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whose streamline is represented by a curve is called two dimensional flow. B. The total energy of a liquid particle is the sum of potential energy, kinetic energy and pressure energy. C. The volume of divergent portion in a Venturimeter is equal to the convergent portion. D. A pitot tube is used to measure the velocity of flow at the required point in a pipe. Answer: C 273. Density of water = maximum at _____. A. 0° C B. 4° C C. 10° C D. 20° C Answer: C 274. A weir is said to be broad crested weir, if the width of crest of the weir is _____ half the height of water above the weir crest. A. Equal to B. Less than C. More than D. None of these Answer: C 275. The bulk modulus of elasticity A. Has the dimensions of 1/pressure B. Increases with pressure C. Is independent of pressure and viscosity Answer: B 276. A tank of uniform cross-sectional area, containing liquid upto height (H1) has an orifice of cross-sectional areaa, at its bottom. The time required to empty the tank completely will be A. (2A/H1)/(Cd × av2g) B. (2AH1)/(Cd × av2g) C. (2AH3/2)/(Cd × av2g) D. (2AH1²)/(Cd × av2g) Answer: A 278. The atmospheric pressure at sea level is A. 103 kNm/2 B. 10.3 m of water C. 760 mm of mercury D. All of these Answer: D 279. The conditions for the stable equilibrium of a floating body are A. The metacentre should lie above the center of gravity B. The center of buoyancy and the center of gravity must lie on the same vertical line C. A righting couple should be formed D. All the above are correct Answer: D 280. A glass tube of smaller diameter is used while performing an experiment for the capillary rise of water because A. It is easier to see through the glass tube B. Glass tube is cheaper than a metallic tube C. It is not possible to conduct this experiment with any other tube D. All of the above Answer: A 281. To avoid an interruption in the flow of a siphon, an air vessel is provided A. At the inlet B. At the outlet C. At the summit D. At any point between inlet and outlet Answer: C 282. When the coefficient of discharge (Cd) is 0.623, then the general equation for discharge over a rectangular weir is A. 1.84(L - 0.1nH)H3/2 B. 1.84(L - nH)H2 C. 1.84(L - 0.1nH)H5/2 D. 1.84(L - nH)H3 Answer: A 283. In an isothermal atmosphere, the pressure A. Decreases linearly with elevation B. Remains constant C. Varies in the same way as the density D. Increases exponentially with elevation Answer: C 284. The pressure of a liquid measured with the help of a Piezometer tube is A. Vacuum pressure B. Gauge pressure C. Absolute pressure D. Atmospheric pressure Answer: B 285. If the atmospheric pressure on the surface of an oil tank (sp. gr. 0.8) is 0.2 kg/cm², the pressure at a depth of 50 m below the oil surface will be A. 2 meters of water column B. 3 meters of water column C. 5 meters of water column D. 6 meters of water column Answer: B 286. The pressure intensity in kN/m2 (or kPa) at any point in a liquid is (where w = Specific weight of liquid, and h = Depth of liquid from the surface) A. w B. wh C. wf/h D. hw Answer: B 287. The resultant upward pressure of a fluid on a floating body is equal to the weight of the fluid displaced by the body. This definition is according to A. Buoyancy B. Equilibrium of a floating body C. Archimedes' principle D. Bernoulli's theorem Answer: C 288. The liquid used in manometers should have A. Low density B. High density C. Low surface tension D. High surface tension Answer: D 289. Which of the following instrument can be used for measuring speed of an aeroplane? A. Venturimeter B. Orifice plate C. Pitot tube D. Rotameter Answer: C 290. A jet of water discharging from a 40 mm diameter orifice has a diameter of 32 mm at its vena contracta. The coefficient of contraction is A. 0.46 B. 0.64 C. 0.78 D. 0.87 Answer: B 291. Buoyant force is A. Resultant force acting on a floating body B. Equal to the volume of liquid displaced C. Force necessary to keep a body in equilibrium D. The resultant force on a body due to the fluid surrounding it Answer: D 292. In case of flow through parallel pipes, A. The head loss for all the pipes is same B. The total discharge is equal to the sum of discharges in the various pipes C. The total head loss is the sum of head losses in the various pipes D. BothA. andB. Answer: D 293. Rotameter is a device used to measure A. Absolute pressure B. Velocity of fluid C. Flow D. Rotation Answer: C 294. In a broad-crested weir, the discharge is maximum if the head of water on the downstream side of weir is _____ the head of water on the upstream side of weir. A. Equal to B. One-third C. Two-third D. Three-fourth Answer: C 295. When a body, floating in a liquid, is given a small angular displacement, it starts oscillating about a point known as A. Centre of pressure B. Centre of gravity C. Centre of buoyancy D. Metacentre Answer: D 296. A nozzle is generally made of A. Cylindrical shape B. Convergent shape C. Divergent shape D. Convergent-divergent shape Answer: B 297. Pitot tube is used for measurement of A. Pressure B. Flow C. Velocity D. Discharge Answer: C 298. Coefficient of discharge Cd is equal to (where Cc = Coefficient of contraction, Cv = Coefficient of velocity, and Cr = Coefficient of resistance) A. Cc × Cv B. Cc × Cr C. Cv × Cr D. Cc/Cr Answer: A 299. The values of mass density in kg-sec⁻³m³ for water at 0°C is A. 1 B. 1000 C. 100.9 D. 101.9 Answer: D 300. The shear stress between the two liquid layers is _____ proportional to the distance between two layers. A. Directly B. Inversely C. Both A and B D. None of these Answer: B 301. Viscosity of water in comparison to mercury is A. Higher B. Lower C. Same D. Higher/lower depending on temperature Answer: A 302. The power transmitted through the pipe is maximum when the head lost due to friction is equal to A. One-fourth of the total supply head B. One-third of the total supply head C. One-half of the total supply head D. Two-third of the total supply head Answer: B 303. Falling drops of water become spheres due to the property of A. Adhesion B. Cohesion C. Surface tension D. Viscosity Answer: C 304. A hemispherical tank of radius (R) has an orifice of cross-sectional areaA, at its bottom and is full of liquid. The time required to empty the tank completely is A. 14π R12/15Cd × v(2g) B. 14π R3/215Cd × v(2g) C. 14π R5/215Cd × v(2g) D. 14π R7/215Cd × v(2g) Answer: C 305. The difference of pressure between the inside and outside of a liquid drop is A. p = T × r B. p = T/r C. p = T/2r D. p = 2T/r Answer: D 306. A venturi-flume is used to measure A. Pressure of liquid B. Discharge of liquid C. Pressure difference between two points in a channel D. Pressure difference between two points in a pipe Answer: B 307. Working principle of dead weight pressure gauge tester is based on A. Pascal's law B. Dalton's law of partial pressure C. Newton's law of viscosity D. Avogadro's hypothesis Answer: A 308. The metacentric height of a ship is 0.6 m and the radius of gyration is 4 m. The time of rolling of a ship is A. 4.1 sec B. 5.2 sec C. 10.4 sec D. 14.1 sec Answer: C 309. The discharge through a channel of rectangular section will be maximum, if A. Its depth is twice the breadth B. Its breadth is twice the depth C. Its depth is thrice the breadth D. Its breadth is thrice the depth Answer: B 310. The discharge through a channel of circular section will be maximum when the depth of water is _____ the diameter of the circular channel. A. 0.34 times B. 0.67 times C. 0.81 times D. 0.95 times Answer: D 311. Uniform flow occurs when A. The flow is steady B. The flow is streamline C. Size and shape of the cross section in a particular length remain constant D. Size and cross section change uniformly along length Answer: C 312. Bulk modulus of a fluid is the ratio of A. Shear stress/ shear strain B. Increase in volume to the viscosity of fluid C. Increase in pressure to the volumetric strain D. Critical velocity to the viscosity of fluid Answer: D 313. The pressure in a Pascal's at a depth of 1 m below the free surface of a body of water will be equal to A. 1 Pa B. 91 Pa C. 981 Pa D. 9810 Pa Answer: D 314. An average value of coefficient of velocity is A. 0.62 B. 0.76 C. 0.84 D. 0.97 Answer: D 315. A liquid would wet the solid, if adhesion forces as compared to cohesion forces are A. Less B. More C. Equal D. Less at low temperature and more at high temperature Answer: B 316. When a cylindrical vessel containing liquid is revolved about its vertical axis at a constant angular velocity, the pressure A. Varies as the square of the radial distance B. Increases linearly as its radial distance C. Increases as the square of the radial distance D. Decreases as the square of the radial distance Answer: A 317. Property of a fluid by which its own molecules are attracted is called A. Adhesion B. Cohesion C. Viscosity D. Compressibility Answer: B 318. According to Bazin's formula, the discharge over a rectangular weir is mL2g x H3/2where m is equal to A. 0.405 + (0.003/H) B. 0.003 + (0.405/H) C. 0.405 + (H/0.003) D. 0.003 + (H/0.405) Answer: A 319. Which of the following is the unit of kinematic viscosity? A. Pascal B. Poise C. Stoke D. Faraday Answer: C 320. The length AB of a pipe ABC in which the liquid is flowing has diameter (d1) and is suddenly contracted to diameter (d2) at B which is constant for the length BC. The loss of head due to sudden contraction, assuming coefficient of contraction as 0.62, is A. v1²/2g B. v1²/2g C. 0.5 v1²/2g D. 0.375 v1²/2g Answer: D 321. Operation of McLeod gauge used for low pressure measurement is based on the principle of A. Gas law B. Boyle's law C. Charles law D. Pascal's law Answer: B 322. Reynold's number is the ratio of the inertia force to the A. Surface tension force B. Viscous force C. Gravity force D. Elastic force Answer: B 323. A piece weighing 3 kg in air was found to weigh 2.5 kg when submerged in water. Its specific gravity is A. 1 B. 5 C. 7 D. 6 Answer: D 324. A differential manometer is used to measure A. Atmospheric pressure B. Pressure in pipes and channels C. Pressure in Venturimeter D. Difference of pressures between two points in a pipe Answer: D 325. In a lock-gate, the reaction between two gates is (where P = Resultant pressure on the lock gate, and α = Inclination of the gate with the normal to the side of the lock) A. p/sinα B. 2p/sinα C. p/2sinα D. 2p/sin (α/2) Answer: A 326. In a venturi-flume, the flow takes place at A. Atmospheric pressure B. Gauge pressure C. Absolute pressure D. None of these Answer: A 327. The normal stress is same in all directions at a point in a fluid A. Only when the fluid is frictionless B. Only when the fluid is incompressible and has zero viscosity C. When there is no motion of one fluid layer relative to an adjacent layer D. Irrespective of the motion of one fluid layer relative to an adjacent layer Answer: C 328. The highest efficiency is obtained with a channel of _____ section. A. Circular B. Square C. Rectangular D. Trapezoidal Answer: D 329. A vertical wall is subjected to a pressure due to one kind of liquid, on one of its sides. The total pressure on the wall per unit length is (where w = Specific weight of liquid, and H = Height of liquid) A. wH B. wH/2 C. wH2/2 D. wH2/3 Answer: C 330. Which of the following manometer has highest sensitivity? A. U-tube with water B. Inclined U-tube C. U-tube with mercury D. Micro-manometer with water Answer: D 331. The velocity corresponding to Reynold number of 2800, is called A. Sub-sonic velocity B. Super-sonic velocity C. Lower critical velocity D. Higher critical velocity Answer: D 332. For a floating body to be in equilibrium A. Meta centre should be above e.g. B. Centre of buoyancy and e.g. must lie on same vertical plane C. A righting couple should be formed D. All of the above Answer: D 333. When an internal mouthpiece is running free, the discharge through the mouthpiece is (where a = Area of mouthpiece, and H = Height of liquid above the mouthpiece) A. 0.5 a √2gH B. 0.707 a √2gH C. 0.855 a √2gH D. a √2gH Answer: A 334. A uniform body 3 m long, 2 m wide and 1 m deep floats in water. If the depth of immersion is 0.6 m, then the weight of the body is A. 3.53 kN B. 33.3 kN C. 35.3 kN D. None of these Answer: C 335. The force per unit length in the unit of A. Surface tension B. Compressibility C. Capillarity D. Viscosity Answer: A 336. When the Mach number is more than 6, the flow is called A. Sub-sonic flow B. Sonic flow C. Super-sonic flow D. Hyper-sonic flow Answer: D 337. The upper surface of a weir over which water flows is known as A. Crest B. Nappe C. Sill D. Weir top Answer: C 338. One cubic meter of water weighs A. 100 liters B. 250 liters C. 500 liters D. 1000 liters Answer: B 339. Kinematic viscosity is dependent upon A. Pressure B. Distance C. Density D. Flow Answer: C 340. The discharge through a large rectangular orifice is given by (where H1 = Height of the liquid above the top of the orifice, H2 = Height of the liquid above the bottom of the orifice, b = Breadth of the orifice, and Cd = Coefficient of discharge) A. Q = (2/3) Cd × b × v(2g) × (H2 - H1) B. Q = (2/3) Cd × b × v(2g) × (H21/2 - H11/2) C. Q = (2/3) Cd × b × v(2g) × (H23/2 - H13/2) D. Q = (2/3) Cd × b × v(2g) × (H22 - H12) Answer: C 341. An error of 1% in measuring head over the apex of the notch (H) will produce an error of _____ in discharge over a triangular notch. A. 1 % B. 1.5 % C. 2 % D. 2.5 % Answer: D 342. The Euler's equation for the motion of liquids is based upon the assumption that A. The fluid is non -viscous, homogeneous and incompressible B. The velocity of flow is uniform over the section C. The flow is continuous, steady and along the stream line D. All of the above Answer: D 343. The ratio of the inertia force to the viscous force is called A. Reynold's number B. Froude's number C. Weber's number D. Euler's number Answer: A 344. The total energy of a liquid particle in motion is equal to A. Pressure energy + kinetic energy + potential energy B. Pressure energy - (kinetic energy + potential energy) C. Potential energy - (pressure energy + kinetic energy) D. Kinetic energy - (pressure energy + kinetic energy) Answer: A 345. Which of the following instrument can be used for measuring speed of a submarine moving in deep sea? A. Venturimeter B. Orifice plate C. Hot wire anemometer D. Pitot tube Answer: D 346. The force present in a moving liquid is A. Inertia force B. Viscous force C. Gravity force D. All of these Answer: D 347. A ship whose hull length is 100 m is to travel at 10 m/sec. For dynamic similarity, at what velocity should a 1:25 model be towed through water? A. 10 m/sec B. 25 m/sec C. 2 m/sec D. 5 m/sec Answer: C 348. The pressure of liquid at throat in a Venturimeter is _____ than that at inlet. A. Higher B. Lower C. Same D. None of these Answer: B 349. The flow in which the velocity vector is identical in magnitude and direction at every point, for any given instant, is known as A. One dimensional flow B. Uniform flow C. Steady flow D. Turbulent flow Answer: B 350. The coefficient of discharge for an external mouthpiece depends upon A. Velocity of liquid B. Pressure of liquid C. Area of mouthpiece D. Length of mouthpiece Answer: D 351. The specific weight of water is 1000 kg/m³. At normal pressure of 760 mm B. At 4°C temperature C. At mean sea level D. All the above Answer: D 352. If the depth of water in an open channel is greater than the critical depth, the flow is called A. Critical flow B. Turbulent flow C. Tranquil flow D. Torrential flow Answer: C 353. When a cylindrical vessel, containing some liquid, is rotated about its vertical axis, the liquid surface is depressed down at the axis of its rotation and rises up near the walls of the vessel on all sides. This type of flow is known as A. Steady flow B. Turbulent flow C. Vortex flow D. Uniform flow Answer: C 354. The body will sink down if the force of buoyancy is _____ the weight of the liquid displaced. A. Equal to B. Less than C. More than D. None of these Answer: B 355. The total pressure on the surface of a vertical sluice gate 2 m x 1 m with its top 2 m surface being 0.5 m below the water level will be A. 500 kg B. 1000 kg C. 1500 kg D. 2000 kg Answer: B 356. The velocity at which the laminar flow stops, is known as A. Velocity of approach B. Lower critical velocity C. Higher critical velocity D. None of these Answer: B 357. The line of action of the buoyant force acts through the A. Centroid of the volume of fluid vertically above the body B. Centre of the volume of floating body C. Center of gravity of any submerged body D. Centroid of the displaced volume of fluid Answer: D 358. The buoyancy depends upon the A. Weight of the liquid displaced B. Pressure with which the liquid is displaced C. Viscosity of the liquid D. Compressibility of the liquid Answer: A 359. A glass tube of small diameter, is dipped in liquid. The height of rise or fall in the tube given by (where w = Specific weight of liquid, α = Angle of contact of the liquid surface, and σ = Surface tension) A. 4w/d cos α B. σ cosα/dw C. 4σ cosα/wd D. w/d cos α Answer: C 360. Two dimensional flows occurs when 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 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 Answer: B 361. Whenever a plate is held immersed at some angle with the direction of flow of the liquid, it is subjected to some pressure. The component of this pressure, in the direction of flow of the liquid, is known as A. Lift B. Drag C. Stagnation pressure D. Bulk modulus Answer: B 362. Which of the following is dimensionless? A. Specific weight B. Specific volume C. Specific speed D. Specific gravity Answer: D 363. Coefficient of resistance is the ratio of A. Actual velocity of jet at vena-contracta to the theoretical velocity B. Area of jet at vena-contracta to the area of orifice C. Loss of head in the orifice to the head of water available at the exit of the orifice D. Actual discharge through an orifice to the theoretical discharge Answer: C 364. Mercury does not wet glass. This is due to property of liquid known as A. Adhesion B. Cohesion C. Surface tension D. Viscosity Answer: C 365. A flow in which _____ force is dominating over the viscosity is called turbulent flow. A. Elastic B. Surface tension C. Viscous D. Inertia Answer: D 366. Specific weight of sea water is more that of pure water because it contains A. Dissolved air B. Dissolved salt C. Suspended matter D. All of the above Answer: D 367. In an internal mouthpiece, the absolute pressure head at vena contracta is _____ the atmospheric pressure head by an amount equal to height of the liquid above the vena contracta. A. Less than B. More than C. Equal to D. None of these Answer: A 368. An odd shaped body weighing 7.5 kg and occupying 0.01 m³ volume will be completely submerged in a fluid having specific gravity of A. 1 B. 1.2 C. 0.8 D. 0.75 Answer: D 369. The factorial resistance of a pipe varies approximately with _____ of the liquid. A. Pressure B. Velocity C. Square of velocity D. Cube of velocity Answer: C 370. For measuring flow by a Venturimeter, it should be installed in A. Vertical line B. Horizontal line C. Inclined line with flow downward D. In any direction and in any location Answer: D 371. The ratio of the inertia force to the elastic force is called A. Reynold's number B. Froude's number C. Weber's number D. Mach number Answer: D 372. All the terms entering in Bernoulli's equation have dimension of A. Energy B. Work C. Mass D. Length Answer: D 373. The pressure at a point 4 m below the free surface of water is A. 19.24 kPa B. 29.24 kPa C. 39.24 kPa D. 49.24 kPa Answer: C 374. Specific weight of water in S.I. units is equal to A. 1000 N/m³ B. 10000 N/m³ C. 9.81 × 103 N/m³ D. 9.81 × 10² N/m³ Answer: C 375. The length AB of a pipe ABC in which the liquid is flowing has diameter (d1) and is suddenly enlarged to diameter (d2) at B which is constant for the length BC. The loss of head due to sudden enlargement is A. (v1 - v2)²/2g B. (v1² - v2²)/2g C. (v1 - v2)²/2g D. (v1² - v2²)/2g Answer: C 376. In an external mouthpiece, the absolute pressure head at vena contracta is _____ the atmospheric pressure head by an amount equal to 0.89 times the height of the liquid, above the vena contracta. A. Less than B. More than C. Equal to D. None of these Answer: A 377. Poise is the unit of A. Surface tension B. Capillarity C. Viscosity D. Shear stress in fluids Answer: C 378. Viscous force is the _____ of shear stress due to viscosity and cross-section area of flow. A. Sum B. Different C. Product D. Ratio Answer: C 379. The siphon will work satisfactorily, if the minimum pressure in the pipe is _____ vapour pressure of liquid. A. Equal to B. Less than C. More than D. None of these Answer: C 380. The tangential velocity of the water element having a free vortex is A. Directly proportional to its distance from the centre B. Inversely proportional to its distance from the centre C. Directly proportional to its (distance)² from the centre D. Inversely proportional to its (distance)² from the centre Answer: B 381. The horizontal component of buoyant force is A. Negligible B. Same as buoyant force C. Zero D. None of the above Answer: C 382. A flow in which the quantity of liquid flowing per second is constant, is called _____ flow. A. Steady B. Streamline C. Turbulent D. Unsteady Answer: A 383. The divergent portion of a Venturimeter is made longer than convergent portion in order to A. Avoid the tendency of breaking away the stream of liquid B. To minimize frictional losses C. BothA. andB. D. None of these Answer: C 384. According to Chezy's formula, the discharge through an open channel is (where A = Area of flow, C = Chezy's constant, m = Hydraulic mean depth, and i = Uniform slope in bed) A. A × √(m × i) B. C × √(m × i) C. AC × √(m × i) D. m × √(A × C) Answer: C 385. In a free vortex motion, the radial component of velocity everywhere is A. Maximum B. Minimum C. Nonzero and finite Answer: C 386. Coefficient of contraction is the ratio of A. Actual velocity of jet at vena contracta to the theoretical velocity B. Loss of head in the orifice to the head of water available at the exit of the orifice C. Loss of head in the orifice to the head of water available at the exit of the orifice D. Area of jet at vena-contracta to the area of orifice Answer: D 387. The Bernoulli's equation is based on the assumption that A. There is no loss of energy of the liquid flowing B. The velocity of flow is uniform across any cross-section of the pipe C. No force except gravity acts on the fluid D. All of the above Answer: D 388. The flow in a pipe is turbulent when Reynold number is A. Less than 2000 B. Between 2000 B. and 2800 C. More than 2800 D. None of these Answer: C 389. When the flow parameters at any given instant remain same at every point, then flow is said to be A. Quasi-static B. Steady state C. Laminar D. Uniform Answer: D 390. The total pressure on an immersed surface inclined at an angle θ with the liquid surface is A. wA B. wx C. wAx D. wAx/sinθ Answer: C 391. Rain drops are spherical because of A. Viscosity B. Air resistance C. Surface tension forces D. Atmospheric pressure Answer: C 392. The discharge over the trapezoidal notch is equal to the discharge over the rectangular notch _____ the discharge over the triangular notch. A. Plus B. Minus C. Divide D. None of these Answer: A 393. Ratio of inertia force to surface tension is known as A. Mach number B. Froude number C. Reynold's number D. Weber's number Answer: D 394. The sheet of water flowing over a notch or a weir is known as A. Sill or crest B. Nappe or vein C. Orifice D. None of these Answer: B 395. A structure used to dam up a stream or river over which the water flows is called A. Orifice B. Notch C. Weir D. Dam Answer: C 396. A body floating in a liquid is said to be in neutral equilibrium, if its metacentre A. Coincides with its centre of gravity B. Lies above its centre of gravity C. Lies below its centre of gravity D. Lies between the centre of buoyancy and centre of gravity Answer: A 397. General energy equation holds for A. Steady flow B. Turbulent flow C. Laminar flow D. Non-uniform flow Answer: D 398. The buoyancy depends on A. Mass of liquid displaced B. Viscosity of the liquid C. Pressure of the liquid displaced D. Depth of immersion Answer: A 399. The centre of gravity of the volume of the liquid displaced is called A. Centre of pressure B. Centre of buoyancy C. Metacentre D. None of these Answer: B 400. The Reynold's number of a ship is _____ to its velocity and length. A. Directly proportional B. Inversely proportional C. Square root of velocity D. None of these Answer: A 401. With an increase in size of tube, the rise or depression of liquid in the tube due to surface tension will A. Decrease B. Increase C. Remain unchanged D. Depend upon the characteristics of liquid Answer: A 402. Gauge pressure at a point is equal to the absolute pressure _____ the atmospheric pressure. A. Plus B. Minus C. Divide D. Multiply Answer: B 403. The dynamic viscosity of gases _____ with rise in temperature. A. Remain unaffected B. Increases C. Decreases D. None of these Answer: B 404. The resultant upward pressure of the fluid on an immersed body due to its tendency to uplift the submerged body is called A. Up-thrust B. Reaction C. Buoyancy D. Metacentre Answer: C 405. The purpose of a surge tank is A. To control the pressure variations due to rapid changes in the pipe line flow B. To eliminate water hammer possibilities C. To regulate flow of water to turbines by providing necessary retarding head of water D. All of the above Answer: D 406. Flow occurring in a pipeline when a valve is being opened is called A. Steady B. Unsteady C. Laminar D. Vortex Answer: B 407. The water pressure per metre length on a vertical masonry wall of dam is (where w = Specific weight of the liquid, and H = Height of the liquid) A. wH/2 B. wH C. wH2/2 D. wH2/4 Answer: C 408. Euler's equation in the differential form for the motion of liquids is given by A. dp/p + g dz + v dv = 0 C. p dp - g dz + v dv = 0 C. p dp + g dz + v dv = 0 D. p dp - g dz + v dv = 0 Answer: A 409. An open tank containing liquid is made to move from rest with a uniform acceleration. The angle θ which the free surface of liquid makes with the horizontal is such that (where a = Horizontal acceleration of the tank, and g = Acceleration due to gravity) A. tanθ = a/g B. tanθ = 2 a/g C. tanθ = a/2g D. tanθ = a²/2g Answer: A 410. The discharge through a small orifice is given by (where Cd = Coefficient of discharge for the orifice, a = Cross-sectional area of the orifice, h = Height of the liquid above the centre of the orifice) A. Q = Cd × a × 2gh B. Q = (2/3). Cd × a × h C. Q = (Cd × a)³/(2gh) D. Q = (3Cd × a)³/(2h) Answer: A 411. When a body is placed over a liquid, it will float if A. Gravitational force is equal to the up-thrust of the liquid B. Gravitational force is less than the up-thrust of the liquid C. Gravitational force is more than the up-thrust of the liquid D. None of the above Answer: B 412. A tank, in a compressible flow where the velocity of fluid is zero, is called A. Critical point B. Vena contracta C. Stagnation point D. None of these Answer: C 413. For very great pressures, viscosity of most gases and liquids A. Remain same B. Increases C. Decreases D. Shows erratic behavior Answer: D 414. A weir, generally, used as a spillway of a dam is A. Narrow crested weir B. Broad crested weir C. Ogee weir D. Submerged weir Answer: C 415. The angle of contact in case of a liquid depends upon A. The nature of the liquid and the solid B. The material which exists above the free surface of the liquid C. Both of die above D. Any one of the above Answer: C 416. A flow in which each liquid particle has a definite path, and the paths of individual particles do not cross each other, is called A. Steady flow B. Uniform flow C. Streamline flow D. Turbulent flow Answer: C 417. The stability of a dam is checked for A. Tension at the base B. Overturning of the wall or dam C. Sliding of the wall or dam D. All of these Answer: D 418. Water is _____ liquid. A. A compressible B. An incompressible C. Both A and B D. None of these Answer: B 419. The unit of kinematic viscosity in S.I. units is A. N-m/s B. N-s/m² C. m²/s D. N-m Answer: C 420. Bernoulli's equation is applied to A. Venturimeter B. Orifice meter C. Pitot tube D. All of these Answer: D 421. Manometer is used to measure A. Pressure in pipes, channels etc. B. Atmospheric pressure C. Very low pressure D. Difference of pressure between two points Answer: A 422. The flow in which conditions do not change with time at any point, is known as A. One dimensional flow B. Uniform flow C. Steady flow D. Turbulent flow Answer: C 423. A nozzle placed at the end of a water pipe line discharges water at A. Low pressure B. High pressure C. Low velocity D. High velocity Answer: D 424. The pressure of fluid due to hammer blow is known as A. One dimensional flow B. Uniform flow C. Steady flow D. Turbulent flow Answer: C 425. In order to measure the flow with a Venturimeter, it is installed in A. Horizontal line B. Inclined line with flow upwards C. Inclined line with flow downwards D. Any direction and in any location Answer: D 426. If mercury in a barometer is replaced by water, the height of 3.75 cm of mercury will be following cm of water A. 51 cm B. 50 cm C. 52 cm D. 52.2 cm Answer: A 427. According to equation of continuity, A. w1A = w2A B. w1v1 = w2v2 C. a1v1 = a2v2 D. a1v1 = a2v2 Answer: C 428. The discharge over a rectangular weir, considering the velocity of approach, is (whereH1 = H + Ha = Total height of water above the weir, H = Height of water over the crest of the weir, and Ha = Height of water due to velocity of approach) A. (2/3) Cd × L √2g [H1 - Ha] B. (2/3) Cd × L √2g [H13/2 - Ha3/2] C. (2/3) Cd × L √2g [H12 - Ha2] D. (2/3) Cd × L √2g [H15/2 - Ha5/2] Answer: B 429. The Francis formula for the discharge over Cipolletti weir is A. 1.84 LH1/2 B. 1.84 LH C. 1.84 LH3/2 D. 1.84 LH5/2 Answer: C 430. One poise is equal to A. 0.1 N-s/m² B. 1 N-s/m² C. 10 N-s/m² D. 100 N-s/m² Answer: A 431. When a vertical wall is subjected to pressures due to liquid on both sides, the resultant pressure is the _____ of the two pressures. A. Sum B. Difference C. Arithmetic mean D. Geometric mean Answer: B 432. The mercury does not wet the glass. This is due to the property of the liquid known as A. Cohesion B. Adhesion C. Viscosity D. Surface tension Answer: D 433. A channel is said to be of most economical cross-section, if A. It gives maximum discharge for a given cross-sectional area and bed slope B. It has minimum wetted perimeter C. It involves lesser excavation for the designed amount of discharge D. All of the above Answer: D 434. The maximum efficiency of transmission through a pipe is A. 50 % B. 56.7 % C. 66.67 % Answer: C 435. Ratio of inertia force to elastic force is known as A. Mach number B. Froude number C. Reynold's number D. Weber's number Answer: A 436. The discharge through an external mouthpiece is given by (where a = Cross-sectional area of the mouthpiece, and H = Height of liquid above the mouthpiece) A. 0.855 aH √(2g) C. 1.585 aH √(2g) C. 1.585 aH √(2g) D. 5.85 aH √(2g) Answer: A 437. If 850 kg liquid occupies volume of one cubic meter, then 0.85 represents its A. Specific weight B. Specific mass C. Specific gravity D. Specific density Answer: C 438. The discharge over a rectangular notch is (where b = Width of notch, and H = Height of liquid, above the sill of the notch) A. (2/3) Cd × b × v(2gH) B. (2/3) Cd × b × v(2g) × H C. (2/3) Cd × b × v(2g) × H3/2 D. (2/3) Cd × b × v(2g) × H2 Answer: C 439. A metal with specific gravity of 'a' floating in a fluid of same specific gravity 'a' will A. Sink to bottom B. Float over fluid C. Partly immersed D. Be fully immersed with top surface at fluid surface Answer: D 440. In a short cylindrical external mouthpiece, the vena contracta occurs at a distance _____ the diameter of the orifice from the outlet of orifice. A. Equal to B. One-fourth C. One-third D. One-half Answer: B 441. A submerged body is said to be in a stable equilibrium, if its centre of gravity _____ the centre of buoyancy. A. Coincides with B. Lies below C. Lies above D. None of these Answer: B 442. The power transmitted through the nozzle is maximum when the head lost due to friction in the pipe is _____ of the total supply head. A. One-half B. One-third C. Two-third D. None of these Answer: B 443. In the case of steady flow of a fluid, the acceleration of any fluid particle is A. Constant B. Variable C. Zero D. Zero under limiting conditions Answer: C 444. The pressure at a point in a fluid will not be same in all the directions when the fluid is A. Moving B. Viscous C. Viscous and static D. Viscous and moving Answer: D 445. The pressure of air _____ with the increase of height from the surface of the earth. A. Does not change B. Decreases C. Increases D. None of these Answer: B 446. Froude's number is the ratio of inertia force to A. Pressure force B. Elastic force C. Gravity force D. Surface tension force Answer: C 447. The pressure measured with the help of a Piezometer tube is in A. N/mm² B. N/m² C. Head of liquid D. All of these Answer: C 448. The total energy line lies over the centre line of the pipe by an amount equal to A. Pressure head B. Velocity head C. Pressure head + velocity head + velocity head Answer: C 449. Water is a _____ fluid. A. Real B. Ideal C. Newtonian D. Non-Newtonian Answer: C 450. The resultant of all normal pressures acts A. At C. G. of body B. At centre of pressure C. Vertically upwards D. At metacentre Answer: C 451. According to Newton's law of viscosity, the shear stress on a layer of a fluid is _____ to the rate of shear strain. A. Equal to B. Directly proportional C. Inversely proportional D. None of these Answer: B 452. A vessel of 4 m³ contains oil which weighs 30 kN. The specific weight of the oil is A. 4.5 kN/m³ B. 6 kN/m³ C. 7.5 kN/m³ D. 10 kN/m³ Answer: C 453. The loss of head at entrance in a pipe is (where v = Velocity of liquid in the pipe) A. v²/2g B. 0.5v²/2g C. 0.375v²/2g D. 0.75v²/2g Answer: B 454. The increase of temperature results in A. Increase in viscosity of gas B. Increase in viscosity of liquid C. Decrease in viscosity of gas D. Decrease in viscosity of liquid Answer: D 455. Which of the following is an example of laminar flow? A. Underground flow B. Flow past tiny bodies C. Flow of oil in measuring instruments D. All of these Answer: D 456. Re-entrant or Borda's mouthpiece is an _____ mouthpiece. A. Internal B. External C. Both A and B D. None of these Answer: A 457. The product of mass and acceleration of flowing liquid is called A. Inertia force B. Viscous force C. Gravity force D. Pressure force Answer: A 458. The top of the weir over which the water flows is known as A. Sill or crest B. Nappe or vein C. Orifice D. None of these Answer: A 459. The metacentric height is the distance between the A. Centre of gravity of the floating body and the centre of buoyancy B. Centre of gravity of the floating body and the metacentre C. Metacentre and centre of buoyancy D. Original centre of buoyancy and new centre of buoyancy Answer: B 460. The time oscillation of a floating body with increase in metacentric height will be A. Same B. Higher C. Lower D. Lower/higher depending on weight of body Answer: C 461. The property of a liquid which offers resistance to the movement of one layer of liquid over another adjacent layer of liquid, is called A. Surface tension B. Compressibility C. Capillarity D. Viscosity Answer: D 462. An internal mouthpiece is said to be running _____ if the length of the mouthpiece is more than three times the diameter of the orifice. A. Free B. Partially C. Full D. None of these Answer: C 463. A manometer is used to measure A. Low pressure B. Moderate pressure C. High pressure D. Atmospheric pressure Answer: C 464. Which of the following meters is not associated with viscosity? A. Red wood B. Say bolt C. Engler D. Orsat Answer: D 465. The specific weight of water in S.I. units is taken as A. 9.81 kN/m³ B. 9.81 × 103 N/m³ C. 9.81 × 10² N/m³ D. Any one of these Answer: D 466. The celerity (velocity) of a pressure wave in a fluid is given by (where K = Bulk modulus, and ρ = Density of the fluid) A. K ρ B. K/ρ C. ρ/K D. None of these Answer: B 467. A fluid having no viscosity is known as A. Real fluid B. Ideal fluid C. Newtonian fluid D. Non-Newtonian fluid Answer: B 468. In order to avoid tendency of separation at throat in a Venturimeter, the ratio of the diameter at throat to the diameter of pipe should be A. 1/16 to 1/8 B. 1/8 to 1/4 C. 1/4 to 1/3 D. 1/3 to 1/2 Answer: D 469. Liquids transmit pressure equally in all the directions. This is according to A. Boyle's law B. Archimedes principle C. Pascal's law D. Newton's formula Answer: C 470. The discharge over a triangular notch is A. Inversely proportional to H3/2 B. Directly proportional to H3/2 C. Inversely proportional to H5/2 D. Directly proportional to H5/2 Answer: D 471. A flow whose streamline is represented by a straight line, is called _____ dimensional flow. A. One B. Two C. Three D. Four Answer: A 472. The body will float if the force of buoyancy is _____ the weight of the liquid displaced. A. Equal to B. Less than C. More than D. None of these Answer: C 473. The velocity corresponding to Reynold number of 2000 is called A. Sub-sonic velocity B. Super-sonic velocity C. Lower critical velocity D. Higher critical velocity Answer: C 474. A structure, whose width is _____ the width of the channel, is called a flumed structure. A. Less than B. More than C. Equal D. None of these Answer: A 475. The force of buoyancy is always _____ the weight of the liquid displaced by the body. A. Equal to B. Less than C. More than D. None of these Answer: A 476. The density of water is 1000 kg/m³ at A. 0° C B. 0° K C. 4° C D. 20° C Answer: C 477. Bulk modulus of a fluid _____ as the pressure increases. A. Remains same B. Decreases C. Increases D. None of these Answer: C 478. The coefficient of viscosity may be determined by A. Capillary tube method B. Orifice type viscometer C. Rotating cylinder method D. All of these Answer: D 479. Centre of pressure on an inclined plane is A. At the Centroid B. Above the Centroid C. Below the Centroid D. At metacentre Answer: C 480. When the Mach number is less than unity, the flow is called A. Sub-sonic flow B. Sonic flow C. Super-sonic flow D. Hyper-sonic flow Answer: A 481. When the pressure intensity at a point is more than the local atmospheric pressure, then the difference of these two pressures is called A. Gauge pressure B. Absolute pressure C. Positive gauge pressure D. Vacuum pressure Answer: C 482. If the coefficient of discharge is 0.6, then the discharge over a right angled notch is A. 0.417 H5/2 B. 1.417 H5/2 C. 4.171 H5/2 D. 7.141 H5/2 Answer: B 483. The most efficient section of a channel is A. Triangular B. Rectangular C. Square D. Trapezoidal Answer: D 484. A pipe of length more than double the diameter of orifice fitted externally or internally to the orifice is called A. A. Notch B. Weir C. Mouthpiece D. Nozzle Answer: C 485. An open tank containing liquid is moving with an acceleration on an inclined plane. The inclination of the free surface of the liquid will be _____ to the acceleration of the tank. A. Equal to B. Directly proportional C. Inversely proportional D. None of these Answer: B 486. The coefficient of discharge for an external mouthpiece is A. 0.375 B. 0.5 C. 0.707 D. 0.855 Answer: D 487. The process of diffusion of one liquid into the other through a semi permeable membrane is called A. Viscosity B. Osmosis C. Surface tension D. Cohesion Answer: B 488. One stoke is equal to A. 10-2 m²/s B. 10-3 m²/s C. 10-4 m²/s D. 10-6 m²/s Answer: C 489. Falling drops of water become spheres due to the property of A. Surface tension of water B. Compressibility of water C. Capillarity of water D. Viscosity of water Answer: A 490. The specific gravity of an oil whose specific weight is 7.85 kN/m³, is A. 0.8 B. 1 C. 1.2 D. 1.6 Answer: A 491. The length of the divergent cone in a Venturimeter is _____ that of the convergent cone. A. Equal to B. Double C. Three to four times D. Five to six times Answer: C 492. If a body floating in a liquid returns back to its original position, when given a small angular displacement, the body is said to be A. Neutral equilibrium B. Stable equilibrium C. Unstable equilibrium D. None of these Answer: B 493. The stress-strain relation of the Newtonian fluid is A. Linear B. Parabolic C. Hyperbolic D. Inverse type Answer: A 494. The viscosity _____ its rate of flow through a hole in a vessel. A. Effects B. Does not effect C. Both A and B D. None of these Answer: A 495. The coefficient of discharge in case of internal mouthpiece is _____ that of external mouthpiece. A. Less than B. More than C. Equal to D. None of these Answer: A 496. The unit of surface tension is A. N/m B. N/m² C. N/m³ D. N-m Answer: A 497. The units of dynamic or absolute viscosity are A. Metres' per sec B. kg sec/cmeter C. Newton-sec per meter D. Newton-sec' per meter Answer: C 498. A notch is used to measure _____ of liquids. A. Pressure B. Discharge C. Velocity D. Volume Answer: B 499. Euler's number is the ratio of _____ force to pressure force. A. Inertia B. Gravity C. Viscous D. None of these Answer: A 500. A flow in which the volume of a fluid and its density does not change during the flow is called _____ flow. A. Incompressible B. Compressible C. Viscous D. None of these Answer: A