required slope</p>	C

	d) cost of project	
551	We need to fill if a) ground level is greater than foundation level b) ground level is smaller than foundation level c) ground level is same as foundation level d) when the slope is low	B
552	if the ground has uniform slope then which formula is used to calculate the cross sectional area a) level section b) two level section c) three level section d) four level section	B
553	the contour lines a) may or may not close b) never close c) must close within the map d) must close within or outside of the map	D
554	Type of error when line of sight is not parallel is called a) parallax error b) collimation error c) loop misclosure d) dual error	B
555	The height of a point above datum is called a) Height of instrument b) Back sight c) Fore sight d) Reduced level	D
556	The point which have back sight as well as fore sight data is called a) Bench Mark b) Temporary bench mark c) Change point d) there is no such point in leveling	C
557	in case the line of collimation is not horizontal due to improper adjustment then a) error will be proportional to the distance between the point at which reading was taken from the instrument b) there is no relationship between error and distance c) there will a fix error to be added in all readings d) it will not cause an error	A
558	What is the loop misclosure if the length of the loop is 5000 ft a) 14.8 mm b) 26.8 mm c) 468 mm d) 468 in	A
559	During leveling operation in a loop, it was observed that the new height of 100 m Benchmark was 99.87 m. the apparatus was shifted five times. What would be the adjustment for 3rd setup. a) 78 mm b) -78 mm	B

	<ul style="list-style-type: none"> c) 130 mm d) -130 mm 	
560	<p>During leveling operation in a loop of 10 km, it was observed that the new height of 100 m Benchmark was 99.9 m. which statement will be true</p> <ul style="list-style-type: none"> a) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is no need of adjustment of error b) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is a need of adjustment of error there is no need of adjustment of error c) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is a need of adjustment of error there is a need of adjustment of error d) The misclosure is 100 mm whereas the allowable misclosure was 37.9 mm so there is no need of adjustment of error there is a need of adjustment of error 	A
561	<p>the height of contour line from some reference of MSL is called</p> <ul style="list-style-type: none"> a) Contour level b) contour interval c) contour extension d) base value 	A
562	<p>the difference between the levels of consecutive contour lines</p> <ul style="list-style-type: none"> a) Contour level b) contour interval c) contour extension d) base value 	B
563	<p>can contour lines intersect?</p> <ul style="list-style-type: none"> a) No b) yes in case of cliff c) yes in case of overhanging vertical cliff d) yes in case of saddle 	C
564	<p>if volume calculated by trapezoidal formula is 2578 cubic meter and by prismoidal formula is 2600 cubic meter then prsimodial correction is</p> <ul style="list-style-type: none"> a) 22 cubic meter b) - 22 cubic meter c) no need to calculate prismodial correction d) the data set given has some error 	d
565	<p>the difference between theodolite and auto level is</p> <ul style="list-style-type: none"> a) both instruments are same just theodolite is more accurate b) both instruments are same just theodolite have higher visibility range c) theodolite can measure horizontal as well as vertical angles whereas auto level can only measure horizontal angles d) theodolite ca measure horizontal as well as vertical angles whereas auto level can only measure vertical angles 	C
566	<p>The ground level is 50 m at starting point and after 220 m it is 55 m. Find the depth of cutting or filling at 220 m if the formation level is 0.6 m above the ground level at starting point with uniform gradient of 1 in 50.</p> <ul style="list-style-type: none"> a) 1.2 m cut b) 1.2 m fill c) neither cut nor fill d) data is not complete 	D

567	Differential leveling a) is done to transfer bench mark b) is used for contouring c) is used for finding route details d) for plane tabling	A
568	In Profile leveling is used for a) Intermediate sights is always taken at fixed distance b) Intermediate sights is taken depending upon the track conditions c) only backsight and foresight is taken d) there is no foresight involved	B
569	plane table is used when contouring is done by a) direct method b) radial line method c) grid method d) GPS	B
570	the staff rods which is used now a days are made of a) iron b) aluminum c) stainless steel d) plastic	B
571	while drawing the profile finished level a) is always above the ground level b) is always below the ground level c) is always below the formation level d) is always above the formation level	D
572	the basic concept behind the stadia method used for distance measurement is that when staff rod is moved away from autolevel a) difference in readings at stadia hairs will decrease linearly b) difference in readings at stadia hairs will increase linearly c) difference in readings at stadia hairs will decrease quadratically d) difference in readings at stadia hairs will increase quadratically	B
573	in adjusting the loop misclosure a) change point is not important b) total number of change points are important c) order of change point is important d) total number and order of change point are important	D
574	In direct method of contouring a) first BS is taken to find HI and then readings are taken at random points for IS b) first BS is taken to find HI and then readings are taken at predetermined points for IS c) first BS is taken to find HI and then readings are taken at such points with required IS d) first BS is taken to find HI and then readings are taken at equal distances for IS	C
575	In grid method of contouring a) it is assumed that there is a uniform slope between the corners depending upon the RL of corner points b) it is assumed that there is a uniform slope between the corners depending upon the IS/FS of corner points	D

	<p>c) it is assumed that there is a uniform slope between the corners depending upon the distance between corner points</p> <p>d) it is assumed that there is a uniform slope between the corners depending upon the RL and distance between the corner points</p>	
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Sr. #	MCQS	Answer
576	In USLE, the input parameter is _____. A. soil erodibility B. rainfall erosivity index C. topographic factors D. slope steepness factors	B
577	According to Darcy's Law, the flow rate through a porous media is inversely proportional to _____. A. head loss B. cross-sectional area C. length of the flow path D. none of these	C
578	The combination of soil-water zone, intermediate vadose zone and capillary zone is called _____. A. zone of aeration B. zone of saturation C. root zone D. none of these	A
579	Leaching is a process by which _____. A. water is excessively pumped from a waterlogged area B. excess salt in the soil is pushed down by standing water above the soil C. improving the soil structure and texture by adding the soluble chemicals D. sodium ions are removed from irrigation water	B
580	Soil moisture characteristic curve gives relationship between _____. A. Soil tension and moisture content B. Soil salinity and moisture content C. Soil texture and moisture content D. Soil water and soil moisture	A
581	Land is said to waterlogged when _____. A. gravity drainage is ceased B. PWP is reached C. salinity of soil increases D. all of above	C
582	Mole drains are useful in equalizing water level between ditches for _____. A. drainage B. sub-irrigation C. both drainage and sub-irrigation D. none of them	C
583	Water logging in irrigated areas is due to _____. A. seepage from unlined canals and watercourses B. shift from protective to intensive irrigation C. inadequate drainage D. all of above	D
584	Point out the incorrect statement, out of the following _____.	

	<ul style="list-style-type: none"> A. salinity is caused by water-logging B. water-logging is not caused by salinity C. salinity subsides, when once the water-logging is removed D. none of above 	C
585	<p>The fastest method of drainage to lower WT to greater depths is _____.</p> <ul style="list-style-type: none"> A. Surface drainage B. subsurface drainage C. vertical drainage D. none of above 	C
586	<p>The type of drainage that may dispose-off excess runoff and -lower WT is ____.</p> <ul style="list-style-type: none"> A. Surface drainage B. subsurface drainage C. vertical drainage D. none of above 	A
587	<p>What is the cross sectional shape of shallow surface drains?</p> <ul style="list-style-type: none"> A. Triangular Shape B. Circular Shape C. Rectangular Shape D. Trapezoidal Shape 	D
588	<p>Which type of open drains would be fully operative only in rainy season?</p> <ul style="list-style-type: none"> A. Shallow Surface Drains B. Deep Surface Drains C. French Drain D. Drains 	B
589	<p>Due to inadequate drainage which factor causes waterlogging with constant percolation?</p> <ul style="list-style-type: none"> A. Over and Intensive Irrigation B. Impervious Obstruction C. Inadequate Surface Drainage D. Flat Topography 	C
590	<p>Which type of soils is benefited by using tile drainage?</p> <ul style="list-style-type: none"> A. Dry Soils B. Black Soils C. Wet Soils D. Red Soils 	C
591	<p>In what chemical ways does tile drainage help in plant growth?</p> <ul style="list-style-type: none"> A. Decreases Alkalinity of Soils B. Increases salinity of Soils C. Increases Nitrogen D. Reduces and Removes Toxic Substances 	D
592	<p>Under what strata the tile drainage should not be placed?</p> <ul style="list-style-type: none"> A. In Shallow Depths B. More Pervious Strata C. Less Pervious Strata D. Pervious Strata 	C
593	<p>What structure is surrounded around the tile drains when used in less pervious strata?</p> <ul style="list-style-type: none"> A. Envelope Filters B. French Drains C. Beehive Grate 	A

594	The minimum furrow grade to assure surface drainage is: A. 0.09% B. 0.02% C. 0.07% D. 0.05%	D
595	In an irrigation project, in a certain year, 60% and 46% of the cultivable command area in Kharif and Rabi respectively, remained without water and rest of the area got irrigation water. The intensity of irrigation in that year for the project was A. 126 % B. 80 % C. 124 % D. 94 %	D
596	Select the incorrect statement ? A. Intensive irrigation should be avoided in areas susceptible to water logging B. Extensive irrigation should be adopted in areas susceptible to water logging C. Lift irrigation increases water logging D. all of the above	C
597	The drainage water intercepting the canal can be disposed of by passing the canal below the drainage in _____? A. aqueduct and syphon aqueduct B. aqueduct and super passage C. super passage and canal syphon D. level crossing	C
598	What is the size of the tile at an outlet of a 12 hectare drainage system, if the Drainage Coefficient is 2 cm and the tile grade is 0.5%. Assume the rugosity coefficient as 0.015 for the tile drain material. A. 10 cm B. 20 cm C. 15 cm D. 25 cm	B
599	Which type of alternate layouts system for tile drainage has two mains? A. Grid Iron System B. Natural System C. Double main System D. Herring Bone System	C
600	How many cubic metres of water will be removed for this particular period of a system designed to use a Drainage Coefficient of 1.5 cm draining 20 hectares for a capacity of 5 days? A. 10000 m ³ B. 25000 m ³ C. 15000 m ³ D. 20000 m ³	C
601	Which one of the following is not a remedial measure for waterlogging? A. Good drainage for irrigated land B. Conjunctive use of water in the basin C. The lining of canals and watercourses D. Contour bunding	D
602	Which factor depends upon the depressions of the terrain and causes water logging?	A

	<ul style="list-style-type: none"> A. Irregular Topography B. Impervious Obstruction C. Inadequate Surface Drainage D. Excessive Rains 	
603	<p>Swampy land is _____</p> <ul style="list-style-type: none"> A. ill-aerated land B. The land where cultivation operations are impossible C. Land having deposition of alkali salts in the root zone of the crops D. Saline land 	B
604	<p>What factor creates temporary and continuous waterlogging?</p> <ul style="list-style-type: none"> A. Submergence due to Floods B. Flat Topography C. Impervious Obstruction D. Excessive Rains 	D
605	<p>What is the area drained by a single river system called?</p> <ul style="list-style-type: none"> A. Watershed B. basin C. Drainage basin D. Drainage watershed 	C
606	<p>Which one of the main drainage basins lies in Asia.</p> <ul style="list-style-type: none"> A. The Indus Basin B. Murray-Darling Basin C. Danube River Basin D. Canadian River Basin 	A
607	<p>Darcy's law is applicable when Reynolds number is:</p> <ul style="list-style-type: none"> A. Equal to 1 B. Less than 1 C. More than 1 D. Less than 2 	B
608	<p>The percentage of total quantity of water in the world that is saline is:</p> <ul style="list-style-type: none"> A. 67 B. 75 C. 88 D. 97 	D
609	<p>Interception losses includes:</p> <ul style="list-style-type: none"> A. Evaporation loss only B. Evaporation through flow and stream C. Evaporation and transpiration losses D. Stream flow only 	A
610	<p>A geological formation which is essentially impermeable for flow of water even though it may contain water in its pores, is called :</p> <ul style="list-style-type: none"> A. Aquifuge B. Aquiclude C. Aquitard D. Aquifer 	B
611	<p>Flow mass curve is an integral curve of:</p> <ul style="list-style-type: none"> A. Flow-duration curve B. S-curve C. Hyetograph D. Hydrograph 	D

612	Soil erosion is a: A. Fluvial work B. Geomorphologic work C. Both (a) and (b) D. None of these	C
613	Erosivity is the: A. Climatic aggressiveness B. Soil aggressiveness C. Both (a) and (b) D. None of these	A
614	Particles less than 0.1 mm diameter is moved by the action of: A. Suspension B. Saltation C. Surface creep D. None of these	A
615	Critical diameter of clod takes place in the wind erosion is: A. 0.50 mm B. 0.84 mm C. 0.10 mm D. 100 mm	B
616	Which would be more effective for erosion: A. Combination of crops, trees and livestock B. Combination of crop and livestock C. Combination of trees and livestock D. None of these	A
617	When the soil moisture and rainfall are inadequate during the growing season to support healthy crop growth to maturity is called: A. Metrological drought B. Hydrological drought C. Agricultural drought D. None of these	C
618	The movement of water in seepage is: A. Downward B. Lateral C. Both (a) and (b) D. None of these	C
619	The quantity of water going through various individual path of hydrological cycle can be described by: A. Continuity equation B. Water budget equation C. Hydrologic equation D. All are correct	D
620	The quantity of water going through various individual path of hydrological cycle can be described by: A. Continuity equation B. Water budget equation C. Hydrologic equation D. All are correct	C
621	To convert the point of rainfall value at various stations into an average value over a catchment area is possible by:	D

	<ul style="list-style-type: none"> A. Arithmetical-mean method B. Thiessen-polygon method C. Isohyetal method D. All are correct 	
622	<p>For irrigation purposes, the p-H value of water should be</p> <ul style="list-style-type: none"> A. between 3 and 6 B. between 6 and 8.5 C. between 8.5 and 11 D. more than 11 	B
623	<p>Settlement of an embankment depends on:</p> <ul style="list-style-type: none"> A. Void ratio B. Density of soil C. Water viscosity D. All are correct 	A
624	<p>A situation where more than 25% decrease in precipitation from the normal over an area is called:</p> <ul style="list-style-type: none"> A. Hydrological drought B. Meteorological drought C. Agricultural drought D. None of these 	B
625	<p>Fine clay particles have low detachability but:</p> <ul style="list-style-type: none"> A. High transportability B. High dispersive C. High soil loss D. None of these 	A
626	<p>Wind erosion is more in:</p> <ul style="list-style-type: none"> A. Cohesive soils B. Non-cohesive soils C. Rocky soils D. None of these 	B
627	<p>The moisture content of the soil, after free drainage has removed most of the gravity water, is known as</p> <ul style="list-style-type: none"> A. field capacity B. saturation capacity C. wilting co-efficient D. available moisture 	A
628	<p>The standard height of a standard rain gauge is</p> <ul style="list-style-type: none"> A. 10 cm B. 20 cm C. 30 cm D. 40 cm 	C
629	<p>According to Fanning's formula, the flood discharge (Q) in cumecs is given by</p> <ul style="list-style-type: none"> A. $Q = CA^{2/3}$ B. $Q = CA^{3/4}$ C. $Q = CA^{5/6}$ D. $Q = CA^{7/8}$ 	C
630	<p>Which of the following is the correct sequence of the parts of a canal system?</p> <ul style="list-style-type: none"> A. Head works, distributary, branch canals and minor B. Head works, main canal, branch canal, distributary and minor. C. Head works, main canal, branch canal, minor and distributary. 	B

	D. none of the above	
631	The saturation gradient in an ordinary loam soil is A. 1 : 1 B. 2 : 1 C. 3 : 1 D. 4 : 1	D
632	Which of the following statements is wrong? A. Seepage drains reduce the chances of water logging. B. The water table generally follows the ground surface above it with a few exceptions. C. At the water table, the hydrostatic pressure is zero. D. Water logging makes the land more productive.	D
633	The floor of the aqueduct is subjected to uplift pressure due to A. seepage of water from the canal to the drainage B. sub-soil water table in the drainage bed C. both (a) and (b) D. none of the above	C
634	The application of Darcy's Law is limited by the condition that flow through the porous medium must be: A. Laminar B. Turbulent C. Intermediate D. None of these	A
635	The lateral seepage of water in a relatively pervious soil above a less pervious layer is: A. Percolation B. Infiltration C. Interflow D. Seepage	C
636	Of the following, which is the form of precipitation? A. Rainfall B. Snowfall C. Hail D. All are correct	D
637	The side slope of bund is function of: A. Bund's height B. Angle of repose off ill material C. Both (a) and (b) D. None of these	C
638	The rate of evaporation is dependent on: A. Vapour pressure at the water surface and air above B. Air and water temperature and wind speed C. Atmospheric pressure and quality of water D. All are correct	D
639	Lysimeter is used to measure: A. Evaporation B. Evapotranspiration C. Atmospheric pressure D. None of these	B
640	Direct runoff is made up of:	B

	<ul style="list-style-type: none"> A. Overland flow B. Surface runoff and prompt inter flow C. Surface runoff and infiltration D. Rainfall and evapotranspiration 	
641	<p>Factor which affects the flood hydrograph, is:</p> <ul style="list-style-type: none"> A. Shape of basin B. Size of basin C. Slope of basin D. All are correct 	D
642	<p>The rising limb of a hydrograph is also known as:</p> <ul style="list-style-type: none"> A. S-curve B. Concentration curve C. Flow mass curve D. Double mass 	B
643	<p>The hydraulic flood routing method used is:</p> <ul style="list-style-type: none"> A. Equation of motion B. Energy equation C. Continuity equation D. Both (b) & (c) 	D
644	<p>Detachability of soil particle increases with:</p> <ul style="list-style-type: none"> A. Decreasing median grain size B. Increasing medium grain size C. Both (a) and (b) D. None of these 	A
645	<p>V-shaped gullies are developed when:</p> <ul style="list-style-type: none"> A. velocity is high but runoff volume per unit time is less B. velocity is less but runoff volume is more C. Flow velocity is less D. Runoff volume is more 	A
646	<p>Which one of the main drainage basins lies in Asia</p> <ul style="list-style-type: none"> A. The Indus Basin B. Murray-Darling Basin C. <u>Danube River</u> Basin D. <u>Canadian River</u> Basin 	A
647	<p>The area of land draining into a watercourse at a given location is known as:</p> <ul style="list-style-type: none"> A. The Catchments area B. Drainage area C. Drainage basin D. All are correct 	D
648	<p>What is the area drained by a single river system called?</p> <ul style="list-style-type: none"> A. Watershed B. Basin C. Drainage basin D. Drainage watershed 	A
649	<p>Tubewells were first introduced for:</p> <ul style="list-style-type: none"> A. Drinking purpose B. Irrigation of agricultural lands C. Vertical drainage D. Horizontal drainage 	C
650	<p>Which of the following is TRUE for drains?</p>	B

	<ul style="list-style-type: none">A. These are used to convey water from rivers to the fieldsB. These are used to take the drainage of an area to the riversC. These are mostly linedD. Both B and C	
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