
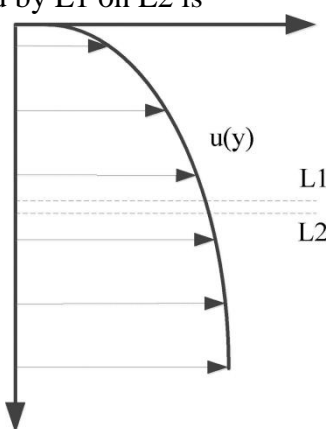

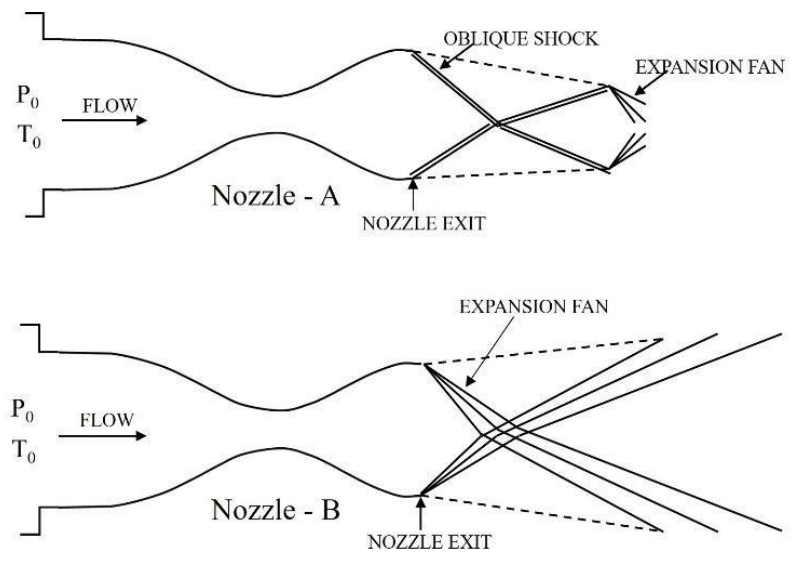


Instructions:

1. Ensure that all pages are printed.
2. Use Black ball pen only
3. Change in option is not allowed
4. There is no negative marking
5. Use of non-programmable scientific calculator is allowed

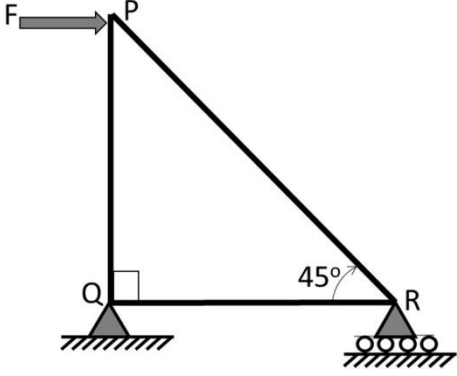
1.	The first law of thermodynamics is also known as conservation of			
	A	mass.	B	momentum.
	C	energy.	D	species.
2.	A thin airfoil is mounted in a low-speed, subsonic wind tunnel, in which the Mach number is 0.1. At a point on the airfoil, the pressure coefficient is measured to be -1.2 . If the flow velocity is increased such that the free-stream Mach number is 0.6, the pressure coefficient at the same point on the airfoil will approximately be:			
	A	-3.5	B	-2.9
	C	-1.5	D	-0.75
3.	In the figure shown below, what does the fluid particle 'A' represents from $t=0$ to $t=t$?			
				
	A	Streamline	B	Streak line
4.	Laminar Flow indicates.....			
	A	Reverse flow	B	Regularities in motion
	C	Irregularities in motion	D	Both A & C
5.	The point of maximum entropy on a Fanno-curve in a Temperature-Entropy (T-s) diagram represents the			
	A	maximum flow Mach number	B	minimum flow Mach number
	C	sonic Mach number	D	normal shock in the flow
6.	Consider a two-dimensional potential flow over a cylinder. If the freestream speed is U_∞ , the maximum speed on the cylinder surface is			
	A	$U_\infty/2$	B	$3U_\infty/2$
	C	$2U_\infty$	D	$4U_\infty/3$

7.	Consider the velocity distribution, $u(y)$ shown in the figure. For two adjacent fluid layers L1 and L2, the viscous force exerted by L1 on L2 is			
				
A	to the right		B	to the left
C	vertically upwards		D	vertically downwards
8.	The service ceiling of an airplane is the altitude			
A	at which maximum rate of climb is 100 m/min		B	beyond which theoretically the airplane cannot sustain level flight
C	at which maximum power is required for flight		D	at which maximum rate of climb is 100 ft/min
9.	Regarding the horizontal tail of a conventional airplane, which one of the following statements is true?			
A	It makes $C_{m\alpha} = 0$		B	It contributes to $C_{m\alpha} < 0$
C	It makes $C_{m\alpha} > 0$		D	It makes $C_{m0} > 0$ and $C_{m\alpha} > 0$
10.	A beam with a symmetrical T-shaped cross-section, as shown in the figure, is subjected to pure bending. The maximum magnitude of the normal stress is realized			
				
A	only at the top fibres of the cross-section		B	only at the bottom fibres of the cross-section
C	both at the top and bottom fibres of the cross-section		D	only at the centroidal fibres of the cross-section
11.	The author said, “Musicians rehearse before their concerts. Actors rehearse their roles before the opening of a new play. On the other hand, I find it strange that many public speakers think they can just walk on to the stage and start speaking. In my opinion, it is no less important for public speakers to rehearse their talks.” Based on the above passage, which one of the following is TRUE?			

	A	The author is of the opinion that rehearsing is important for musicians, actors and public speakers.	B	The author is of the opinion that rehearsing is less important for public speakers than for musicians and actors.
	C	The author is of the opinion that rehearsing is more important only for musicians than public speakers.	D	The author is of the opinion that rehearsal is more important for actors than musicians.
12.	<p>The figure shows schematics of wave patterns at the exit of nozzles A and B operating at different pressure ratios.</p>  <p>The figure consists of two schematic diagrams of supersonic flow exiting nozzles. The top diagram, labeled 'Nozzle - A', shows a flow exiting a nozzle with an oblique shock wave and an expansion fan. The bottom diagram, labeled 'Nozzle - B', shows a flow exiting a nozzle with an expansion fan. Both diagrams indicate the nozzle exit, flow direction, and initial conditions P_0 and T_0.</p>			
	A	over-expanded mode and under-expanded mode	B	under-expanded mode and perfectly expanded mode
	C	perfectly expanded mode and under-expanded mode	D	under-expanded mode and over-expanded mode
13.	The combustion process in a turbo-shaft engine during ideal operation is:			
	A	isentropic	B	isobaric
	C	isochoric	D	isothermal
14.	Which of the following is NOT always true for a combustion process taking place in a closed system?			
	A	Total number of atoms is conserved	B	Total number of atoms of each element is conserved
	C	Total number of molecules is conserved	D	Total mass is conserved
15.	The height of a right circular cone of maximum volume that can be enclosed within a hollow sphere of radius R is			
	A	R	B	$1.25R$

	C	1.33R	D	1.5R
16.	Across an oblique shock wave in a calorifically perfect gas,			
	A	the stagnation enthalpy changes	B	the stagnation temperature changes
	C	the speed of sound does not changes	D	the stagnation entropy changes
17.	NACA 2412 airfoil has			
	A	4% maximum camber with respect to chord	B	maximum camber at 40% chord
	C	41% maximum thickness to chord ratio	D	maximum camber at 20% chord
18.	How does the specific thrust of a turbojet engine change for a given flight speed with increase in flight altitude?			
	A	Increases monotonically	B	Decreases monotonically
	C	Remains constant	D	First increases and then decreases
19.	How does the propulsion efficiency of a turbofan engine, operating at a given Mach number and a given altitude, change with increase in compressor pressure ratio?			
	A	First decreases and then increases	B	Remains constant
	C	Increases monotonically	D	Decreases monotonically
20.	A solid propellant rocket producing 25 MN thrust is fired for 150 seconds. The specific impulse of the rocket is 2980 Ns/kg. How much propellant is burned during the rocket operation?			
	A	8390 kg	B	82300 kg
	C	1.26×10^6 kg	D	11.2×10^6 kg
21.	The shape of a supersonic diffuser that slows down a supersonic flow to subsonic flow is.....			
	A	converging	B	converging-diverging
	C	diverging-converging	D	diverging
22.	Which of the following statement(s) is/are true with regards to Kutta condition for flow past airfoils?			
	A	It is utilized to determine the circulation on an airfoil.	B	It is applicable only to airfoils with not sharp trailing edge.
	C	The trailing edge of an airfoil is a stagnation point.	D	The flow leaves the trailing edge not smoothly.
23.	According to the thin airfoil theory, which of the following statement(s) is/are true for a cambered airfoil?			

	A	The lift coefficient for an airfoil is directly proportional to the absolute angle of attack.	B	The aerodynamic center lies at not quarter chord point.
	C	The center of pressure lies at quarter chord point.	D	Drag coefficient is proportional to the square of lift coefficient.
24.	<p>To estimate aerodynamic loads on an aircraft flying at 100 km/h at standard sea-level conditions, a one-fifth scale model is tested in a variable-density wind tunnel ensuring similarity of inertial and viscous forces. The pressure used in the wind tunnel is 10 times the atmospheric pressure.</p> <p>Assuming ideal gas law to hold and the same temperature conditions in model and prototype, the velocity needed in the wind tunnel test-section is _____.</p>			
	A	25 km/h	B	50 km/h
	C	75 km/h	D	80 km/h
25.	<p>For a conventional fixed-wing aircraft in a 360° inverted vertical loop maneuver, what is the load factor (n) at the topmost point of the loop? Assume the flight to be steady at the topmost point.</p>			
	A	$n = 1$	B	$n < 1$
	C	$n = -1$	D	$n > -1$
26.	<p>For a conventional fixed-wing aircraft, which of the following statements are true?</p>			
	A	Making $C_{m\alpha}$ more negative leads to an increase in the frequency of its short-period mode.	B	Making C_{mq} more negative leads to a decreased damping of the short-period mode.
	C	The primary contribution towards C_{lp} is not from the aircraft wing.	D	Increasing the size of the horizontal fin leads to a higher yaw damping.
27.	<p>Which of the following statement(s) is/are wrong?</p>			
	A	Service ceiling is higher than absolute ceiling for a piston-propeller aircraft.	B	For a given aircraft, the stall speed decreases with increase in altitude.
	C	Everything else remaining the same, a tailwind decreases the range of an aircraft.	D	For a jet aircraft constrained to fly at constant altitude, there exists an altitude where its range is maximum.

28.	<p>A three-member truss is simply supported at Q and R, and loaded at P by a horizontal force F as shown. The force in QR is</p> 			
	A	F (tensile)	B	$\sqrt{2}F$ (tensile)
	C	$F/\sqrt{2}$ (Compressive)	D	0
29.	Satellite velocity is maximum at _____ for an elliptical orbit.			
	A	apogee	B	Perigee
	C	focal point	D	Infinity
30.	What is the effect of change in Reynold's number on friction factor in turbulent flow?			
	A	As the Reynold's number increases the friction factor increases in turbulent flow	B	As the Reynold's number increases the friction factor decreases in turbulent flow
	C	change in Reynold's number does not affect the friction factor in turbulent flow	D	Unpredictable
31.	The propulsive efficiency of a ramjet engine is lower than that of a low bypass turbofan engine operating under the same conditions and producing the same thrust, primarily because the ramjet engine.....			
	A	has larger kinetic energy lost in the exhaust jet.	B	has lower thrust power.
	C	is not self-starting.	D	has higher thrust to weight ratio.
32.	While flying at Mach 2.0, 11 km altitude and producing the same thrust, what is the correct order from the lowest thrust specific fuel consumption (TSFC) to the highest TSFC ?			
	A	Turbofan, Ramjet, Turbojet	B	Ramjet, Turbojet, Turbofan
	C	Turbofan, Turbojet, Ramjet	D	Turbojet, Turbofan , Ramjet
33.	A De Laval nozzle is to be designed for an exit Mach number of 1.5. The reservoir conditions are 1 atm (gauge), 20°C and $\gamma = 1.4$. Assuming Shock free flow in nozzle, the exit absolute pressure in atm is, _____ (in three decimal places)			
	A	1.544	B	0.682

	C	0.655	D	0.544
34.	The ratio of the maximum displacement of the forced vibration to the deflection due to the static force, is known as			
	A	damping factor	B	damping coefficient
	C	logarithmic decrement	D	magnification factor
35.	Which of the following relations is true when springs are connected in parallel? where K = spring stiffness			
	A	$K_e = K_1 + K_2$	B	$(1 / K_e) = (1/K_1) + (1/ K_2)$
	C	$K_e = (1/K_1) + (1/ K_2)$	D	None of the above
36.	A mass of 1 kg is attached to the end of a spring with a stiffness of 0.7 N/mm. The critical damping coefficient of this system is			
	A	1.4 N-s/m	B	18.52 N-s/m
	C	52.92 N-s/m	D	529.2 N-s/m
37.	_____ is the strongest structural component of fuselage.			
	A	Bulkhead	B	Former
	C	Skin Panel	D	Longeron
38.	_____ provide stiffness in bending of wing.			
	A	Skin Panels	B	Spars and Vertical Stiffeners
	C	Wing Ribs and Stringers	D	All of Above
39.	There are _____ strain components for a three dimensional case.			
	A	8	B	4
	C	3	D	6
40.	For both plane stress as well as plain strain case the equilibrium equation in x-direction is _____			
	A	$\partial \sigma_x / \partial x + \partial \tau_{zx} / \partial z = 0$	B	$\partial \sigma_x / \partial x + \partial \tau_{yx} / \partial y = 0$
	C	$\partial \sigma_x / \partial x + \partial \tau_{yx} / \partial y + \partial \tau_{zx} / \partial z + X = 1$	D	$\partial \sigma_x / \partial x + \partial \tau_{yx} / \partial y + X = 0$
41.	Which of the following is not used to manufacture a wing-tip bow?			
	A	PVC	B	Aluminum alloy
	C	Chrome-molybdenum	D	Stainless steel
42.	_____ has maximum Strength/ Weight ratio.			
	A	Semi-monocoque structure	B	Monologue Structure
	C	Honeycomb Structure	D	Truss type structure

43.	Aircraft Controls can be made using _____			
	A	Copper	B	Brass
	C	Steel	D	Wrought iron
44.	Which type of structure would cost less in terms of supports?			
	A	Statically indeterminate	B	Statically determinate
	C	Depends upon loading	D	Both will cost equally
45.	In most cases, for a given loading maximum stress and deflection of an indeterminate structure are _____ than that of a determinate one.			
	A	Smaller	B	Larger
	C	Larger for small load	D	Smaller for larger load
46.	Resilience can also be termed as _____			
	A	Stress energy	B	Strain energy
	C	Modulus	D	Tenacity
47.	The greatest divergence in predicting the yield stress for distortion between the Tresca's criteria and Von-Mises criteria occurs at _____			
	A	Uniaxial tension/compression	B	Balanced biaxial stress
	C	Pure shear stress	D	Always predicts equal stress
48.	The X and Y- axis of Mohr's circle represent _____.			
	A	Normal stress and shear stress.	B	shear stress and normal stress
	C	principal normal stress and principal shear stress	D	principal shear stress and principal normal stress
49.	Mohr's circle represents _____.			
	A	Critical Plane Analysis	B	Two dimensional graphical representation of the transformation for the Cauchy stress tensor.
	C	Stress analysis in skin panels of wings.	D	Bending of spar of vertical fin in T tail configuration
50.	$F_s = -kx$, which shows relations among spring force, spring constant and spring stretch, represents _____.			
	A	Hook's Law	B	Kirchhoff's Law
	C	2 nd Law of Newton	D	Principle of Momentum
51.	In a Brayton cycle with perfect intercooling (Two stages of compression) the inlet and outlet pressures of 1 bar and 6 bar. The intermediate pressure of compressed air is			
	A	1.44	B	2.44
	C	3.00	D	3.44
52.	Which of the following options can result in an increase in the Mach number of a supersonic flow in a duct?			
	A	Increasing the length of the duct	B	Adding heat to the flow
	C	Removing heat from the flow	D	Inserting a convergent divergent section with the same cross-sectional area at its inlet and exit planes
53.	Hot gas (ratio of specific heats $\gamma = 1.33$) at a temperature of 1450 K enters into an axial turbine and expands isentropically. Assume that the kinetic energy of the gas across the turbine is negligible. If the ratio of inlet to outlet pressures of the turbine is 9.5, then the approximate temperature (in K) of gas exiting the turbine is _____.			

	A	720.63	B	750.36
	C	815.46	D	825.25
54.	The Power off glide range for an airplane with maximum lift to drag ratio of 18, when the glide starts at an altitude of 4 km is _____ km.			
	A	4.5	B	72
	C	22	D	14
55.	Air at 20°C and 1 bar flows over a plate 75 cm long at a velocity of 35 m/s. Density 1.23 kg/m ³ , Dynamic viscosity = 2×10^{-5} kg/ms, Conductivity K = 0.0272 W/m°C, and specific heat Cp = 1.007 kJ/kg°C, Pr = 0.7, upto which distance from the leading edge flow is laminar?			
	A	21.2 cm	B	22.5 cm
	C	23.2 cm	D	24.5 cm
56.	Geometric Altitude.....			
	A	Pressure differential with respect to Pressure at Sea Level	B	Physical distance between aircraft and reference (e.g. Sea Level)
	C	Difference in density with International Standard Atmosphere (ISA) temperature	D	Distance between Center of Earth and parallel surfaces around the spherical earth. Gravitational potential same on a surface
57.	The modified gas power cycle used to increase net power output is Brayton cycle with _____			
	A	Intercooling	B	Regeneration
	C	Intercooling and regeneration	D	Reheating
58.	An ideal Brayton cycle, operating between the pressure limits of 1 bar and 6 bar, has minimum and maximum temperatures of 300 K and 1500 K. The ratio of specific heats of the working fluid is 1.4. The approximate final temperatures in Kelvin at the end of expansion processes is			
	A	700	B	800
	C	900	D	1000
59.	A liquid flows through pipes 1 and 2 with the same flow velocity. If the ratio of their pipe diameters d1:d2 be 3:2, what will be the ratio of the head loss in the two pipes?			
	A	3:2	B	2:3
	C	9:4	D	4:9
60.	In turbomachines Peripheral speed is directly proportional to			
	A	inlet flow condition	B	inlet diameter
	C	Stator blade angles	D	Rotor Blade angles
61.	Under what condition a glider should be operated to ensure minimum glide angle?			

	A	Maximum C_L/C_D	B	Minimum C_L/C_D
	C	Maximum $C_L/C_D^{3/2}$	D	Minimum $C_L/C_D^{3/2}$
62.	For a single stage impulse turbine with a rotor diameter of 2.5 m and a speed of 2500 rpm, the absolute flow speed is 708.42 m/s. if the nozzle angle is 67.5° , the axial velocity component in m/s is_____			
	A	710	B	543.23
	C	352.6	D	271.11
63.	The stoichiometric fuel-to-air ratio in an aircraft engine combustor varies with the compressor pressure ratio as follows:			
	A	Increases linearly	B	Decreases linearly
	C	Is Independent	D	Increases non linearly
64.	A cruise missile with an ideal ramjet engine is flying at Mach 4.0 at an altitude where the ambient temperature is 100 K. Consider ratio of specific heats 1.4 and specific gas constant 287 J/kgK. If the stagnation temperature in the combustion chamber is 2310K, the speed of the exhaust gases in m/s is _____			
	A	1690.6	B	1880.5
	C	1900	D	2000.2
65.	A small rocket having a specific impulse of 200 s produces a total thrust of 98kN, out of which 10 kN is the pressure thrust. Considering the acceleration due to gravity to be 9.8 m/s^2 , the propellant mass flow rate in kg/s is			
	A	55	B	45
	C	50	D	60
66.	Which one of the following aero engines has the highest propulsive efficiency?			
	A	Turbojet engine without afterburner	B	Turbojet engine with afterburner
	C	Turbofan engine	D	Ramjet engine
67.	A NACA 0012 airfoil has a trailing edge flap. The airfoil is operating at an angle of attack of 5 degrees with un-deflected flap. If the flap is now deflected by 5 degrees downwards, the C_L versus α curve			
	A	shifts right and slope increases.	B	shifts left and slope increases.
	C	shifts left and slope stays the same.	D	shifts right and slope stays the same.
68.	For a turbine stage, which one of the following losses occurs due to the turning of the wall boundary layer through an angle due to curved surface?			

	A	Profile loss	B	Tip clearance loss
	C	Secondary flow loss	D	Annulus loss
69.	In the vane-less space between the impeller and the diffuser vanes in a Centrifugal Compressor, the angular momentum varies in the following manner in the radial direction			
	A	Increases	B	Remains constant
	C	Decreases	D	First increases and then decreases
70.	While flying at Mach 2.0, 11 km altitude and producing the same thrust, what is the correct order from the lowest thrust specific fuel consumption (TSFC) to the highest TSFC ?			
	A	Turbofan, Ramjet, Turbojet	B	Ramjet, Turbojet, Turbofan
	C	Turbofan, Turbojet, Ramjet	D	Turbojet, Turbofan , Ramjet
71.	Vortex flow occurs at _____			
	A	Leading edge	B	Trailing edge
	C	Chord	D	Chamber line
72.	Turbulent flows indicate.....			
	A	Regularity of motion	B	Straight motion of flow
	C	Irregularity of flow	D	None of the above
73.	What is the effect of change in Reynold's number on friction factor in turbulent flow?			
	A	As the Reynold's number increases the friction factor increases in turbulent flow	B	As the Reynold's number increases the friction factor decreases in turbulent flow
	C	change in Reynold's number does not affect the friction factor in turbulent flow	D	unpredictable
74.	A stream line is.....			
	A	The line of equal velocity in a flow	B	The line along which the rate of pressure drop is uniform
	C	The line along the geometrical centre of the flow	D	Fixed in space in steady flow
75.	Which is the minimum requirement for pure directional stability?			
	A	Slope of yawing moment curve positive	B	Negative lift curve slope
	C	Negative pitching moment coefficient curve slope	D	Positive zero lift pitching moment coefficient
76.	The load factor of an aircraft turning at a constant altitude is 2. The coefficient of lift required for turning flight as compared to level flight at the same speed will be.....			
	A	same	B	half

	C	double	D	four times
77.	Is uniform flow around a sphere is obtained?			
	A	True	B	False
	C	None of the above	D	Not decided
78.	With increase in airfoil thickness, the critical Mach number for an airfoil is likely to			
	A	Decrease.	B	Increase.
	C	Remain unchanged	D	Be undefined
79.	Which one of the following criteria leads to maximum turn rate and minimum radius in a level turn flight?			
	A	Highest possible load factor and highest possible velocity	B	Lowest possible load factor and lowest possible velocity
	C	Highest possible load factor and lowest possible velocity	D	Lowest possible load factor and highest possible velocity
80.	Match the appropriate engine (in right column) with the corresponding aircraft (in left column) for most efficient performance of the engine.			
	a. Low speed transport aircraft		i. Ramjet	
	b. High subsonic civilian aircraft		ii. Turboprop	
	c. Supersonic fighter aircraft		iii. Turbojet	
	d. Hypersonic aircraft		iv. Turbofan	
	A	a – iv, b – iii, c – i, d – ii	B	a – ii, b – i, c – iii, d – iv.
	C	a – i, b – ii, c – iv, d – iii	D	a – ii, b – iv, c – iii, d – i.
81.	Which is the convolution property of Laplace Transform?			
	A	$f * g = \int_0^t f(u)g(t-u)du.$	B	$f * g = \int_0^t f(u)g(t+u)du.$
	C	$f * g = \int_0^t f(t-u)g(t-u)du.$	D	$f * g = \int_0^t f(u)g(t)du.$
82.	The flow integral along the closed curve C is called_____ - around the curve c			
	A	Work done	B	Flux
	C	circulation	D	None of these
83.	If three coins are tossed simultaneously, the probability of getting at least one head is			
	A	1/8	B	3/8
	C	1/2	D	7/8

84.	The product of Eigen values of the matrix P is		
	$P = \begin{bmatrix} 2 & 0 & 1 \\ 4 & -3 & 3 \\ 0 & 2 & -1 \end{bmatrix}$		
	A	-6	B 2
85.	C	6	D -2
	If $u = \log_e \left(\frac{x}{y} \right) + \tan \left(\frac{y}{x} \right)$ then $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \dots$		
	A	0	B 1
86.	C	x+y	D u
	If A, B, C are the angles of ΔABC , then the maximum value of $\cos(A) \cos(B) \cos(C) = ?$ is ?		
	A	1/4	B 1/8
87.	C	0	D 1
	Find, if any, the critical points of the function: $f(x, y) = x^3 + y^3 + 2x + 3y$		
	A	(0,0)	B (-1,1)
88.	C	No Points	D None of these
	The value of the contour integral $\oint_{ z-i =2} \frac{1}{z^2 + 4} dz$ in positive sense is		
	A	$i\pi / 2$	B $-\pi / 2$
89.	C	$-i\pi / 2$	D $\pi / 2$
	The Laplace transform of $f(t) = e^t \sin(at)$.		
	A	$\frac{a}{a^2 + (s+1)^2}$	B $\frac{a}{a^2 + (s-1)^2}$
90.	C	$\frac{s+1}{a^2 + (s+1)^2}$	D $\frac{s-1}{a^2 + (s-1)^2}$
	If k_1, k_2 are two distinct roots of $D^2 + a_1 D + a_2 = 0$ then the solution is defined as		
	A	$y = e^{k_1 x} + c_2 e^{k_2 x}$	B $y = c_1 e^{k_1 x} + c_2 e^{k_2 x}$
91.	C	$y = c_1 e^{k_1 x} + e^{k_2 x}$	D $y = c_1 e^{k_1 x} + c_2 x e^{k_2 x}$
	The partial differential equation $xy \frac{\partial^2 z}{\partial x^2} = 5 \frac{\partial^2 z}{\partial y^2}$ is classified as		
	A	elliptic	B parabolic
	C	hyperbolic	D None of the above

92.	Rank of matrix A = $\begin{bmatrix} 0 & 0 & 0 & 0 \\ 4 & 2 & 3 & 0 \\ 5 & 0 & 0 & 0 \\ 4 & 0 & 3 & 0 \end{bmatrix}$			
	A	0	B	1
	C	2	D	3
93.	A root of the equation $x^3 - x - 11 = 0$ correct to four decimals using bisection method, is			
	A	2.3737	B	2.3838
	C	2.3739	D	None of the above
94.	Find the direction derivative of $f(x) = x^2 \sin 2y$ at the point $\left(1, \frac{\pi}{2}\right)$ in the direction of $3i - 4j$			
	A	4/5	B	8/5
	C	1/5	D	2/5
95.	Divergence operation result will always be.			
	A	vector	B	scalar
	C	Scalar or vector	D	None of these
96.	$(4k-1)x + y + z = 0$ The system of linear equations $-y + z = 0$ has a non-trivial solution if 'k' equals: $(4k-1)z = 0$			
	A	1/2	B	1/4
	C	3/4	D	1
97.	The poles of $f(Z) = \frac{1}{(Z-2)^3(Z-3)^2}$ is Z=2 and Z=3 is of order _____ and _____ respectively.			
	A	2,3	B	3,2
	C	3,3	D	2,2
98.	A real root of the equation $x - \cos x = 0$ by the method of false position correct to four decimal places is			
	A	0.7391	B	0.7439
	C	0.7347	D	None of these
99.	A rectangular box with a square base and no top has a volume of 500 cubic inches. Find the dimensions for the box that require the least amount of material.			
	A	10,10,5	B	5,5,20
	C	5,10,10	D	Not possible.
100.	Newton-Raphson iteration formula for finding $\sqrt[3]{C}$, where $C > 0$, is			
	A	$x_{n+1} = \frac{(2x_n^3 + \sqrt[3]{C})}{3x_n^2}$	B	$x_{n+1} = \frac{(2x_n^3 - \sqrt[3]{C})}{3x_n^2}$
	C	$x_{n+1} = \frac{(2x_n^2 + C)}{3x_n^2}$	D	$x_{n+1} = \frac{(2x_n^2 - C)}{3x_n^2}$