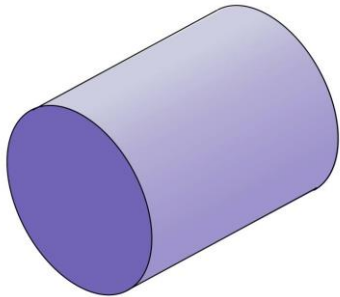


Sr. #	Statement	ANSWER
1.	Which is not true about engineering drawing. A. It's a technical type of drawing B. It describes geometric features of all parts of a machine. C. It's an illustration of all parts of machine. D. It's combination of graphic and world languages E. All are true about engineering drawing	C
2.	We use scaling in Engineering drawings because _____. A. It is easy to draw using scale B. Engineering objects are too large C. Modification is easy if we use scaling D. All of these	B
3.	The drawing drawn without using instruments other than pencils and erasers is called _____. A. Manual Drawing B. Freehand drawing C. Instrumental drawing D. Both A & B	B
4.	For making angles _____ instrument is used. A. Compass B. Divider C. Protector D. Both A & C	D
5.	Most important part of drawing a layout of engineering object is _____. A. Drawing sheet B. Pencil C. Dimensions D. None of these	C
6.	_____ line is used to show the internal detail of an object A. Parallel line B. Hidden line C. Both A & B D. None of these	B
7.	_____ Instruments is used to draw parallel lines. A. Scale B. Compass and divider C. T-Square D. Both A&C	C
8.	Quadrant of a circle is always _____ sector of circle. Greater than Less than Equal to Same as	A

9.	<p>The most appropriate method of dividing a line into equal parts is by using_____.</p> <p>A. Using scale B. Compass C. Line divider D. All of these</p>	B
10.	<p>The most appropriate method for drawing Ellipse is _____.</p> <p>A. Concentric method B. 4-Center method C. Rectangular Method D. Oblong method</p>	B
11.	<p>If eccentricity value is approaching 0 it represents the ____ shape?</p> <p>A. Parabola B. Ellipse C. Hyperbola D. Circle</p>	D
12.	<p>Mark the true statement?</p> <p>A. There is only one focus point and two directrices for parabola. B. There are two focus point and many directrices for hyperbola. C. There are two focus point and two directrix for ellipse. D. There are two focus point and two directrix for hyperbola.</p>	D
13.	<p>What instrument can be used as a guide in drawing to draw horizontal and vertical lines?</p> <p>A. Scale B. Set-square C. T-square D. All are correct</p>	C
14.	<p>Mark the true statement from the following</p> <p>A. Compass is used to measure distances, navigation and drawing circles B. Compass is used to measure length, height, and drawing strait line C. Compass is used to measure depth, diameter, and drawing straight line D. Compass is used to measure distance, height, and drawing strait line</p>	A
15.	<p>Which pencil can be used for light and dark lines respectively?</p> <p>A. 2H, 5H B. 6H, 6B C. 4H, H D. 5H, 5B</p>	C
16.	<p>Which of the following has length without width?</p> <p>A. Point B. Line C. Plane D. Angle</p>	B
17.	<p>The triangle whose sides and angles are not equal is known as</p> <p>A. Equilateral triangle B. Isosceles triangle</p>	D

	<p>C. Right triangle D. None of these</p>	
18.	<p>Interior features that do not lie along a straight line can be represented by A. Offset B. Development C. Orthographic projection D. Simple drawing</p>	A
19.	<p>If length of an object is greater than width, the drawing sheet will be pasted in _____ style A. Portrait B. Landscape C. Vertically D. None of these</p>	B
20.	<p>Soldering is a type of _____ fastener. A. Temporary B. Basic C. Secondary D. Permanent</p>	D
21.	<p>_____ is the linear distance between two consecutive points in a screw's thread. A. Crest B. Pitch C. Pitch diameter D. None of these</p>	B
22.	<p>_____ thread is used to transmit high power in only one direction A. ACME B. Knuckle C. Buttress D. All of these</p>	C
23.	<p>_____ Views are enough to fully describe the following object in orthographic projection.</p>  <p>A. 1 B. 2 C. 3 D. 6</p>	B
24.	<p>Which type of sectional view describes joining of different parts of object? A. Shaft sections B. Joining sections C. Aligned sections D. None of these</p>	D

25.	In development of _____ bending lines are not required. A. Cone B. Prism C. Pyramid D. Both Cone and pipe	D
26.	What type of development is used in development of truncated right cylinder? A. Parallel line development B. Radial line development C. Approximation Development D. Both Parallel and radial line development	D
27.	Keys are type of _____ fasteners? A. Temporary B. Permanent C. Semi-Permanent D. None of these	A
28.	_____ threads are mostly used in machines. A. Screw B. Square C. Buttress D. None of these	A
29.	Choose the correct statement. A. Plane of projection is a cutting plane that appears to be present at larger distance from object. B. Engineers use perspective projection for manufacturing. C. Image of object formed in parallel projection is accurate in size as compared to perspective projection. D. Orthographic projection is perpendicular line projection.	C
30.	In isometric projection ellipse can be drawn as: A. Circle B. Rectangular ellipse C. Four Centre ellipse D. None of these	C
31.	Mark the correct statement? A. Perspective projection is also known as Multiview drawing. B. Isometric view gives accurate visualization of shape of the object. C. Mostly 1 st angle system is used in orthographic drawings. D. Isometric drawing needs more practice in writing and reading.	C
32.	Which type temporary of fasteners are used to in case of tensions and compressions? A. Keys B. Cotters C. Rivets D. All of these	B
33.	There are ___ types of sectional views. A. 2 B. 3 C. 6 D. None of these	B

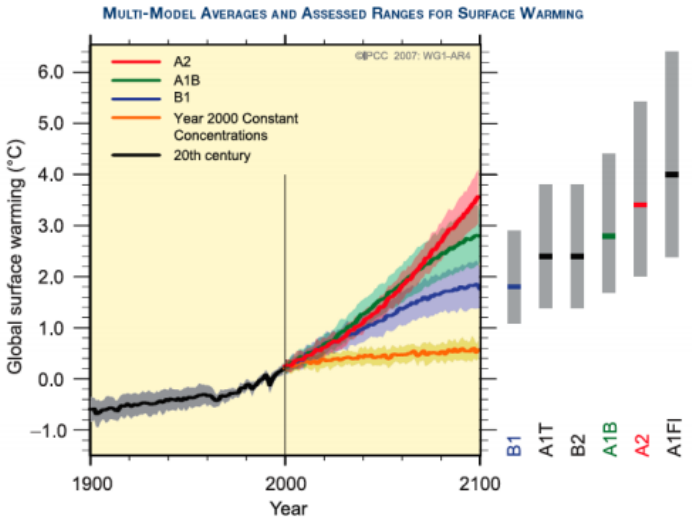
34.	To draw a line of 13 units at 105° the command prompt sequence will be written as; A. >13@105 B. <13@105 C. @13>105 D. None of these	D
35.	_____ Command is used to create the similar copy at opposite side. A. Mirror B. Copy C. Array D. Both A & C	A
36.	What will happen if you use solid extrude command on an open 2D geometry: A. It will extrude a surface B. It will not create extrusion C. Command line will prompt you to make closed boundary before using extrude command D. Region will be created from extrusion	A
37.	To turn ON/OFF Command Bar in AutoCAD _____ shortcut key is used. A. F9 B. ALT+F9 C. CTRL+F9 D. None of these	D CORRECT ANSWER (CTRL+9)
38.	_____ Command is used to make multiple same objects at once. A. Copy B. Offset C. Array D. All of these	C
39.	In AutoCAD 2007 one can draw a polygon with ____no. of sides. A. as many as one wants B. Maximum 10 C. Minimum 10 D. None of these	D (MIN 3 - MAX 1024)
40.	Which layer is automatically created when a dimension is added to the drawing? A. Layer 0 B. Layer q C. Dim D. None of these	D
41.	Which of the following is the extension for AutoCAD drawing file? A. DWG B. ACTD C. ACD D. All of these	A
42.	CAD is also called as CAE. CAD = _____ & CAE = _____. A. Computer aided drawing & Computer automatic drawing B. Computer aided drawing & Computer aided engineering C. Computer aided design & Computer aided engineering D. Both B & C	C

43.	<p>_____ unit formats can be selected from the units dialogue box.</p> <p>A. 3 B. 4 C. 5 D. None of these</p>	C
44.	<p>CAD reduces the product design cycle because ____:</p> <p>A. Product can be tested several times as real model B. Lead time is increased C. Documentation for different purposes can be printed and used D. All of these</p>	C
45.	<p>To change the thickness of a line in drawing _____ needs to be in active state.</p> <p>A. By Layer menu B. LWT C. ORTHO D. Both A & B</p>	B
46.	<p>_____ Command is used to make multiple same objects at once.</p> <p>A. Copy B. Offset C. Array D. All of these</p>	C
47.	<p>There are ____ ways to enter commands in AutoCAD.</p> <p>A. One B. Two C. Three D. None of these</p>	C
48.	<p>Which of the following command is used to draw 3D shaped drawing in 2D drawing view as isometric drawing.</p> <p>A. ISOPLANE B. GRID C. SNAP D. Both A & C</p>	D
49.	<p>The size of Workspace/Worksheet in AutoCAD is _____.</p> <p>A. Minimum 1×1 units B. Maximum 1000×1000 units C. Both of these are correct D. None of these</p>	D
50.	<p>_____ Command is used to move one side face of a 3D Cube.</p> <p>A. Move B. Offset faces C. Mirror D. None of these</p>	D
51.	<p>Identify the correct statement.</p> <p>A. Intersect command is same as subtract command. B. Extrude faces is different from extrude command. C. One can use mirror and offset command for same purpose. D. All statements are wrong.</p>	B

52.	<p>There are ____ types of views in view toolbar.</p> <p>A. 2 B. 3 C. 6 D. 10</p>	A
53.	<p>_____ Command is not likely to be used in most of engineering drawings.</p> <p>A. Spline B. Poly line C. Multiline D. All of these.</p>	C
54.	<p>_____ no. of 3D commands are present in two different toolbars with the same icon and same function in AutoCAD 2007.</p> <p>A. 2 B. 3 C. 4 D. 5</p>	B
55.	<p>Identify the correct statement.</p> <p>A. Trim command is opposite of extend command. B. Copy command is as same as erase. C. Boundary command and explode commands are used for same purpose. D. 4 sided rectangle can be drawn by using polygon command. E. All are wrong statements.</p>	D
56.	<p>Large floating objects like rags and logs are separated from water by using:</p> <p>A. Coarse screens B. Fine screens C. Micro screens D. Fabric filter E. All of these</p>	A
57.	<p>Choose the correct statement:</p> <p>A. The process of flocculation improves settling of particles in sedimentation tank B. The process of flocculation decreases removal of colloidal solids C. The process of flocculation increases BOD of water D. Microorganisms cannot be removed by coagulation and flocculation</p>	A
58.	<p>Choose the correct statement:</p> <p>A. Sedimentation rate increases with the increase in temperature. B. Upflow velocity of the water should be greater than the settling velocity in sedimentation basins. C. The velocity of water is increased as it enters the settling zone of sedimentation tank.</p> <p>Distinct particle settling is also known as zone settling</p>	A
59.	<p>Which is an effective process for the removal of flocs having low density:</p> <p>A. Sedimentation B. Flotation C. Settling D. Filtration</p>	B

60.	<p>If the volume of a settling tank is 2000m^3 and water inflow rate is $19200\text{ m}^3/\text{d}$ then the detention time will be:</p> <p>A. 2.5 h B. 1.5 h C. 130 min D. 3 h</p>	A
61.	<p>If we have to design a slow sand filter then which of the following sand sample will be selected:</p> <p>A. Sand with uniformity coefficient 2.3 and effective size 0.4 mm B. Sand with uniformity coefficient of 1.4 and effective size 0.3 mm C. Sand with uniformity coefficient of 2.7 and effective size 0.25 mm D. Sand with uniformity coefficient of 2.1 and effective size 0.05 cm</p>	C
62.	<p>Choose the correct statement:</p> <p>A. The slow sand filters are not much effective in the removal of bacteria from water. B. The depth of base material varies from 20 to 30 cm for rapid sand filter. C. With the increase in head loss the filtration rate of filter bed is also increased D. Initial cost of rapid sand filter is less but maintenance cost is more.</p>	D
63.	<p>If the average flow rate at a water treatment plant is $200\text{ m}^3/\text{h}$, then the number of filter unit beds required will be:</p> <p>A. 2 B. 1 C. 5 D. 3</p>	D
64.	<p>To prevent scouring in horizontal flow sedimentation tanks, the appropriate tank depth should be:</p> <p>A. $< 2.5\text{ m}$ B. 2.5 m C. 25 cm D. $< 1.5\text{ m}$</p>	B
65.	<p>Which of the following pH value will be suitable for the effective disinfection of water by using chlorine:</p> <p>A. 10 B. 7 C. 4.5 D. 6.5</p>	D
66.	<p>Choose the correct statement:</p> <p>A. GAC has more internal surface area than the PAC. B. Carbon dosage and flow rate are the important parameters when PAC is used for adsorption. C. Adsorption process with GAC columns is performed after sedimentation and sand filtration processes. D. The operating cost of GAC columns is high than PAC adsorption.</p>	C
67.	<p>Choose the correct statement:</p> <p>A. Weak-acid cation resins cannot be used for carbonate hardness. B. Alkaline pH range is required for weak-base anion exchangers. C. To regenerate anion resins alkalis are used D. None of these</p>	C

68.	If we add calcium hypochlorite in water for disinfection, the pH of water will: A. Decrease B. Increase C. Becomes neutral D. Remains same	B
69.	By considering the feasibility and limitations of different disinfection processes, which of the following process should be used for a conventional water treatment plant with a large distribution system (for public supplies) A. Chlorination B. Ozonation C. UV irradiation D. Chloramination	A
70.	Which of the following is an organic coagulant: A. Alum B. Poly-aluminium Chloride C. Chitosan D. Ferric Chloride	C
71.	Method of cleaning for rapid gravity filters is: A. Scrapping the top layer B. Screening C. Reverse flow of water through the underdrainage system. D. None of these	C
72.	Choose the correct statement: A. The purpose of coagulation is to destabilize dissolved particles B. High velocity is required to allow the floc particles to settle in the sludge zone C. The filter sand should generally be obtained from rock like granite D. Over flow rate is the upflow velocity of the water in the settling tanks	D
73.	Which of the following statements is not correct: A. Particles or molecules are generally negatively charged at pH levels above 4.0 B. Adsorption is a surface phenomenon C. Short-circuiting is necessary for effective sedimentation. D. Adsorption capacity is determined by internal surface area of the adsorbents.	C
74.	Which of the following particle characteristics has no effect on settling process: Size A. Shape B. Density C. Viscosity D. None of these	D
75.	Which is not a line source of air pollution _____. A. Highway vehicles B. Channel vessels C. Aircraft air emissions D. Gas leakage	D
76.	Types of air pollution w.r.t. place of exposure are _____. A. 2 B. 3 C. 4 D. 5	B

77.	<p>Ozone Concentration is _____ with altitude.</p> <p>A. Remains same B. Increases C. Increases and then remains almost same D. Remains almost same and then increases</p>	D
78.	<p>OLD is most vulnerable in _____.</p> <p>A. Northern hemisphere B. Southern hemisphere C. North pole D. All of these</p>	B
79.	<p>Which scenario will likely to be follow by the end of this century from climate change perspective? Keep in view the fact that petroleum products likely to be diminished after 2050.</p>  <p>A. B1 B. A1B C. B2 D. A2</p>	A
80.	<p>Which is more dangerous to human from respiration perspective.</p> <p>A. Dry Deposition B. Wet Deposition C. UV-radiation D. Both A & B</p>	A
81.	<p>Which is not responsible for formation of Photochemical Smog?</p> <p>A. PAN B. Tropospheric Ozone C. VOC's D. Carbon dioxide</p>	D
82.	<p>Which factor dominates in declaring Beijing as most vulnerable to air pollution issues?</p> <p>A. Its Population B. Traffic problem C. Its Topography D. All of these</p>	C

83.	Best possible way to reduce air pollution problems from vehicular emissions in developing countries. A. Electric cars B. Maintenance of vehicles C. Ban on use of cars D. All of these	B
84.	_____ studies upper atmospheric layer. A. Meteorology B. Metrology C. Atmospheric stratification D. None of these	D
85.	Which meteorological parameter is responsible for chemical transformation of air pollutants? A. Wind speed B. Temperature C. Solar Radiation D. Precipitation (Rain)	C
86.	The layer extending from the top of the viscous sub-layer to about 10% of the depth of the PBL is _____. A. Viscous layer B. Viscous Sub-Layer C. Surface Layer D. Ekman Layer	C
87.	If a chimney lies in an atmosphere where there is turbulence that leads to pollutant mixing at a very high rate. This condition indicates _____. A. Adiabatic compression B. Stable atmosphere C. Unstable atmosphere D. Adiabatic expansion	C
88.	Dry adiabatic lapse rate is always greater than saturated adiabatic lapse rate because _____. A. adiabatic compression is more prominent in dry adiabatic condition B. Water vapors in saturated condition absorbs some heat C. Temperature Inversion is more in dry adiabatic condition D. Both B & C	B
89.	Inversion is more prominent phenomenon in night time. A. Temperate B. Radiative C. Subsidence D. Both A & B	B
90.	Scavenging mechanism refers to _____. A. Variation of wind speed and direction B. PM Formulation and removal C. Self-Purification of atmosphere D. None of these	B
91.	Which difference best describe difference b/w noise and sound to a layman. A. Sound is essential to us but noise is not B. Sound is pleasant and noise is unpleasant C. There is symmetry of sound wave in sound but noise is produced by unsymmetrical sound waves D. All of these	A
92.	The noise produced by aircraft is _____ kind of noise. A. Instant Noise B. Intermittent Noise	C

	C. Impulse Noise D. None of these	
93.	Noise pollution can cause_____. A. Respiratory problems B. Hearing Impairment C. Lung cancer D. None of these	B
94.	Unit for measuring sound intensity is _____? A. Decibel (dB) B. Hertz C. W/m ² D. None of these	C
95.	Identify the correct statements. A. Air pollution monitoring helps to improve AQM if it is done at initial stage. B. Air pollution monitoring helps to improve AQM if it is done at all stages. C. Air pollution monitoring helps to improve AQM if it is done after Quality control (QC). D. Air pollution monitoring gives incomplete pollutant information at a location for a monitoring period.	B
96.	For monitoring air pollution levels at a location far away from populated area _____ samples are likely to be collected. A. Passive B. Grab C. Integrated D. Representative	B
97.	Chemiluminescence measurement means measurement by _____. A. Reaction B. Light C. Absorbance D. Thermal conversion	B
98.	Calibration of air samplers is done to cope up/compensate _____. A. Flow rate change B. Air direction C. Temperature change D. Light penetration	C
99.	The emission of pollutants from a chimney shows looping trend. The emission factor for Sulphur Dioxide is 51mg/Kg. Air filters are also attached with control efficiency of 73%. Total emission of pollutant for burning of 21 kg of coal in a day is _____. A. 3 ppm B. 770 mg/Kg C. 3 mg D. 0.77 kg	C
100.	_____ Indicate sources of fugitive emissions. A. Hydrocarbons B. Volatile substances C. Gas pipeline leakages D. Hydrogen sulphide emission from sewers	C
101.	Which is most favorable emission reduction approach with the restriction of low budget for pollution remediation? A. End of pipe treatment B. Reuse C. Recycle D. Cleaner production	D

102.	Particle with _____ size is most likely to be removed by gravity separation? A. Less than 1 micrometer B. B/w 1 to 2.5 micrometer C. 7.5 micrometer D. 10 micrometer	D
103.	The purpose of mist eliminator in scrubbers is to _____. A. Increase Contact of pollutant with scrubber B. Decrease the PM size C. Decrease input power D. E. None of these	D
104.	The most preferable mechanism for gaseous pollutant removal from the following is _____. A. Physical adsorption Diffusion B. Chemisorption C. All of these	A
105.	Which of the following contribute to emission formation from mobile sources. A. Crankcase emissions B. Diffusion of gasoline particles into air C. Leakage from pumping stations D. All of these	A
106.	In diesel engine the CO emissions increases as F/A Ratio _____. A. Shifts from lean to stoichiometric condition B. Increases C. Decreases D. Remains constant	B
107.	Which air dispersion model is preferably used for an industrial unit with a number of pollutant emitting appliances/sections. And there are other sources nearby that contribute to pollutant emission from industrial unit due wind direction. A. Box model B. Gaussian model C. CALPUFF D. ADMS	A
108.	Which of the following produces Impulse Noise? Lawn Mover A. Air Craft B. Rock and Roll Concert C. Heavy Truck Traffic D. Gun Fire	B
109.	_____ is characteristic of Noise? A. Sound Pressure B. Sound Intensity C. Location D. All of these	D
110.	When the social events (e.g. parties) are not oftenly happened, they can be termed as _____ rather than noise pollution. Loud sound Impairing sound Nuisance	C

	Low noise events	
111.	Which type of mechanism is likely to be adopted to transmit noise indoors? A. Conversion of sound energy to thermal energy B. Reflected most of the sound and absorbing the extra sound C. Transmitting low frequency sound and reflecting high frequency sound D. All of these	A
112.	What are the indicators that show workplace has noise hazard? A. Workers hear ringing in your ears after leaving work B. Workers feel pain and immediate hearing loss C. All of these D. None of these	A
113.	Commercial sound absorbing material absorb _____ of sound. A. 40% B. 50% C. 60% D. More than 60%	D
114.	Use of pliers instead of hammer when possible is an example of _____ type noise emission control. A. Source Emission B. Source reduction C. Engineering control D. Receiver control	A
115.	Engineering that deals with the preservation & maintenance of health of individual & community, by preventing communicable diseases is: A) Public health Engineering B) Sewerage Engineering C) Sanitary Engineering D) All of these	C
116.	_____ deals with the treatment and reuse of wastewater. A) water supply engineering B) wastewater engineering C) public health engineering D) none of these	B
117.	Goal of wastewater engineering is_____. A) Protect public health B) provide save water C) reuse of water D) all of these	A
118.	Sewage is composed of: A) 90% liquid & 10% solids B) 95% liquid & 5% solids C) 99% liquid & 1% solids D) 99.9% liquid & 0.1% solids	D
119.	COD value is always _____ BOD value for a sample: A) less than B) greater than C) half of D) equals	B
120.	Performance efficiency of a plant is given as: A) Volume/inflow B) (influent constituents-effluent constituents)/ influent constituents C) treated water/total water D) none of these	B
121.	Major factor effecting health and comfort of individuals: A) wastewater generated at high rate B) Improper disposal of human waste and sewage C) none of these D) all of these	B
122.	Chemical precipitation was firstly tried in _____ in year _____. A) Germany in 1882 B) India in 1700,s C) England in 1762 D) none of these	C
123.	Wastewater Farming was practiced in_____ A) Germany in 1550 B) India in 1750	D

	C) England in 1700 D) Both A & C	
124.	John Philips was the first Engineer who ____. A) Practiced wastewater Farming B) Tried Chemical precipitation C) Makes a comprehensive study of metropolitan sewage needs D) All of these	C
125.	In united states J.W Adams firstly applied _____ to design sewer system in Brooklyn. A) Wastewater treatment B) Chemical precipitation C) Engineering knowledge D) Wastewater farming	C
126.	The general term used to indicate what is rejected as worthless is ____. A) Refuse B) Garbage C) Sewage D) All of these	A
127.	Refuse found in _____ Form. A) Liquid B) Solid C) Semi-solid D) All of these	D
128.	Refuse is divided into _____ Categories. A) 4 B) 6 C) 8 D) 10	B
129.	Which of the following indicate dry refuse? A) Rubbish B) Garbage C) Dry waste D) both A & B	B
130.	The decomposition of ____ Produces large quantities of malodorous gases. A) Organic matter B) Sullage C) Sewage D) none of these	C
131.	The water that enters into sewers through leaks is called _____. A) Surface water B) Ground water C) subsurface water D) All of these	C
132.	In wastewater the term used to indicate human and animal waste _____. A) Excreta B) Night soil C) Sewage D) All of these	B
133.	The sewers that collects water directly from the houses is _____. A) Main sewers B) Branch sewers C) Lateral sewers D) Sub-main sewer	C
134.	The sewer that indicates first stage of sewage collection are _____. A) Main sewers B) Branch sewers C) Lateral sewers D) Sub-main sewer	C
135.	The sewer which receives water from relatively small area and discharged into main _____. A) Branch sewers B) Lateral sewers C) Sub-main sewer D) Both A & C	D
136.	It is section of sewer constructed lower than adjacent sections to pass beneath an obstacle. A) Outfall sewer B) Depressed sewer C) intercepting sewer D) none of these	B
137.	The sewer which is laid transversely to general sewer system to intercept the dry-weather flow of sewage. A) Outfall sewer B) Depressed sewer C) intercepting sewer D) none of these	C
138.	The sewer that receives the sewage from the collecting system and conducts it to a point of final discharge. A) Outfall sewer B) Depressed sewer C) intercepting sewer D) none of these	A
139.	The sewer that built to carry flow in excess of capacity of an existing sewer. A) Relief sewer B) Depressed sewer	D

	C) over flow sewer D) Both A & C	
140.	Waste water treatment is combination of? a) physical process b) chemical process c) tertiary process d) all of these	D
141.	Waste water should be treated in order to remove? a) reduce the spreading of un communicable diseases b) to remove the dissolved gases c) reduce the spreading of communicable diseases d) none of these	C
142.	Methods of treatment in which physical forces predominates are? a) unit operation b) unit process c) unit digesters d) screening	A
143.	Methods of treatment in which chemical and biological activity are involved are? a) unit digesters b) sedimentation c) unit processes d) unit operations	C
144.	Physical treatment process includes? a) flocculation b) precipitation c) adsorption d) none of these	A
145.	Chemical units have following process? a) sedimentation b) gas transfer c) flotation d) none	B
146.	Example of biological activity is? a) gas transfer b) flocculation c) adsorption d) tricking filtration	D
147.	Preliminary process consists of? a) sedimentation of organic suspended solids b) removal of dissolved organic compounds c) pumping and flow measurement d) none of these	C
148.	Which process includes in secondary treatment for the removal of organic matter? a) physical process b) chemical process c) biological process d) preliminary process	C
149.	Which treatment is advanced treatment? a) chemical process b) preliminary process c) tertiary process d) all of these	C
150.	Pollutants may include soluble inorganic compounds are? a) phosphorus and sulphur b) iron and sulphur c) chlorine and phosphorus d) phosphorus and nitrogen	D
151.	The cost of waste sludge disposal is Of treatment plants? a) 1/3 b) 1/2 c) 1/4 d) 2/3	A
152.	The planning and design of waste water flow facilitates involves? a) hydraulic design b) large conduits and junction c) diversion structure d) all of these	D
153.	Most sewers are laid under To avoid interference? a) under roads b) under houses c) under bridges d) near sea	A
154.	Recent changes in waste water collection? a) photogrammetric techniques b) computer techniques c) addition of micro organisms d) both a and b	D
155.	Normally which treatment process is preferred in which? a) less sedimentation is needed b) natural process of decay is intensified	B

	c) separate system	d) partially combined system	
208.	Non-rainfall periods are called _____ a) DWF c) Scarcity Period	b) Wet WF d) Rainfall Time	A
209.	Dry weather flow is also called _____ a) Sanitary sewage c) Industrial sewage	b) Storm sewage d) Domestic sewage	A
210.	Minimum quantity for sewers design is _____ a) 100LCD c) 220LCD	b) 180LCD d) 150LCD	D
211.	In cities where FSL or FAR limits are fixed by _____ authorities a) Municipal c) City	b) FDA d) Government	A
212.	Design period of sewers is of _____ years a)30 c)50	b)40 d)60	A
213.	The waste water is produced may be assumed to _____ of water supplied. a) 60-70% c) 60-90%	b) 70-80% d) 70-90%	B
214.	Flow of waste Water from sewers to ground is _____ a) Infiltration c) Exfiltration	b) If-filtration d) None of these	C
215.	Infiltration in areas basis is expressed as a) 5000 m ³ /H/D c) 5000L/H/Sec	b) 5000L/H/D d) 5000L/H/Min	B
216.	Infiltration in length basis is expressed as a) 50000L/Km/D c) 50000L/Km/Min	b) 500000L/m/D d) 450000L/Km/D	A
217.	Rate of infiltration will increase with _____ in diameter. a) Increasing c) By keeping constant	b) Decreasing d) Both a and c	A
218.	Limitation of Babbitt formula is _____ a) P=1000-100000 c) P=10-10000	b) P=100-10000 d) P=1-1000	D
219.	Bench mark for minimum and maximum low rate is _____ a) Average flow rate c) DWF rate	b) Yearly flow rate d) Storm weather flow rate	A
220.	Peaking is a ratio of _____ a) Peak flow/Average flow c) Minimum flow/Maximum flow	b) Average flow/Peak flow d) Average flow/Maximum flow	A
221.	The range of peaking factor is _____ a) 1.5-2 c) 2.5-3	b) 1-1.5 d) 3.5-4	A
222.	In laterals, minimum flow may be between _____ of average flow a) 20-30% c) 40-50%	b) 30-40% d) 50-60%	A
223.	In main and trunk sewers , the minimum flow may _____ of average flow a) 20-30% c) 40-60%	b) 30-40% d) 50-60%	C
224.	Storm water flow is also called _____ a) WWF c) Non rainfall period	b) DWF d) None of these	A
225.	Duration of storm is equal to _____ a) Time of concentration c) Time of exist	b) Time of entry d) None of these	A

226.	Where rainfall records are not available _____ formula are used a) Complex c) Empirical	b) Rational d) None of these	C
227.	In general formula where $t=20-100$ minutes than _____ a) $a=20, b=40$ c) $a=30, b=40$	b) $a=40, b=20$ d) $a=20, b=10$	B
228.	Time of concentration (t_c) is _____ a) t_e+t_f c) $t_f + t_e$	b) t_e-t_f d) None of these	A
229.	Point of concentration is at which maximum _____ is being estimated a) Rainfall c) Precipitation	b) Runoff d) None of these	B
230.	Time of entry decreases with the increase in _____ a) Impervious factor c) Slope	b) Height d) All of these	C
231.	Time of entry for steepest slope is _____ a) 5min c) 3min	b) 4min d) 2min	C
232.	Time of entry for grassy plots is _____ a) 50min c) 30min	b) 40min d) 20min	D
233.	Maximum runoff occurs when duration of storm _____ to time of concentration a) Is equal c) Is lesser	b) Is greater d) Both a and b	A
234.	Area draining to dam side is called _____ a) Impervious area c) Catchment area	b) Rainfall area d) None of these	C
235.	Highly priced areas should be subjected to _____ frequent flooding than residential a) < c) =	b) > d) Both b and c	A
236.	Peak factor for population above 7,50,000 is _____ a) 1 c) 1.5	b) 2 d) 2.5	B
237.	Peak factor depends upon the a) Slope c) Population	b) Area d) None of these	C
238.	Peak factor 2.5 is suggested for the population _____ a) 50000-7,50,000 c) 20000-500000	b) 10000-500000 d) 20000-2,50,000	C
239.	Time of flow is calculated by formula t_f _____ a) $v_f \cdot a \cdot t$ c) Distance / Velocity	b) $V_f^2 - v_i^2$ d) None of these	C
240.	Time required to fill the sewers known as _____ a) Time of outflow c) Time of storage	b) Time of inflow d) Time of action	C
241.	If duration of storm is longer than t_c , then rainfall intensity will be _____ a) More c) Equal	b) Less d) Both b and c	B
242.	The solid matter present in the form of organic matter in sewage. A. 0.1-0.2% B. 1-2% C. 1-3% D. 2-3%		A
243.	Inner surface of the sewer must be resistant to..... Solid particles, A. abrasive action B. siltation C. Erosion D. none		A
244.	Chezy's formula is..... A. $V=RS$ B. $V=CS$ C. $V=C\sqrt{RS}$ D. None		C

268.	During minimum flow of the Sewage, the velocity flow is---- the self cleansing velocity: (A) Equal (B) less than (C) Greater than (D) None	B
269.	Self cleansing velocity should be maintained at least (A) Once in a day (B) twice a day (C) Thrice a day (D) Four times a day	A
270.	The formula for self cleansing is given as---	
271.	At higher velocity the flow becomes (A) Zero (B) linear (C) Steady (D) Turbulent	D
272.	The maximum velocity at which no scouring action or abrasion takes place is known as (A) Self cleansing velocity (B) Non cleansing (C) Non scouring velocity (D) Scouring velocity	C
273.	Where abrasion is maximum (A) Bottom (B) Top (C) Intermediate (D) 45	A
274.	The velocity of flow is a function of ---	
275.	The bottom of large sewers of brick or concrete are protected by (A) Lining (B) Maximum discharge (C) minimum discharge (D) All of these	A
276.	For flat countries the self cleansing velocity should be obtained at (A) Zero (B) 360cm/s (C) Minimum discharge (D) Maximum discharge	D
277.	For steep slope drop manhole should be provided (A) To bring up the velocity (B) to bring down the velocity (C) to become it zero (D) All of these	B
278.	The formula for the proportional H.M.D. is---	
279.	To formula for proportional discharge is $q/Q = \text{---}$	
280.	Darcy – Weis batch friction factor is f, the value of which is taken commonly as (A) 0.01 (B) 0.02 (C) 0.03 (D) 0.3	C
281.	When sewer runs half full what will be angle (A) 360 (B) 45 (C) 180 (D) None	C
282.	The formula for the velocity of flow is---	
283.	Greatest H.M.D. is of sewer (A) Rectangular (B) Trapezoidal (C) Circular (D) None	C
284.	The velocity of flow should be out least for maximum flow is (A) 90cm/s (B) 45cm/s (C) 60cm/s (D) 0.9cm/s	A
285.	For sewer in rough countries, the non scouring velocity should obtain at (A) Max. flow (B) Min. flow (C) zero (D) 60cm/s	A
286.	Sticky particles require (A) Low velocity (B) High Velocity (C) 2m/s (D) 45cm/s	B

287.	Rugosity coefficient is given as (A) Actual flow path/min. distance (B) Min. flow path/max. distance (C) Actual flow path/ min. distance (D) Max. flow path/max. distance	A
288.	If diameter is 785cm, and the sewer is running half full, what will be the hydraulic radius (A) 0.785m (B) 0.15m (C) 1.9625m (D) 2.53m	C
289.	1 hec = how much meter square (A) 10000 (B) 1000 (C) 100000 (D) None.	A
290.	Calculate velocity of flow if, $N=0.012$, $R=0.496m$, $S=0.001$ (A) 2.21m/s (B) 0.97m/s (C) 1.65m/s (D) 3.45cm/s	C
291.	If angel = 121 find out proportional H.M.D, $r/R =$ (A) 0.478 (B) 0.593 (C) 0.496 (D) 0.521	B
292.	The Pipes used for variable discharge are: A) circular pipes B) rectangular pies C) egg shaped pipes D) semi-circular pipes	C
293.	Pipes used for combined system are: A) egg shaped B) circular C) ovoid sewers D) both A & C	D
294.	It is difficult to attain Self- Cleaning Velocity in: A) circular pipes B) rectangular pies C) egg shaped pipes D) semi-circular pipes	A
295.	By Using Egg-shaped pipes we can attain self-cleaning velocity: A) at maximum flow B) at low flow C) at Average flow D) none of these	B
296.	The upper portion of Egg-shaped pipes is called as: A) invert B) arch C) venture D) none of these	B
297.	For Egg-shaped pipes Area is divided into: A) one portion B) two portions C) three portion D) four portions	C
298.	Diameter of circular pipe (D) is _____ times the diameter of egg-shaped pipe (D_o): A) 1.2 times B) 1.25 times C) 1.5 times D) 2 times	A
299.	For Egg-shaped sewer running full Area of crown portion is given as: A) $1.57 b$ B) $1.57 b^2$ C) $1.06 b$ D) $1.06 b^2$	B
300.	In soft soils, these pipes are not used: A) circular pipes B) egg shaped pipes C) both of these D) none of these	C
301.	The lower portion of Egg-shaped pipes is called as: A) invert B) arch C) venture D) none of these	A
302.	For Egg-shaped sewer running full Area of central portion is given as: A) $1.57 b^2$ B) $2.80 b^2$ C) $1.06 b^2$ D) $.23 b^2$	B
303.	For Egg-shaped sewer running full in Area of invert portion is given as: A) $1.57 b^2$ B) $2.80 b^2$ C) $1.6 b^2$ D) $.23 b^2$	D
304.	In case of soft soils, the sewers used are: A) Semi-elliptical B) horse-shoe C) parabolic D) all of these	D

323.	At _____ velocity at sewage invert , erosion takes place a)High c)Medium b)Low d)Constant	A
324.	Asbestos pipes are mixture of _____ a)Cement, Concrete, Silica c)Silica ,Sand, Cement b)Fiber ,Cement, Silica d)Silica, Steal ,Cement	B
325.	Asbestos pipes range in diameter from _____ a)75mm-150mm c)75-150ft b)75-150mm d)75mm-500mm	D
326.	Length of asbestos pipes ranges _____ a)3-4ft c)5-6ft b)3-4m d)5-6m	B
327.	_____ are susceptible to sulphide corrosion a)Plastic pipes c)Asbestos pipes b)RCC pipes d)Cement pipes	C
328.	Due to some disadvantages of asbestos they are used only as _____ a)Horizontal c)Transversely b)Vertical d)None of these	B
329.	Range of plain pipe _____ a)80-400mm c)80-450mm b)80-450ft d)80-450cm	A
330.	The thickness of reinforced cement concrete ranges _____ a)25-35mm c)20-40mm b)25-30cm d)25-30mm	A
331.	Ring reinforced cement pipe is suitable up to diameter of _____ a)700mm c)900mm b)800mm d)1000mm	B
332.	Ring forced cement pipes can bear more _____ pressure a)External c)Both a and b b)Internal d)None of these	B
333.	_____ reinforced cement pipes can bear both external and internal pressure a)Ring c)Circular b)Elliptical d)Rectangle	A
334.	For adequate strength rich quality ____ should be used a)Cement gravel c)Concrete reinforced cement b)Cement concrete d)Cement	B
335.	Water cement ration usually varies between _____ a)0.5-0.6 c)0.6-0.7 b)0.5-0.7 d)0.7-0.8	B
336.	RCC in size varies from _____ a)1000-2500mm c)1000-2400mm b)1000-2600mm d)100-2400mm	D
337.	Length of RCC varies from _____ a)900-2400mm c)900-1000ft b)900-2400m d)900-1000mm	A
338.	Cause of crown corrosion _____ a) H ₂ S gas c) CO b) CO ₂ gas d)O ₂	A
339.	Smell of H ₂ S is _____ a)Rotten eggs c)Rotten apples b)Burning d)Pungent	A
340.	H ₂ SO ₄ acts with concrete to form _____ a)CaCO ₃ c)CaSO ₄ b)CaCl ₂ d)CaAl ₂	C
341.	To avoid crown corrosion usually _____ are suggested a)Vitrified cement b)Vitrified iron	C

	c)Vitrified clay	d)Vitrified concrete	
342.	In the process of vitrifying clay, Pressure should be about _____ a)0.95N/mm ² c)0.88N/mm ²	b)0.90N/mm ² d)0.85N/mm ²	D
343.	Temperature for vitrified clay ranges _____ a)150-600C c)150-750C	b)150-700C d)150-800C	B
344.	Usually in the process of vitrifying clay _____ is added to kiln a)NaCl c)CaCO ₃	b)Na ₂ CO ₃ d)CaCl ₂	A
345.	Vitrifying pipes can be suitable up to depth of _____ a)4-8m c)4-8cm	b)4.5-5m d)4.5-5cm	B
346.	_____ pipes are only used for house drainage and laterals a)Concrete pipes c)Asbestos pipes	b)RCC pipes d)Vitrified clay pipes	D
347.	Vitrified clay pipes are ranging from in length _____ a)0.3-0.9m c)0.1-0.3m	b)0.4-0.9m d)0.2-0.4m	A
348.	Diameter of vitrified clay pipes are _____ a)0.1-0.3m c)0.1-0.3cm	b)0.2-0.4m d)0.2-0.4cm	A
349.	Cast iron sewers in diameter ranging from _____ a)150-800mm c)160-800mm	b)150-750mm d)160-750mm	B
350.	Length of cast iron sewers are usually ranging _____ a)3-3.5ft c)4-4.5ft	b)3-3.5m d)4-4.5m	B
351.	_____ Pipes are suitable for wet ground conditions. a) Cast iron c) Plastic	b)RCC d)Asbestos	A
352.	_____ are perfectly impervious. a)Cement Sewers c)Concrete Sewers	b) Cast Iron Sewers d) Steel Sewers	D
353.	_____ permit cold negotiation of bends. a)Cement Sewers c)Plastic Sewers	b) Cast Iron Sewers d) Steel Sewers	C
354.	Bell and Spigot joint are quite common in _____ a)RCC c)Reinforced Concrete	b) Plastic d) Steel	C
355.	Usually cement mortar is of proportion in Bell and Spigot Joint. a)1:1 c)1:3	b)1:2 d)1:4	A
356.	Usually mortar caulked joint is finished at about _____ a)30° c)60°	b)45° d)90°	B
357.	Collar joints are used for _____ pipes. a)Steel c)Iron	b)Concrete d)Asbestos	B
358.	Ring tie coupling are also known as _____ a)Flexible joint c)Open Joint	b)Circular joint d) Simplex joint	D
359.	Simplex joint are used for _____ a)RCC pipes c)Asbestos pipes	b)Plastic pipes d)Concrete pipes	C

377.	What is the depth of Shallow manhole in meter A) 0.75-0.9 (b) 0.7-0.8 (c) 0.5-0.7 (d) 0.2-0.5	A
378.	Shallow manhole are constructed at.....sewer A) trunk (b) branch (c) storm (d) lateral	B
379.	Normal manhole of depth in meters A) 1.5 (b) 2 (c) 3 (d) 2.5	A
380.	What is the area of normal manhole of rectangular shape in m ² A) 1-2 (b) 1-1.5 (c) 0.8-1.2 (d) 0.2-0.9	C
381.	Those manholes which are deeper than 1.5m are called A) deep (b) shallow (c) normal (d) vertical	A
382.	Manholes having large diameter at bottom and smaller diameter at top A) deep (b) shallow (c) normal (d) vertical	A
383.	What thing provide to go up & down in the manhole A) lift (b) steps (c) elevator (d) all	B
384.	How many components of deep manhole A) 5 (b) 6 (c) 7 (d) 8	B
385.	The upper portion of deep manhole is called A) top (b) front (c) access shaft (d) working chamber	C
386.	What is the diameter of access shaft in meters A) 0.6-0.75 (b) 0.8-1.5 (c) 0.3-2 (d) 0.1-0.9	A
387.	The lower portion of deep manhole is called A) top (b) front (c) access shaft (d) working chamber	D
388.	What is the diameter of working chamber in meters A) 1 (b) 2 (c) 0.5 (d) 1.2	D
389.	The bottom portion of deep manhole is called A) top (b) invert (c) access shaft (d) working chamber	B
390.	The height of working chamber should not less than A) 1.8m (b) 2m (c) 3m (d) 4m	A
391.	Bottom portion shape of deep manhole a) L shape (b) X shape (c) U-shape (d) V-shape	C
392.	Sidewall of manhole are constructed with A) bricks (b) stone (c) R.C.C (d) all	D
393.	The minimum thickness of side wall in cm A) 21 (b) 22 (c) 22.5 (d) 23	C
394.	We can find out thickness by A) $t=9+4d$ (b) $t=10+4d$ (c) $t=12+4d$ (d) $t=11+4d$	B
395.	Cement sand ratio for plaster of side wall A) 1:2 (b) 1:3	A

	(c) 1:4	(d) 1:1	
396.	Distance between the steps in manhole in cm A) 25 (c) 35	(b) 30 (d) 40	B
397.	Top cover manhole depth range in cm A) 30-40 (c) 20-25	(b) 20-30 (d) 10-20	C
398.	Connection between high level branch & low level manhole provided by A) drop manhole (c) curve	(b) ladder (d) supplement	A
399.	Drop manhole is provided by A) vertical pipe (c) both a& b	(b) ramp (d) slide	C
400.	The purpose of drop manhole is reducing the possibilities of A) erosion (c) sedimentation	(b) corrosion (d) sewage thrown on persons	D
401.	The hole for inserting the lamp is known as A) lamp hole (c) furnished hole	(b) illuminating hole (d) drop hole	A
402.	Purpose of lamp hole A) inspection (c) ventilation	(b) flushing (d) all	D
403.	An arrangement which hold the water and then throws into sewer is called A) flushing tank (c) water hole	(b) water tank (d) none	A
404.	Types of flushing tank A) 1 (c) 3	(b) 2 (d) 4	B
405.	Hand operated flushing tank is operated by placing its one end in A) rives (c) sewer	(b) stream (d) lake	C
406.	Automatic flushing tank is operated due to A) pressure (c) velocity	(b) force (d) weight	A
407.	Grease and oils removed from the water due to A) obstruction (c) having sticky property	(b) explosion (d) all	D
408.	Oil and grease trap have the chambers A) 1 (c) 3	(b) 2 (d) 4	B
409.	When we dip the line below HGL line is called a) inverted siphon (c) trap	(b) siphon (d) underground sewer	A
410.	In inverted siphon HGL is.....flow line A) above (c) overlap	(b) below (d) none	A
411.	In true siphon HGL is.....flow line A) above (c) overlap	(b) below (d) none	B
412.	Inverted siphon is also called.....sewer A) depressed (c) under depress	(b) un depressed (d) none	A
413.	Manhole have large diameter of portion A) top (c) bottom	(b) center (d) lower	D

414.	Diameter of man hole decreased by A) offset (c) by placing stone	(b) onset (d) all	A
415.	Phosphorous can be remove by (a) Ozonation (b) Ion exchange (c) Electrodialysis (d) Carbon adsorption		D
416.	Heavy metals can't remove by (a)land treatment system (b)chemical precipitation (c)ozonation (d)ion exchange		C
417.	Dissolved inorganic solids can't remove by (a)ion exchange (b)reverse osmosis (c)tertiary ozonation (d)Electrodialysis		C
418.	Pathogens can remove by (a)land treatment systems (b)carbon adsorption (c)ion exchange (d)reverse osmosis		A
419.	Thermal reduction can be done by (a)pyrolysis (b)wet air oxidation (c)both a & b (d)none		C
420.	Sludge stabilization can't be done by (a)chlorine oxidation (b)lagoons (c)both a & b (d)none		B
421.	Dewatering can be done by a)Pressure filter b)Lagoons c)Both a & b d)None		C
422.	Sludge thickening can be done by (a)centrifugation (b)lagoons (c)pyrolysis (d)all of these		A
423.	Ultimate disposal can't be done by (a)land application (b)drying bed (c)prolysis (d)all of these		A
424.	Adsorption is (a)removal of pathogens (b)removal of heavy metals (c)removal of organics (d)removal of chemicals		C
425.	Which process is used in the tertiary treatment (a)pre-liminary process (b)chemical clarification		D

	(c)disinfection process (d)both b & c	
426.	Removal of organics occur in the process (a)chemical precipitation (b)gas transfer (c)adsorption (d)dechlorination	C
427.	Advanced wastewater treatment method is (a)pre-liminary (b)primary (c)secondary (d)tertiary	D
428.	large objects are removed by (a)sedimentation (b)chlorination (c)co-agulation (d)screening	D
429.	the decomposition of organic matter in absence of molecular oxygen is known as (a)anaerobic decomposition (b)aerobic decomposition (c)both (d)none	A
430.	amount of oxygen required by microbes to decompose organic matter in the wastewater is called (a)BOD (b)COD (c)DO (d)all of these	A
431.	skimming tanks used for the removal of (a)oil and grease (b)sludge (c)large objects (d)rocks	A
432.	combined process consist of both (a)BOD & COD (b)surface and suspended growth processes (c)pre-liminary and primary (d)none of above	B
433.	BOD is measured in units (a)tones (b)km (c)pounds/in ² (d)mg/l	D
434.	BOD process complete in (a)1 month (b)1 year (c)5 days (d)15 days	C
435.	Method of treatment in which physical forces predominate known as (a)double operation (b)unit operation (c)half operation (d)none	B
436.	Effluent from secondary treatment plant contain (a)10% to 15% (b)5% to 15%	C

	(c)5% to 10% (d)none	
437.	Flocculation is practiced on _____ strength municipal wastes to provide increased primary removal. A) Low B) High C) Average D) Medium	B
438.	First treatment provided to the waste materials is _____ A) Primary B) Preliminary C) Secondary D) Tertiary	B
439.	_____ of raw wastewater is used to control odour. A) Flocculation B) Aeration C) Chlorination D) Corrosion	C
440.	Chlorination is used to improve _____ characteristics of the waste. A) Binding B) Submerging C) Floating D) Settling	D
441.	_____ is the first unit operation in wastewater treatment plants. A) Racks B) Bars C) Screens D) Aeration	C
442.	Screen is a device that has openings generally of _____ size. A) Uniform B) Small C) Large D) Medium	A
443.	Parallel bars, rods, gratings, wire mesh or perforated plates are used as A) Racks B) Bars C) Screens D) None	C
444.	Bar rack with clear openings greater than _____ precede to mechanical grit removal A) 30mm B) 50 mm C) 20mm D) 40mm	D
445.	Bars run vertically or at a slope of _____ A) 30° to 80° B) 30° to 50° C) 80° to 120° D) 0° to 90°	A
446.	The cleaning devices are racks which _____ sweep the entire screen. A) Annually B) Daily C) Periodically D) Weekly	C
447.	_____ Screens serve as protective devices. A) Coarse B) Fine C) Duplicate D) Broad	A
448.	Hand cleaned racks are set usually at an angle of _____ to the horizontal, to increase effective cleaning. A) 90° B)30° C) 45° D) 60°	C
449.	Medium bar screens have clear openings of _____ mm. A) 20 to 50 B) 30 to 120 C) 20to 90 D) 30 to 90	A
450.	Bars are usually ___ mm on upstream side and taper slightly to the downstream side. A) 80 B) 10 C) 70 D) 60	B
451.	The design velocity through the screens should be such as to permit _____ removal of certain material. A) 100% B) 0% C) 40% D) 20%	A
452.	Velocities of _____ m/s through the open areas of bars for peak flows have been found satisfactory. A) 0.4 to .0.8 B) 0.6 to 1.2 C) 0.8 to 2.0 D) 0.4 to 0.6	B
453.	Maximum loss with clogged hand cleaned screen should not exceed _____ A) 10m B) 0.9m C) 0.3m D) 0.1m	C
454.	Fine screens are _____ cleaned devices using perforated plates. A) Manually B) Mechanically C) Chemically D) Potentially	B
455.	Fine screens are woven wire cloth or very closely spaced bars , openings less than _____ A) 20mm B) 30mm C) 100mm D) 120mm	A
456.	Bras or bronze plates are used for construction of _____ screens. A) Coarse B) Brush C) Fine D) None	C
457.	Fine screens have net submerged area of not less than 0.05m ² for every _____. A) 1000m ³ B) 10m ³ C) 20m ³ 40m ³	A

458.	The use of screening _____ is desirable for medium size plants. A) Aquifers B) Grinders C) Binders D) Multipliers	B
459.	_____ are placed in sludge digestion tanks. A) Screenings B) Wastewater C) Sludge D) None	A
460.	Communicating devices may be preceded by _____ to prolong the life of the equipment. A) Screenings B) Grit chambers C) Racks D) Bars	B
461.	A communicator consists of a vertical revolving _____ with 6mm to 10mm slots. A) Plot-screen B) Push-block C) Drum-screen D) None	C
462.	The _____ across communicators depends upon screen details and flow of normal values of 50 to 100mm. A) Head loss B) Friction loss C) Draw down D) Radial flow	A
463.	Stationary screen type communicator consists of a stationary _____ screen and a cutting disk. A) Circular B) Block C) Semi-circular D) Cylinder	C
464.	The _____ intercepts the large particles whereas small particles can pass through. A) Grit chamber B) Clarifier C) Digester D) None	A
465.	A barminutor is a communicating unit which is used for flows exceeding _____. A) 1mLd B) 10mLd C) 15mLd D) 50mLd	D
466.	_____ is the heavy mineral material found in raw sewage and may contain other objects. A) Silt B) Grit C) Waste D) Rubbish	B
467.	Grit has a specific gravity ranging from _____. A) 2.4 to 2.65 B) 2.3 to 2.98 C) 2.3 to 3.65 D) None	A
468.	Horizontal flow grit chambers are designed to maintain a velocity as close to _____ as practical. A) 10m/s B) 40m/s C) 0.3m/s D) 0.9m/s	C
469.	In order to maintain constant velocity, a control section is placed at the _____ of the channel. A) End B) Middle C) Below D) Centre	A
470.	Grit chambers are cleaned _____. A) Mechanically B) Manually C) Piping D) A & B	D
471.	All sewage plants where flows exceed _____, mechanized grit removal units are preferred. A) 1mLd B) 10mLd C) 2mLd D) 5mLd	B
472.	Settling velocity of grit chambers is given by _____. A) Stroke's law B) Charles Law C) Boyles law D) Avogadro's law	A
473.	Detention period for grit chambers may vary from _____ seconds. A) 20 to 15 B) 15 to 18 C) 10 to 18 D) 45 to 90	D
474.	Proportional Flow Weir, Sutro Weir, Parabolic Grit Flow, and Parshall flume are all the flow control devices for _____. A) Proportional flow B) Grit Chamber C) Flow section D) none of these	B
475.	Clean grit is characterized by the lack of _____. A) Odour B) Taste C) Color D) Oxygen demand	A
476.	_____ Tanks are installed to remove floating substances like grease, oils, fats, waxes, etc. A) Sedimentation B) Skimming C) Flocculation D) Distillation	B
477.	The rising _____ congeal the greasy and oily material and push it to the side of compartment. A) Air Bubbles B) Chemicals C) Flocculants D) None	A
478.	Trickling Filter also known as..... a) Percolating filter b) sprinkling filter c) Bio-sand Filter d) Both a and b	D

479.	Trickling Filter is method. a)Physical b) Chemical c)Biological d) Physiochemical	C
480.	In Trickling Filter the color of bio film formed by aerobic bacteria a) Blackish b) greenish c)yellowish d) all of these	D
481.	In Trickling Filter bio film depend upon..... a) Oxygen b)carbon c) nitrogen d) sulfur	A
482.	Trickling filter is an growth type of process in which microorganisms are used for removing organic matter from wastewater. a) Separate b) attached c)vital d) powerful	B
483.	Which material not used in attached growth process a) Steel b) rock c)gravel d)redwood	A
484.	The wastewater in trickling filter is providedcontaining non-submerged packing material. a) Trough bottom b) both from left and right inlet c) over the top area of a vessel d) none of these	C
485.	The Trickling Filter is always preceded by a) Aeration basin b) primary sedimentation along with skimming devices c)Clarifier d) Secondary sedimentation tank	B
486.	The depth of microbial film is..... a) 0.1 to 0.2 mm b) 5 mm to 6 cm c) 0.2 mm only d)0.5mm to 1cm	A
487.	The process in which microorganism loss their ability to cling to the medium is called..... a) Sloughing b) falling of microorganism c) tumbling of microorganism d) none of these	A
488.	A organic loading rate results in a rapid growth of biomass. a) Slow b) fast c) high d) medium	C
489. the hydraulic loading rate increases sloughing and helps to keep the bed open. a) By slowing b) By increasing c)By stopping d) none of these	B
490.	Hydraulic loading of Low Rate Filter $m^3/m^2.d$ a) 1 – 4 b) 1– 5 c) 1– 3 d)1– 2	A
491.	Organic loading of Low Rate Filter..... $kg\ BOD / m^3.d$ a) 0.08 - 0.32 c)0.02-0.5 c)0.1-0.3 d) 0.5-0.9	A
492.	Depth of Low Rate Filter m. a)0.2-0.9 b) 1.8 - 3.0 c) 1– 3 d)1– 2	B
493.	Hydraulic loading of High Rate Filter $m^3/m^2.d$ a) 1 – 4 b) 1– 25 c) 10-40 d)10-15	C
494.	Organic loading of High Rate Filter..... $kg\ BOD / m^3.d$ a) 0.08 - 0.32 c)0.02-0.5 c)0.1-0.3 d) 0.32-1	D
495.	Depth of High Rate Filter m. a)0.2-0.9 b) 1.8 - 3.0 c) 0.9-2.5 d)1– 2	C
496.	Recirculation ratio of Low Rate Filter..... a) 0 b) 0.1 c)0.5 d) 0.6	A
497.	Recirculation ratio of High Rate Filter..... a) 0 b) 0.1 c)0.5-3 d) 0.6-0.9	C
498.	The capacity of Trickling Filter..... a) Less than 5mLD b) less than 2mLD c) greater than 5mLD d) 10mLD	A
499.	The most commonly used filter media is broken slag or gravel of size.....mm	

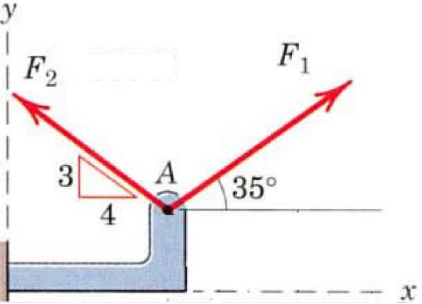
	a)25-30 b)25-75 c) 30-40 d) 10-15	B
500.	$E_2 = \frac{100}{1 + 0.44(F_{1,BOD}/V_1.Rf_1)^{1/2}}$ this equation is called..... a) Rankins equation b) NRC equations (National Research Council of USA) c) Eckenfelder equation d) Galler and Gotaas equation	B
501.	Sloughing of Low Rate Filter..... a) Intermittent b) Continuous c) fast d)none of these	A
502.	Sloughing of High Rate Filter..... a) Intermittent b) Continuous c) fast d)none of these	A
503.	Dosing intervals Low Rate Filter..... a) <5min b) >5min c) 15min d) 20min	A
504.	Dosing intervals High Rate Filter..... a)<15s b) >5min c) 15min d) 20min	A
505.	$E_2 = \frac{100}{1 + 0.44(F_{1,BOD}/V_1.Rf_1)^{1/2}}$ In this equation “ $F_{1,BOD}$ “ Stand for a) % efficiency in BOD removal of single stage or first stage of two-stage filter b) BOD loading on First-stage filter in kg/d c) volume of first stage filter in m ³ d)none of these	B
506.	All the components such as atmosphere, hydrosphere, cryosphere, lithosphere, biosphere collectively known as: A. Atmospheric system B. Climate system C. Climate change D. Meteorological system	B
507.	Average residence time for the groundwater deep is: A. 50 to 100 years B. 10000 years C. 20 to 100 years D. 2 to 6 months	B
508.	According to Geographical location of Pakistan lie in which zone: A. Temperate immediately below the tropic of cancer B. Polar immediately below the tropic of Capricorn C. Temperate immediately above the tropic of cancer D. Polar immediately above the tropic of Capricorn	C
509.	Which statement is true about hydrological cycle: A. It moves from the atmosphere oceans, to the oceans and the land, eventually returning to the oceans again B. It moves from the oceans, to the atmosphere and the land, eventually returning to the oceans again C. It moves from the land, to the oceans and the atmosphere, eventually returning to the oceans again D. All are correct	B

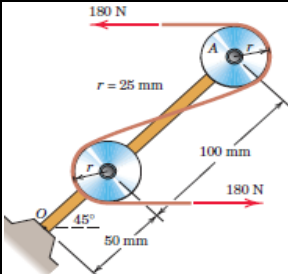
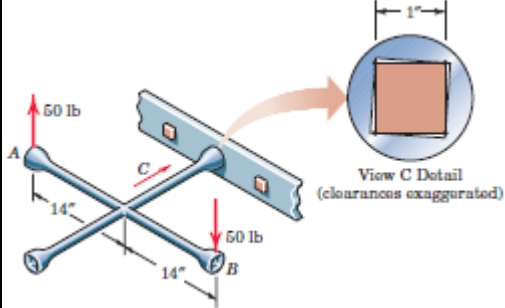
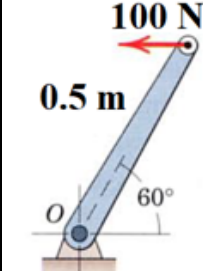
510.	<p>If average annual rainfall of Murree in north of Pakistan is 1700 mm. We are not assured of getting this amount every year. The actual rainfall varying from the mean which represents drought and flood conditions is the Example of:</p> <p>A. Climate change B. Weather change C. Climate variability D. All are correct</p>	C
511.	<p>Climatic features over the large areas of the earth and the large scale atmospheric motion concerned with</p> <p>A. Macro climatology B. Regional climatology C. Climatology D. Meso-climatology</p>	A
512.	<p>Which statement is correct:</p> <p>A. Downward motion of the easterlies is usually more irregular than that of the westerlies B. Downward motion of the westerlies is usually more irregular than that of the easterlies C. Upward motion of the westerlies is usually more irregular than that of the easterlies D. None</p>	A
513.	<p>Following (Tropical and extra-tropical cyclones, Gravity waves, Planetary waves, Jet streams etc.) are the elements of</p> <p>A. Weather and climate B. Atmospheric dynamics C. Dynamics of pressure and wind D. All are correct</p>	B
514.	<p>On a warm, sunny day, certain areas of Earth's surface absorb more heat from the sun than others; as a result, the air near Earth's surface is heated somewhat unevenly. Air molecules adjacent to these hot surfaces bounce against them, thereby gain some extra energy. The heated air expands and becomes less dense than the surrounding cooler air. The phenomena is known as:</p> <p>A. Transfer of heat Convection B. Transfer of heat conduction C. Heat conduction and heat Convection D. Radiant energy</p>	A
515.	<p>Calculate the maximum radiation, If the cooler earth have on an average surface temperature is 300k and the constant is 2897 μmk:</p> <p>A. 10μm, (shortwave visible light) B. 9.6 μm, (longwave infrared) C. 9.6 μm, (ultraviolet waves) D. 10⁻⁷μm, (longwave infrared)</p>	B
516.	<p>When one of the Earth's poles has its maximum tilt toward the Sun during the summer is known as:</p> <p>A. <i>June solstice (June 21)</i> in the Northern Hemisphere B. <i>December solstice (Dec. 21)</i> in the Southern Hemisphere</p>	A

	<p>C. June solstice (June 21) and December solstice (Dec. 21)</p> <p>D. None</p>	
517.	<p>The rising of hot air and the sinking of cool air sets up a convective circulation and near the surface the wind is advecting smoke from one region to another. The vertical part of the circulation and the horizontal part respectively called:</p> <p>A. Advection and Convection</p> <p>B. Advection wind and Convection wind</p> <p>C. Vertical air and Convective air</p> <p>D. Convection and advection</p>	D
518.	<p>Which statement is true about "hydrologic residence time in different storages"?</p> <p>A. On average water is renewed in rivers once every 16 days.</p> <p>B. Water in the atmosphere is completely replaced once every 12 days</p> <p>C. Water is not cycled between its various storages continually.</p> <p>D. There is no typical residence times of water in the major storages.</p>	A
519.	<p>What are the two main purposes of "oceans" in the climate system?</p> <p>A. It is a large reservoir of chemicals that can contribute to the greenhouse effect in the atmosphere and energy absorbing 90% of the solar radiation which hits the surface.</p> <p>B. Includes all living organisms on earth, together with the dead organic matter produced by them</p> <p>C. Exchanges matter and energy with the other spheres.</p> <p>D. None of these</p>	A
520.	<p>Which layer of atmosphere have the lowest part is warmest and its temperature decreases with altitude.</p> <p>A. Stratosphere</p> <p>B. Mesosphere</p> <p>C. Troposphere</p> <p>D. Thermosphere</p>	C
521.	<p>The layer which contain 20% of molecules in the atmosphere and gets warmer as you go away from the earth is</p> <p>A. Stratosphere</p> <p>B. Mesosphere</p> <p>C. Troposphere</p> <p>D. Thermosphere</p>	A
522.	<p>(MAAT) stands for? Permafrost may occur where the MAAT are?</p> <p>A. Mean annual air temperatures, less than -1 or -2°C and is generally continuous where MAAT are less than -7°C.</p> <p>B. Medium annual air temperatures, larger than 1 or 2°C and is generally continuous where MAAT are less than 7°C.</p> <p>C. Mean average air temperatures, less than 1 or 2°C and is generally continuous where MAAT are less than 7°C.</p> <p>D. Mean annual air temperatures, less than 1 or 2°C and is generally stop where MAAT are larger than 7°C.</p>	A
523.	<p>Choose the climatic elements between</p> <p>A. Solar and net radiation</p>	A

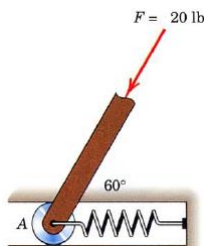
	<p>B. Vegetation surface C. Land and water surface D. None of these</p>	
524.	<p>Choose the correct option to clear the difference between ranges of UV rays:</p> <p>A. UVC 0.20-0.29 μm, UVB 0.29-0.32 μm and UVA 0.32-0.40 μm B. UVC 0.32-0.35 μm, UVB 0.35-0.38 μm and UVA 0.38-0.40 μm C. UVA 0.20-0.29 μm, UVB 0.29-0.32 μm and UVC 0.32-0.40 μm D. UVC 0.20-0.29 μm, UVA 0.29-0.32 μm and UVB 0.32-0.40 μm</p>	A
525.	<p>Which is true about Tropical cyclones</p> <p>A. Temperature contrast at surface, No energy from latent heat, strongest wind far from surface, Cold core B. No temperature contrast at surface, energy from latent heat, strongest wind near surface, warm core C. No energy from latent heat, weakest wind, No warm core D. Option A is correct but option B is also not wrong</p>	B
526.	<p>Vertically propagating disturbances that are identified by large-scale variations in the pressure, temperature, winds, and composition known as</p> <p>A. Planetary waves B. Mechanical waves C. Electromagnetic waves D. None of these</p>	A
527.	<p>The stream of charged particles from the sun called _____, distorts Earth's magnetic field into a teardrop shape known as the _____. These particles, which spiral in along magnetic field lines, interact with atmospheric gases and produce the _____. Choose the correct option</p> <p>A. The solar wind, magnetosphere, aurora B. Ionic stream, the solar wind, aurora C. Lightning, the solar wind, magnetosphere D. All are wrong</p>	A
528.	<p>What is true about seasons in the southern Hemisphere</p> <p>A. Opposite timing of Northern Hemisphere B. Equal but opposite timing of Northern Hemisphere and away from sun C. Both of these D. Extreme winds</p>	A
529.	<p>Choose the main controllers of daily temperature:</p> <p>A. Latitude, Elevation B. Ocean, Land and water distribution C. Isotherms, Annual range of temperature: D. All of these</p>	D
530.	<p>Correct use of thermometers</p> <p>A. Minimum thermometer, measures lowest temperature</p>	D

	<p>B. Maximum thermometer, measures highest temperature C. liquid-in-glass thermometer, for surface air temperature D. All of these</p>	
531.	<p>In precipitation and condensation processes hygroscopic nuclei are_____. and water vapor rapidly condenses on their surfaces. Hydrophobic nuclei are_____. and not allow condensation</p> <p>A. water seeking, water-repelling B. strong in bonding, weak in bonding C. different in size, same in size D. All options are correct</p>	A
532.	<p>The Bergeron process formation of precipitation from cold clouds depends on the coexistence of</p> <p>A. liquid cloud B. ice crystals C. water vapor D. All of these</p>	D
533.	<p>When the wind moves moist air over a cold surface and the moist air cools to its dew point this phenomenon helps to form</p> <p>A. Convective fog B. Ground fog C. Advection fog D. Clouds</p>	C
534.	<p>These clouds are lowest in altitude with uniform layer covers much of the sky. They bring rain or snow.</p> <p>A. Cirrus B. Stratus C. Cumulonimbus D. Cumulus</p>	B
535.	<p>Stratus clouds, Nimbostratus clouds, are classified as</p> <p>A. Medium clouds B. Low clouds C. High clouds D. Clouds with Vertical Development</p>	B
536.	<p>Generally produced by nimbostratus clouds or cumulonimbus clouds with approximate size 0.5 to 5mm. when heavy size can be highly variable form one place to another is known as</p> <p>A. Rain B. Sleet C. Drizzle D. Mist</p>	A
537.	<p>The streaks of falling precipitation that evaporate before reaching the ground are called</p> <p>A. Rain B. Virga C. Fog</p>	B

	D. Mist	
538.	<p>What are the climatic models that are used to simulate past and present climates?</p> <p>A. General circulation Model B. The Community Climate System Model C. The atmospheric general circulation model D. All of these</p>	D
539.	<p>Which instrument is used to measure the air quality</p> <p>A. Wind profiler B. Wind vane C. Nephelometer D. All options are correct</p>	C
540.	<p>_____ is a deposit of ice crystals, formed on surface objects by super cooled fog or cloud droplets.</p> <p>A. Rime B. Hail C. Rain D. Sleet</p>	A
541.	<p>A warm air mass is moving towards a cold air mass. What type of front is this describing?</p> <p>A. Cold front B. Warm front C. Occluded front D. Stationary front</p>	B
542.	<p>X-components of given forces are:</p> <p>A. $F_1 \cos 35^\circ$, $-F_2 \sin \theta$ B. $F_1 \sin 35^\circ$, $F_2 \cos \theta$ C. $F_1 \cos 35^\circ$, $-F_2 (4/5)$ D. $F_1 \cos 35^\circ$, $-F_2 (3/5)$</p>  <p>The diagram shows a coordinate system with a vertical y-axis and a horizontal x-axis. A point A is marked at the origin. Two force vectors, F_1 and F_2, originate from point A. F_1 is directed into the first quadrant, making an angle of 35° with the positive x-axis. F_2 is directed into the second quadrant, making an angle θ with the positive y-axis. A right-angled triangle is drawn with its hypotenuse along the line of action of F_2. The vertical side of this triangle is labeled '3' and the horizontal side is labeled '4', indicating a 3-4-5 slope.</p>	C
543.	<p>The perpendicular distance between the two couple forces is:</p> <p>A. 125mm B. 120.71mm C. 150mm D. 21.7m</p>	B

		
544.	<p>The weight of your body is an example of:</p> <p>A. Distributed Force B. Contact Force C. Concentrated Force D. None of these</p>	C
545.	<p>The moment of the resultant force about any point equals the sum of the moments of the original forces of system about the same point is:</p> <p>A. Varignon's Theorem B. Principle of Moments C. Principle of Transmissibility D. None of the above</p>	B
546.	<p>A lug wrench is used to tighten a square-head bolt. How many couples are acting on square head bolt:</p> <p>A. One B. Two C. Four D. Zero</p> 	B
547.	<p>The magnitude of the moment about the base point O of the 100-N force is:</p> <p>A. 43.30 N.m CCW B. 43.30 N.m CW C. 50 N.m CCW D. 50 N CW</p> 	A
548.	<p>The mass in both slugs and kilograms of a 3000-lb car is:</p> <p>A. 93.2 slugs, 1361 kg B. 305.8 slugs, 4468 kg C. 305.8 slugs, 20.93 kg D. 93.2 slugs, 6.38 kg</p>	A
549.	<p>The magnitude F_s of the tensile spring force in order that the resultant of F_s and F is a vertical force is:</p> <p>A. 60 lb</p>	B

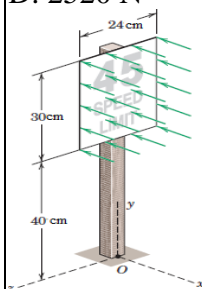
- B. 10 lb
- C. 103.9 lb
- D. 17.3 lb



550.

As the result of a wind blowing normal to the plane of the rectangular sign, a uniform pressure of 3.5 N/m^2 is exerted in the direction shown in the figure. The magnitude of resultant force is:

- A. 17.5 lb
- B. 0.252 N
- C. 80.2 lb
- D. 2520 N



B

551.

The moment is a vector \mathbf{M} to the plane of the body:

- A. Clockwise
- B. Counterclockwise
- C. Both A and B
- D. Perpendicular

D

552.

The statement, “a force can be applied at any point on its given line of action without altering its resultant effects external to the rigid body on which it acts” represents:

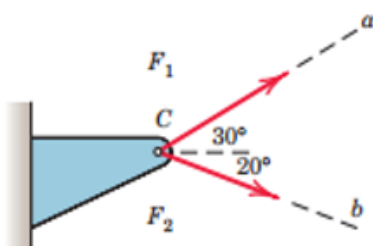
- A. Varignon’s Theorem
- B. Principle of Moments
- C. Principle of Transmissibility
- D. Law of polygon of forces

C

553.

Forces $F_1 = 120 \text{ N}$ and $F_2 = 100 \text{ N}$ act on the bracket as shown. Determine the projection F_b of their resultant \mathbf{R} onto the b-axis.

- A. 144.3 N
- B. 160.13 N
- C. 192.1 N
- D. 177.13 N



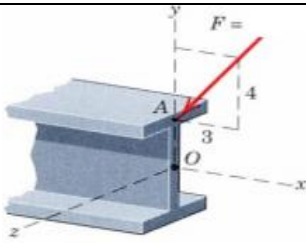
D

554.

The 1200-N force F is applied to the end of the I-beam. Express F as a vector using the unit vectors \mathbf{i} and \mathbf{j} .

- A. $720\mathbf{i} - 960\mathbf{j}$
- B. $-720\mathbf{i} + 960\mathbf{j}$
- C. $-720\mathbf{i} - 960\mathbf{j}$
- D. $720\mathbf{i} + 960\mathbf{j}$

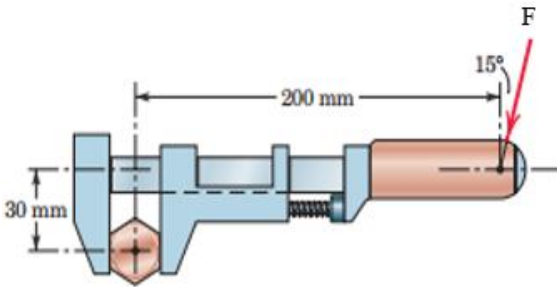
C



Calculate the moment of the 300-N force on the handle of the monkey wrench about the center of the bolt.

- A. 52.62 N.m
- B. 60.28 N.m
- C. 46.47 N.m
- D. 55.62 N.m

555.

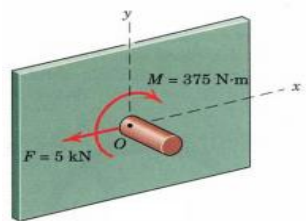


D

The indicated force couple system is applied to a small shaft at the center of the rectangular plate. Replace this system by a single force and specify the coordinate of the point on the y-axis through which the line of action of this resultant force passes:

- A: - 75mm
- B. 75mm
- C. 85mm
- D. - 70mm

556.

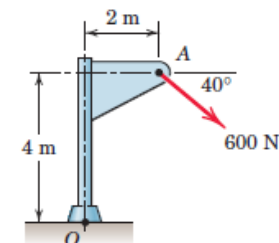


A

The magnitude of the moment about point A of the 600-N force is:

- A. 1200 N.m CW
- B. 1200 N.m CCW
- C. Zero
- D. 2610 N.m CW

557.



C

In force-couple system, to balance the change in the moment of the given force, the given force is replaced by:

- A. A couple
- B. Opposite force and a couple
- C. Equal parallel force and a couple
- D. Two equal parallel forces

558.

C

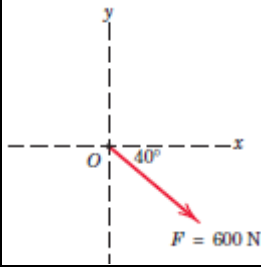
The x and y scalar components of \mathbf{F} are:

- A. 460 N, -386 N
- B. 383 N, -321 N
- C. 460 N, 386 N

559.

A

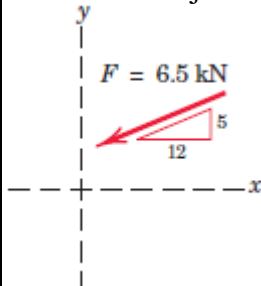
D. 420 N, -280 N



The slope of the 6.5 kN force F is specified as shown in the figure. Express F as a vector in terms of the unit vectors i and j :

- A. $-4.8i - 2j$ kN
- B. $-6i - 2.5j$ kN
- C. $-2.5i - 6j$ kN
- D. $2.5i - 6j$ kN

560.

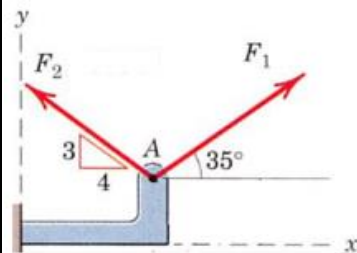


B

If $F_1 = 600$ N and $F_2 = 500$ N then the resultant R of these two forces will be:

- A. 358 N
- B. 491 N
- C. 650 N
- D. 500 N

561.

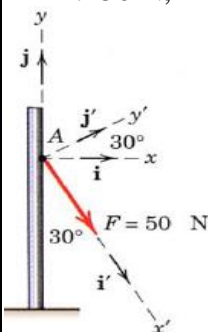


C

The 50 N force F is applied to the vertical pole, the scalar components of the force vector F along the x and y' axes will be:

- A. 250 N, -433 N
- B. 1000 N, -866 N
- C. 100 N, -87 N
- D. 50 N, -45 N

562.



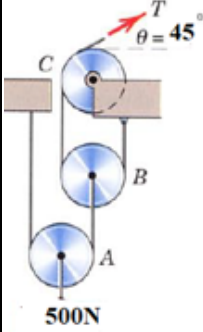
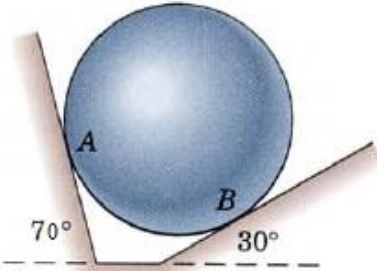
C

Which of the following statement is correct?

- A. A fixed support is capable of supporting a transverse force only.
- B. Roller support transmits a force normal to the supporting surface.
- C. The force exerted by a flexible cable on a body is always compressive.
- D. A pin connection can support force in any direction parallel to the axis of pin.

563.

B

564.	<p>Calculate the tension T in the cable which supports 500 N load with the pulley arrangement shown in figure. Each pulley is free to move about its bearing and weights of all parts are negligible.</p> <p>A. 250 lb B. 500 N C. 125 N D. 250 N</p> 	C
565.	<p>The 30-kg homogeneous smooth sphere rests on the two inclines as shown. The contact forces at A and B will be:</p> <p>A. 101.6 N, 196.2 N B. 149.4 N, 280.8 N C. 198.5 N, 320.7 N D. 100.3 N, 150.8 N</p> 	B
566.	<p>Which of the following statement is correct?</p> <p>A. A truss is statically indeterminate if it has less external supports than are needed to prevent collapse. B. A truss is statically indeterminate if it has more external supports than are needed to prevent collapse. C. A statically indeterminate truss can be analyzed by the equations of equilibrium alone. D. A statically determinate truss cannot be analyzed by the equations of equilibrium alone.</p>	B
567.	<p>In method of joints, analysis is begin with the joint where not more than unknown forces are present.</p> <p>A. One B. Three C. Two D. Four</p>	C
568.	<p>The forces in members AE and AB of the loaded truss will be:</p> <p>A. 1.414 kN C, 1 kN T B. 1.414 N C, 1 N T C. 4.14 N C, 3.52 N T D. 2.83 N C, 2 N T</p>	D

569.	<p>The forces in members AB and BC of the loaded truss will be:</p> <p>A. 5 kN T, 7.07 kN C B. 10 N T, 14.14 N C C. 12.5 N C, 15 N T D. 5 N T, 7.07 N C</p>	B
570.	<p>In U.S customary system, the unit of specific weight is:</p> <p>A. lb/ft² B. N/m³ C. lb/in² D. lb/ft³</p>	D
571.	<p>Which of the following conditions is correct:</p> <p>A. $F_k < F_{max}$ B. $F_k > F_{max}$ c. $\mu_k > \mu_s$ D. None of these</p>	A
572.	<p>The 2.4 kg wooden block is used for level support of the 18 kg can of paint. The total force exerted by the roof surface on the wooden block is:</p> <p>A. 100.1 N upward B. 200.1 N upward C. 150.1 N upward D. 250.1 N upward</p>	B
573.	<p>The 800-N force is applied to the 100-kg block, which is stationary before the force is applied. The magnitude and direction of the friction force F exerted by the horizontal surface on the block will be:</p> <p>A. 379 N left B. 348.6 N right C. 450 N left D. 348.6 N left</p>	D
574.	<p>The position coordinate of a particle which is confined to move along a straight line is given by $s = 3t^3 - 20t + 6$, where s is measured in meters from a convenient origin and t is in seconds. The time required for the particle to reach a velocity of 61 m/s from its initial condition at $t = 0$ will be:</p> <p>A. 4 sec B. 3 sec C. 5 sec D. 2 sec</p>	B

575.	The velocity of a particle is given by $v = 20t^2 - 100t + 50$, where v is in meters per second and t is in seconds. If a is zero, then the velocity of the particle will be: A. 264 m/s B. 175 m/s C. 75 m/s D. -270 m/s	C
576.	Choose the correct statement: A. The direction of the velocity of a particle in curvilinear motion is always tangent to the path. B. There is no distinction between the <i>magnitude of the derivative</i> and the <i>derivative of the magnitude</i> . C. The direction of the acceleration of a particle in curvilinear motion is normal to the path. D. None of these	A
577.	A particle which moves with curvilinear motion has coordinates in meters which vary with the time t in seconds according to $x = 2t^2 - 4t$ and $y = 3t^2 - 1/3t^3$. If $t = 2$ s, the magnitude of the acceleration a will be: A. 7.21 m/s ² B. 4.47 m/s ² C. 14.42 m/s D. 9.18 m/s ²	B
578.	A 70-kg man stands on a spring scale in an elevator. During the first 3 seconds of motion from rest, the tension T in the hoisting cable is 8000 N. What will be the reading R of the scale in newtons during this interval. The total mass of the elevator, man, and scale is 740 kg. A. 756.7 N B. 830 N C. 580 N D. 820 N	A
579.	If the working component Ft is in the opposite direction of the displacement, then the work will be: A. Positive B. Negative C. Zero D. None of these	B
580.	Which is NOT a property of a parallelogram A. Diagonals bisect each other B. Diagonals are congruent C. Both pairs of opposite sides are parallel D. Both pairs of opposite angles are congruent	B
581.	There are two forces P and Q with unequal weights 40g and 60g respectively hanging on the pulleys if the given angle $\angle AOB$ is 62° find the resultant R by using the formula for unequal weights A. 86g B. 98g C. 78g D. 8.8g	A
582.	Which is true about law of parallelogram A. By using parallelogram law it is not possible to resolve a given vector into components for the known line of action B. By using parallelogram law it is possible to resolve a given vector into components for the known line of action C. By using parallelogram law it is possible to resolve the scalar components for the known line of action D. All options are correct	B

583.	<p>For any system of coplanar concurrent forces in equilibrium, _____ may be drawn whose sides are proportional and parallel to the forces taken in order</p> <p>A. Rectangle B. Triangle C. Polygon D. Triangle and Rectangle</p>	C
584.	<p>In law of polygon of forces, If any number of forces acting at a point can be represented in direction and magnitude by the sides of a polygon taken in order, then the forces are in equilibrium</p> <p>A. The first part of the statement is false and other part is true B. The first part of the statement is false and other part is false too C. The first part of the statement is true and other part is false D. The first part of the statement is true and other part is true too</p>	D
585.	<p>A spring has a spring constant of 330 N/m. How far is the spring compressed if 150 N of force are used?</p> <p>A. 2.2 m B. 5.0 m C. 0.45 m D. 0.0014 m</p>	C
586.	<p>The spring constant of an object tells you?</p> <p>A. What type of spring you are dealing with B. How long the spring will stretch or compress C. It gives you a value on how easy or hard it is to change the objects length. D. A spring constant gives you a number which tells you what material the spring is made of.</p>	C
587.	<p>V-shape belt hanging over a frictionless pulley which produce friction on the other block with driving force of 8N if block with a force 10N is connected. If the coefficient of friction between the forces is 0.5, then find the angle of the system?</p> <p>A. 3.2° B. 5.2° C. 7.2° D. 9.2°</p>	A
588.	<p>Answer A</p> <p>Which of the following statement is correct?</p> <p>A. The algebraic sum of the forces, constituting the couple is zero B. A couple cannot be balanced by a single force but can be balanced only by a couple of opposite sense C. The algebraic sum of the forces, constituting the couple, about any point is the same D. All options are correct</p>	D
589.	<p>The frictional force in the belts always acts _____ to the surface of the application of the friction.</p> <p>A. Tangential B. Perpendicular C. Parallel D. Normal</p>	A
590.		