Sr No.	MSC Maths		
1	Find the missing term in the following series:		
	3,15,?,63,99,143?		
Alt1			
Alt2			
Alt3			
Alt4	56		
2	Choose word from the given options which bears the same relationship to the third word, as the first two bears: Horse: Jockey:: Car:?		
Alt1	Mechanic		
	Chauffeur		
	Steering		
Alt4	Brake		
	Food is to Fad as Religion is to?		
	Crucification Notion		
	Superstition		
	Mythology		
Alta	Mythology		
4	Select the lettered pair that has the same relationship as the original pair of words:		
	Fond: Doting		
Alt1	Solicitous: Concern		
Alt2	Verbose: Wordiness		
Alt3	Flurry: Blizzard		
Alt4	Magnificent: Grandiose		
	Which of the following is the same as Emancipate, Free, Release?		
	Liberate		
	Quit		
	Pardon .		
Alt4	Ignore		
6	Spot the defective segment from the following:		
	I I met one of the mountaineers		
	that have returned		
	to their base camp		
	4 the last week		
7	Choose the meaning of the idiom/phrase from among the options given:		
	To call names		
	to abuse		
	to recall something		
	to count the prisoners		
Alt4	to take attendance		

	Our tour programme fell because of inclement weather.		
	through		
Alt2			
Alt3	out		
Alt4	down		
9	9 Choose the option closest in meaning to the given word:		
	POIGNANT		
Alt1	unbearable		
Alt2	maximal		
Alt3	pathetic		
	sharp		
	- · · ·		
10	Choose the antonymous option you consider the best:		
	WANTON		
Λl+1	rational		
	abstemious		
	dearth		
	deliberate		
Alt4	deliberate		
- 44			
11	Six people K, L, M, N, O and P are sitting around a table as per the following conditions.		
	and O are opposite each other		
	ii. K is to the right of M		
	iii. L and K are opposite each other		
	iv. N is to the left of P		
	Who is to the left of L?		
Alt1			
Alt2			
Alt3	N		
Alt4	0		
12	Study the following table carefully to answer the questions that follow (15 to 17): Total number of employees		
	in different departments in an organisation and (of these) percentage of females and males		
	Department Total number of employees Percentage of female employees Percentage of male employees		
	IT 840 45 55		
	Accounts 220 35 65		
	Production 900 23 77		
	HR 360 65 35		
	Marketing 450 44 56		
	Customer Service 540 40 60		
	What is the total number of male employees in the IT and Customer Service departments put together?		
Alt1	115		
Alt2	786		

Alt3	768
Alt4	85
	Study the following table carefully to answer the questions that follow (15 to 17): Total number of employees i different departments in an organisation and (of these) percentage of females and males Department Total number of employees Percentage of female employees Percentage of male employees IT 840 45 55 Accounts 220 35 65 Production 900 23 77 HR 360 65 35 Marketing 450 44 56 Customer Service 540 40 60 What is the total number of employees in all departments put together?
Alt1	3260
	3310
Alt3	3140
Alt4	3020
	All Cats are dogs No dogs are rats
Alt1	All cats are rats
Alt2	Some cats are rats
Alt3	No cat is rat
Alt4	None of the above
15	In a certain code language, "When did you come" is written as 'ti na ki ja'. "Will you come again" is written as 'na pa sa ja' and "She will go" is written as 'pa da ra'. How is "again" written in that code language?
Alt1	Na
Alt2	sa
Alt3	ja
Alt4	da
16	In each of the following questions some statements are followed by two conclusions (i) and (ii). Read the statements carefully and then decide which of the conclsions follow beyond a reasonable doubt. Mark your answer as Statement: The aspirants should apply through a proper channel for permission Conclusions: (i) Those who apply through proper channel will get permission (ii) Those who do not apply through proper channel will not get permission
Alt1	If only conclusion (i) follows

Alt2	If only conclusion (ii) follows		
Alt3	If neither conclusion (i) nor (ii) follows		
Alt4	If both the conclusions follow		
17	The average height of 3 children is 115 cms. If the heights of 2 children are 117 cms. And 112 cms.		
-	Respectively, the height of the third child is		
Alt1	112 cms.		
	113 cms.		
	115 cms.		
	116 cms.		
Alt4	110 cms.		
10	What is the 200/ of 400/ of 2/5th of 50002		
	What is the 30% of 40% of 2/5th of 5000?		
Alt1			
Alt2			
Alt3			
Alt4	720		
19	There are n persons in a room. Each one is shaking hand with the other. Ultimately there are 66 hand-shakes.		
	Then n=		
Alt1	11		
Alt2	12		
Alt3	16		
Alt4	Alt4 33		
20	A problem is given to students		
	10 students choose option A;		
	6 students choose option B;		
	2 students choose option C;		
	Gopal choose option D;		
	5 students did not answer.		
	which option is correct if the teacher tells that One-Twelth of the class gave the correct answer.		
Alt1			
Alt2			
Alt3			
Alt3			
Alt4	ان ا		
21			
21	TO 1 10 PM A TO 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	The solution of $\lim_{x\to 0} \frac{x-tanx}{x^5}$ is		
	A: 1/3		
	₹3		
	B: 3		
1			
	C: 2/3		

D:-1/3

Alt1	A
Alt2	В
Alt3	С
Alt4	D

The Taylor series expansion of f(x) = log(cosx) about the point $x = \pi/3$ is

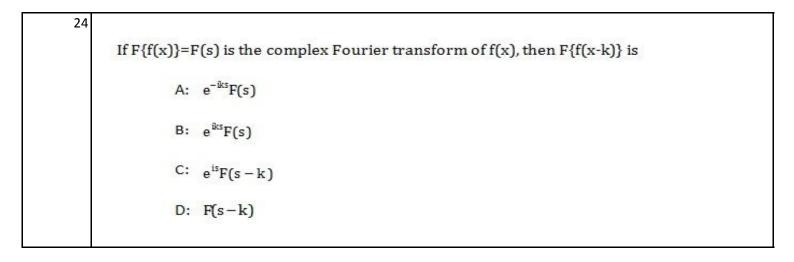
A: $log(1/2) + \sqrt{3}(x - \pi/3) - 2(x - \pi/3)^2 - 4/\sqrt{3}(x - \pi/3)^3$ B: $log(1/2) - \sqrt{3}(x - \pi/3) - 2(x - \pi/3)^2 - 4/\sqrt{3}(x - \pi/3)^3$ C: $log(1/2) + \sqrt{3}(x - \pi/3) + 2(x - \pi/3)^2 + 4/\sqrt{3}(x - \pi/3)^3$ D: $log(1/2) + \sqrt{3}(x - \pi/3) - 2(x - \pi/3)^2 + 4/\sqrt{3}(x - \pi/3)^3$ Alt1 A

Alt2 B

Alt3 C

Alt4 D

23	The solution of $u(x) = x - \int_{0}^{x} (x-t)u(t)dt$ is
	A: $x + \sin x$
	B: sin x
	C: cos x
	D: e ^x
Alt1	A
Alt2	В
Alt3	C
Alt4	D



Alt1	A
Alt2	В
Alt3	C
Alt4	D
25	

25	
	If the centre is $(1,-2,3)$ and radius is 3, then the equation of the sphere is
	A: $x^2+y^2+z^2-2x+4y-6z+5=0$
	B: $x^2+y^2+z^2+2x-4y+6z-5=0$
	C: $x^2+y^2+z^2+2x+4y-6z-5=0$
	D: $x^2+y^2+z^2-2x-4y+6z+5=0$
Alt1	A
Alt2	В
Alt3	C
Alt4	D

	Let C be a simp	le closed curve in three dimensional space and S be an open regular surfa-
	bounded by C, Th	en for a vector field u defined on V and on C is a
	A:	Divergence Theorem
	B:	Greens Theorem
	C:	Stokes Theorem
	D:	Cauchy Theorem
Alt1	A	
Alt2	В	
Alt3	c	

27	A vector u is soler	noidal in a simply connects region if and only if
	A:	div u ≠0
	В:	curl u = 0
	C:	div u = 0
	D:	$div \mathbf{u} + curl \mathbf{u} \neq 0$
Alt1	A	
Alt2	В	
Alt3	С	
Alt4	D	

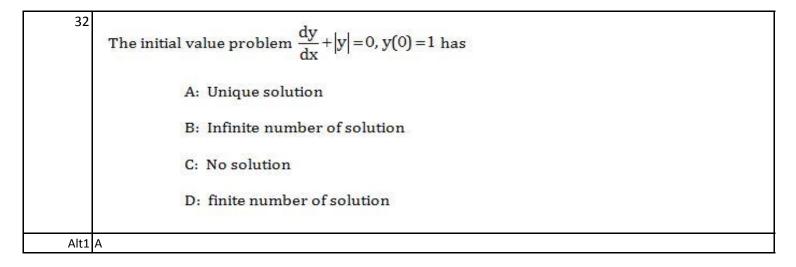
28	A sequence (an) is said to be, if there exist a number M>0 such that
	$ a_n < M$ for all $n \in \mathbb{N}$.
	A: Bounded sequence
	B: Unbounded sequence
	C: Divergent sequence
	D: Cauchy sequence
Alt1	A
Alt2	В
Alt3	c
Alt4	D

29 The	series $\sum \frac{1}{4} \{1 + (-1)^{n+1} (2n+1)\}$ is
	A: convergent
	B: divergent
	C: oscillating infinitely
	D: oscillating finitely
Alt1 A	
Alt2 B	
Alt3 C	

30	The general solution of the equation $dy/dx = 1+x^2+y^2+x^2y^2$ is A: $tan^{-1}(x)=y-y^3/3+c$ B: $tan^{-1}(x)=y+y^3/3+c$ C: $tan^{-1}(y)=x-x^3/3+c$
	D: $tan^{-1}(y)=x+x^3/3+c$
Alt1	A
Alt2	В
Alt3	C

Alt4 D

31	
	The differential equation $y'' + y = 0$ has
	A: only one solution
	B: two solutions
	C: infinitely many solutions
	D: no solution
Alt1	A
Alt2	В
Alt3	c
Alt4	D



Alt2	В
Alt3	С
Alt4	D

33	The partial differential equation corresponding $(x-h)^2 + (y-k)^2 + z^2 = c^2$ is
	A: $z^2(p^2-q^2-1)=0$
	B: $z^2(p^2+q^2+1)=c^2$
	C: $z^2(p^2 - q^2 + 1) = c^2$
	D: $z^2(p^2-q^2-1)=c^2$
	Here $p = \frac{\partial z}{\partial x}$, $q = \frac{\partial z}{\partial y}$
Alt1 A	\
Alt2 E	3
Alt3 C	

34	Solution of the differential equation $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial y^2} - \left(\frac{\partial^2 z}{\partial x^2} \frac{\partial^2 z}{\partial y^2} - \left(\frac{\partial^2 z}{\partial x \partial y}\right)^2\right) = 1 \text{ is}$
	A: $z = \frac{1}{2}(x^2 + y^2) + ax + by + c$
	B: $z = \frac{1}{2}(x^2 - y^2) + ax + by + c$
	C: $z = \frac{1}{2}(x^2 - y^2) + ax$
	D: $z = \frac{1}{2}(x^2 - y^2)$
Alt1 A	
Alt2 B	
Alt3 C	
Alt4 D	

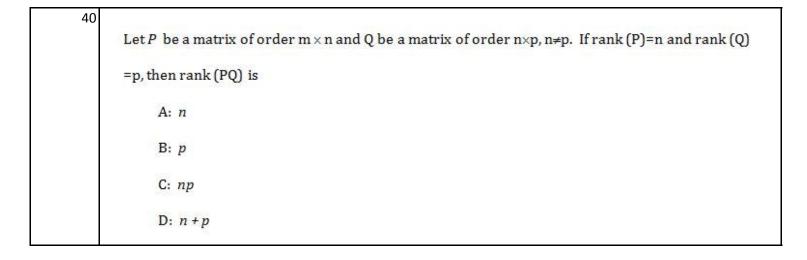
35	
	If H is a subgroup of finite group G and order of H and G are respectively m and n, then
	A: m n
	B: n m
	C: mn
	D: m+n
Alt1	A
Alt2	В
Alt3	C
Alt4	D

36	If G is the group of non-zero complex number under multiplication and G¹ is the group of non-zero real numbers under multiplication, then the f: G→G¹ defined by f(z)= z is a A: Isomorphism B: Non-isomorphism C: Automorphism D: Endomorphism
Alt1	A
Alt2	В
Alt3	С
Alt4	D

37	The number of sylow p-subgroups is of the 1+kp (where k is non-negative integer) is.
	A: o(N(P)) o(G)
	B: o(G) o(N(P))
	C: o(N(P))
	D: o(G)
Alt1	A
Alt2	В
Alt3	С
Alt4	D

38	THE COURSE AND ADDRESS OF THE COURSE OF THE
	Let R= C[0, 1] be the ring of real valued continuous functions on [0,1]. Then
	A: $I=\{x\in R: x(1)=0\}$ is an ideal of R.
	B: $I=\{x \in \mathbb{R}: x(0)=1\}$ is an ideal of R.
	C: $I=\{x \in R: x(1/2)=0\}$ is an ideal of R.
	D: $I = \{x \in \mathbb{R}: x(1/2) = 1/2\}$ is an ideal of R.
Alt1	A
Alt2	В
Alt3	С
Alt4	D

39	
	A polynomial $f(x)=x^2-2$ is irreducible over Q and $f(\sqrt{2})=0$ and thus x^2-2 is the minimal
	polynomial of $\sqrt{2}$ over Q and $\deg_{\mathbb{Q}}(\sqrt{2})=2$. Thus $[\mathbb{Q}(\sqrt{2}):\mathbb{Q}]=$
	A: √2
	B: 2
	C: 1
	D: 0
Alt1	1
Alt2	3
Alt3 (
Alt4	



Alt1	A
Alt2	В
Alt3	С
Alt4	D

41	Which one of the following is not a subspace of the vector space of n ×n matrices over a field F. A: The set of all upper (lower) triangular matrices of order n. B: The set of all non-singular (singular) matrices of order n. C: The set of all symmetric (skew-symmetric) matrices of order n. D: The set of all diagonal matrices of order n
Alt1	A
Alt2	В
Alt3	c
Alt4	D

42	Let T be a linear transformation of U into V . If U has finite dimension, then in dimension
	theorem, the rank (T) is
	A: nullity(T).
	B: dim(U)
	C: dim(U) - nullity(T).
	D: dim(U) + nullity(T).
Alt1 A	
Alt2 B	
Alt3 C	
Alt4 D	

43	
	If V is finite dimensional vector space over a field F and if $T \in A(V)$ is non-invertible (singular),
	then there exists an $S \neq 0$ in $A(V)$ such that
	A: ST = 0 and TS = 1
	B: ST = 1 and TS = 0
	C: $ST = TS = 1$
	D: ST = TS = 0
Alt1	
Alt2	В
Alt3	C
Alt4	D

44	Let V be an inner product space over a field F . Then for all $x, y \in V$ and $ \langle x, y \rangle = x \cdot y $ is A: Triangle inequality
	B: Cauchy-Schwarz inequality
	C: Holder's inequality
	D: Minkowski's inequality
Alt1 A	
Alt2 B	
Alt3 C	
Alt4 D	

A: $\sum_{i=1}^{n} \langle v, v_i \rangle ^2 \le v + v_n ^2$
B: $\sum_{i=1}^{n} \langle v, v_i \rangle ^2 \le \ v - v_n\ ^2$
C: $\sum_{i=1}^{n} \langle v, v_i \rangle ^2 \le v ^2$
D: $\sum_{i=1}^{n} \langle v, v_i \rangle ^2 \ge v ^2$

46		
	Mobius transformation takes	
	A: circle into circle	
	B: circle into line	
	C: circle into square	
	D: line into square	
Alt1	A	
Alt2	В	
Alt3	С	
Alt4	D	

Alt3 C

47	If z=a is an isolated singularity of f and $f(z) = \sum_{-\infty}^{\infty} a_n (z-a)^n$ is its Laurent expansion in ann(a; 0, R), then if $a_n = 0$ for n<-1, z=a is A: a pole of order m B: an essential singularity C: isolated singularity
	D: non-isolated singularity
Alt1	A
Alt2	В
Alt3	С
Alt4	D

48	What is the radius of convergence for power series $f(z) = \sum_{n} \frac{1}{n^p} z^n$?
	A: 1
	B: 2
	C: 3
	D: ∞
Alt1	A
Alt2	В
Alt3	С
Alt4	D

49	
$f(z) = \frac{1}{(z)}$	$\frac{\sin z}{z-\pi)^2}$ have the pole of order
A:	1
B:	2
C:	3
D:	0
A + 1 A	
Alt1 A	
Alt2 B	
Alt3 C	
Alt4 D	

50	
	A coin is tossed 5 times and its outcomes are noted in a sequence . The total number of event
	points in this case is
	A: 10
	B: 5
	C: 32
	D: 16
Alt1 A	

51	
	Two cards are drawn at random from a well shuffled pack of 52 playing cards. The probability
	that the both cards are of the same suit is
	A: 4/17
	B: 3/17
	C: 2/17
	D: 1/17
Alt1 A	
Alt2 B	
Alt3 C	
Alt4 D	
5 2	
52	Which of the following distribution does not have mean?
	A: Binomial distribution
	B: Poisson distribution
	C: Cauchy distribution
I	D: Normal distribution

Alt2 B

Alt3 C Alt4 D

53	
	For a free particle (moving)
	A: kinetic energy is always constant
	B: potential energy is always constant
	C: Lagrangian is always constant
	D: Hamiltonian is always constant
1114	
Alt1	
Alt2	В
Alt3	C
Alt4	D

54	
	The number of integral values of k for which the equation 7 $\cos x + 5 \sin x = 2k + 1$ has a solution is
	A: 4
	B: 8
	C: 10
	D: 12
Alt1	A
Alt2	В
Alt3	С
Alt4	D

55	
	For linear congruence equation $ax \equiv b \pmod{m}$, where $d = gcd(a, m)$, if d does note divide b,
	then the equation has
	A: unique solution
	B: no solution
	C: three solution
	D: exactly two solution
Alt1 A	
Alt2 B	

Alt3 C
Alt4 D
•
The common solution of $x \equiv 3 \pmod{5}$ and $x \equiv 4 \pmod{7}$ is
A: $x \equiv 3 \pmod{35}$
B: $x \equiv 4 \pmod{35}$
C: x ≡12(mod 35)
D: x ≡18(mod 35)
Alt1 A
Alt2 B Alt3 C
Alt4 D
·
Forces are called coplanar when all of them acting on body lie in A: parallel planes
B: one position
C: different planes
D: one plane
Alt1 A
Alt2 B
Alt3 C Alt4 D
<u> </u>
Which model follows the changes over time that results from the system activates
A: stationary model
B: analytical model
C: dynamic model
D: numerical model
Alt1 A
Alt2 B

59	
	The angle between the two lines whose direction cosines are given by the equation l+m+n=0
	and $l^2+m^2+n^2=0$ is
	A: $\pi/3$ or $2\pi/3$
	B: $\pi/2$ or $3\pi/2$
	C: $\pi/2$ or $\pi/4$
	D: π or 2π
Alt1	A
Alt2	В
Alt3	С
Alt4	D D

Alt3 C

If the function $x^4 - 62 x^2 + ax + 9$ at x = 1 attains its maximum value in the interval $\begin{bmatrix} 0,2 \end{bmatrix}$, then the value of a.

A: 9

B: 62

C: 120

D: 124

Alt1 A

Alt2 B

Alt3 C

Alt4 D

61		
	Degree of th	ne differential equation $[1+(dy/dx)^3]^{2/3}=2x(d^2y/dx^2)$ is
	A:	2
	B:	3
	C:	4
	D:	6
Alt1	A	
Alt2		
Alt3	С	
Alt4	D	

62	The relation is an implicit solution of the differential equation	$\frac{dy}{dx} = -\frac{x}{y}$ on the
	interval defined by $-5 < x < 5$.	
	A: $x^2 + y^2 + xy = 5$	
	B: $x^2 + y^2 - xy = 5$	
	C: $x^2 - y^2 = 10$	
	D: $x^2 + y^2 = 25$	
Alt1	A	
Alt2	В	
Alt3	С	
Alt4	D	

63	
	What is the Cardinality of the Power set of the set {0, 1, 2}.
	A: 8
	B: 7
	C: 6
	D: 5
Alt1	A
Alt2	
Alt3	С

64	
	Which one of the following is not a bipartite graph
	A: Even cycle
	B: odd cycle
	C: path
	D: tree
Alt1	 A
Alt2	3
Alt3	
Alt4	

The equation of the plane passing through the three non-collinear points with position vectors \vec{a} , \vec{b} , \vec{c} in vector form and \vec{r} is the position vector of an arbitrary point on the plane is

A:
$$[\overrightarrow{r} - \overrightarrow{a}, \overrightarrow{b} - \overrightarrow{a}, \overrightarrow{c} - \overrightarrow{a}] = 0$$

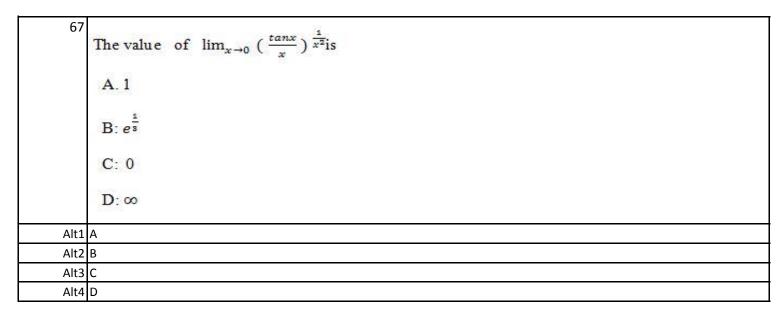
B:
$$(\overrightarrow{r} - \overrightarrow{a}) \cdot (\overrightarrow{b} \times \overrightarrow{a}) = 0$$

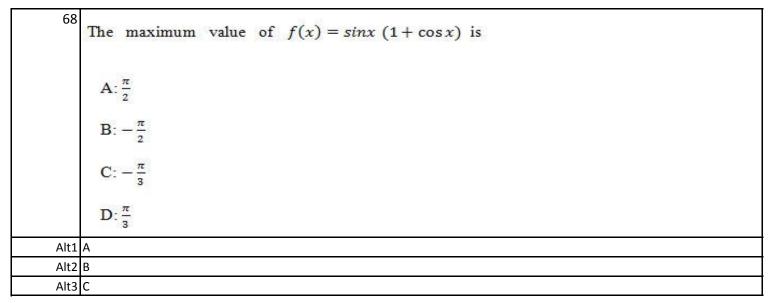
C:
$$[\overrightarrow{r} - \overrightarrow{a}, \overrightarrow{b} - \overrightarrow{a}, \overrightarrow{c}] = 0$$

D:
$$[\overrightarrow{a}, \overrightarrow{b}, \overrightarrow{c}] = 0$$

Alt1	A
Alt2	В
Alt3	С
Alt4	D

66	The Cayley-Hamilton theorem states that
	A: The eigen values of any matrix are linearly independent.
	B: Every square matrix satisfies its own characteristic equation.
	C: The characteristic equation of a matrix admits a non-zero solution
	D: Every characteristic roots of a non-singular matrix are distinct.
Alt1	A
Alt2	В
Alt3	С
Alt4	D





Alt4	

69					
	The	valu e	of .	$\int \frac{dx}{x\cos^2(1+\log\Box x)}$	is

A:
$$\tan (1 - \log x) + c$$
.

B:
$$sec = (1 + log x) + c$$
.

C:
$$cosec = (1 + log x) + c$$
.

D:
$$tan (1 + log x) + c$$
.

ΔΙ	+1	Δ

Alt2 B

Alt3 C

Alt4 D

The value of
$$\int \cos^{-1}(x) dx$$
 is

A:
$$x\cos^{-1}(x) - \sqrt{1 - x^2} + c$$
.

B:
$$x \cos^{-1}(x) + \sqrt{1-x^2} + c$$
.

C:
$$x \sin^{-1}(x) - \sqrt{1 - x^2} + c$$
.

D:
$$x tan^{-1}(x) - \sqrt{1-x^2} + c$$

Alt1 A

Alt2 B

Alt3 C

Alt4 D

The value of
$$\int sech(x) dx$$
 is

A:
$$\cos^{-1}(e^x) + c$$
.

B:
$$sin^{-1} (e^x) + c$$
.

C:
$$2 \tan^{-1}(e^x) + c$$
.

D:
$$tan^{-1}(x) + c$$
.

Alt1 A

Alt2 B

Alt3 C

Alt4	D
72	If the points $(0,-1,\lambda)$, $(4,5,1,)$, $(3,9,4)$ and $(-4,4,4)$, are coplanar, then the value of λ is
	A: 2
	B: 3
	C: -2
	D: -1
Alt1	A
Alt2	
Alt3	C
Alt4	D

73	The equation of the plane passing through the point $(3, -3, 1)$ and
	normal to the join of the points $(3, 4, -1)$ and $(2, -1, 5)$, is
	A: $2x + 4y - 4z + 11 = 0$.
	B: $2x + y - 6z + 15 = 0$.
	C: $x + 5y - 6z + 18 = 0$.
	D: $x + y - 4z + 7 = 0$
Alt1	A
Alt2	В
Alt3	C
Alt4	 D

74	The equation of the sphere with centre at $(1, -1, 2)$ and touching the
	plane $2x - 2y + z = 3$, is
	A: $x^2 + y^2 + z^2 - 2x + 2y - 4z + 5 = 0$.
	B: $x^2 + y^2 + z^2 + 2x + y - 6z + 6 = 0$.
	C: $x^2 + y^2 + z^2 - x + 5y - 6z + 12 = 0$.
	D: $x^2 + y^2 + z^2 + x + y - 4z + 16 = 0$
Alt1	A
Alt2	В
Alt3	С
Alt4	D

75	The value of a such that $\vec{F} = (axy - z^2)\hat{\imath} + (x^2 + 2yz)\hat{\jmath} + (y^2 - axz)\hat{k}$,
	being irrotational is,
	A: -2.
	B: 1.
	C: 2.
	D: -1
Alt1	A
Alt2	В
Alt3	C
Alt4	D

76 If	\vec{A} and \vec{B} are irrotational vectors, then $\vec{A} \times \vec{B}$ is,
A	A: rotational.
I	B: irrotational.
C	C: solenoidal.
I	D: constant.
Alt1 A	
Alt2 B	
Alt3 C	

Alt4	С

77	The	solution	of	the	differential	equation	$\frac{dy}{dx}$	$+\frac{1+y^2}{1+x^2}=0$, is

A:
$$tan^{-1}(y) + sec^{-1}(x) = c$$
.

B:
$$sin^{-1}(y) + tan^{-1}(x) = c$$
.

C:
$$cos^{-1}(y) + tan^{-1}(x) = c$$
.

D:
$$tan^{-1}(y) + tan^{-1}(x) = c$$
.

Α	lt1	A

Alt2 B

Alt3 C

Alt4 D

78							88 88
	The	solution	of	the	differential	equation	$e^{y} dx + (xe^{y} + 2y)dy = 0$, is

$$A: x e^y + y^2 = c.$$

B:
$$x e^y - y^2 = c$$
.

C:
$$ye^x - x^2 = c$$
.

D:
$$ye^x + x^2 = c$$
.

Alt1 A

Alt2 B

Alt3 C

Alt4 D

The singular solution of
$$y = px + a/p$$
, is

A:
$$x^2 + y^2 = a^2$$
.

B:
$$y^2 = 4 a x$$
.

C:
$$x^2 = 4 a y$$
.

D:
$$x^2 - y^2 = a^2$$
.

Δ	t1	Α
\mathbf{A}	L L	м

Alt2 B

Alt3 C

80	The value of $\lim_{x\to\infty} [\sinh^{-1}(x) - \log(x)]$ is A: $\log 2$ B: 1 C: 0. D: ∞ .
Alt1	A
Alt2	В
Alt3	С
Alt4	D

81	If each element of a group G except the identity element is of
	order 2, then
	A: G is a non-abelian group.
	B: G is a Hamiltonian group.
	C: G is an abelian group.
	D: G is an additive group.
Alt1	A
Alt2	
Alt3	c
Alt4	D

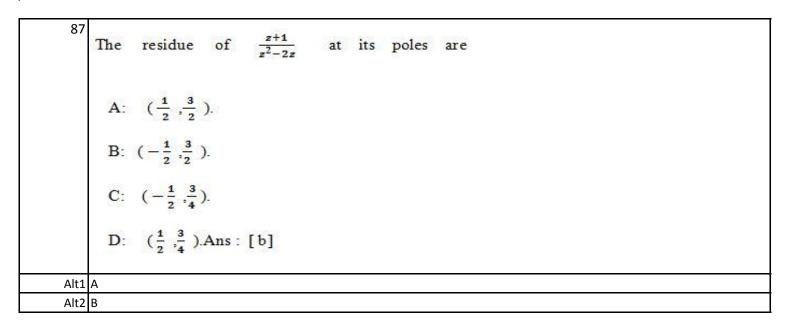
82													
	If	G is	a	finite	group	with	two	conjugate	classes	only,	then	O(G) is	
		A:	1.										
		B:	0.										
		C:	2.										
		D:	∞.										
Alt1	A												
Alt2	В												
Alt3	С												

83	If v_1 and v_2 are elements of an inner product space V, then
	$ (v_1 + v_2) ^2 + (v_1 - v_2) ^2$ is equal to
	A: $2(v_1 ^2 - v_2 ^2)$
	B: $2(v_1 ^2 + v_2 ^2)$
	C: $2(v_1 ^2$
	D: 2(v ₂ ²
Alt1	A
Alt2	В
Alt3	C
Alt4	D

84	If $T: V \to V$ is a linear transformation and $n(T) = dim(ker T)$ and
	$r(T) = \dim [V(T)], \text{ then } r(T)+n(T), \text{ is equal to}$
	A: dim(ker T).
	B: dim [V(T)].
	С: ф
	D: dim (V).
Alt1	Α
Alt2	В
Alt3	С
Alt4	D

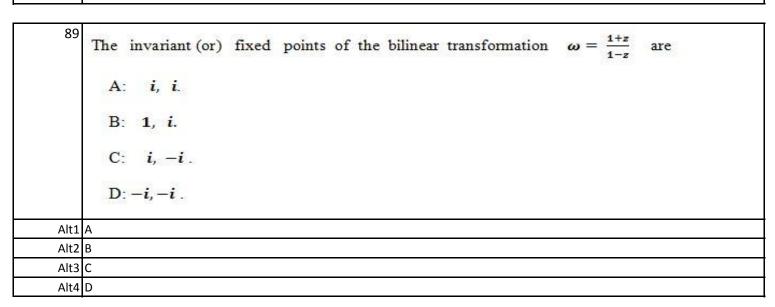
85	If C is the field of complex numbers, then the vectors (a_1,a_2) and $(b_1,\ b_2)$ in $\mathbf{V}_2\mathbf{C}$; are linearly dependent if A: $a_1\ b_2+a_2b_1=0$. B: $a_1\ b_2+a_2b_1\neq 0$. C: $a_1\ b_2-a_2b_1=0$. D: $a_1\ a_2+b_1b_2\neq 0$,
Alt1	A
Alt2	В
Alt3	C
Alt4	D

86	The value of $c^{\int \frac{e^z}{z} dz}$, where C is the unit circle $ z = 1$, is A: $2\pi i$. B: πi C: 1. D: $1 + \pi i$.
Alt1	2020 C 41 80 C 20 C 20 C
Alt2	В
Alt3	С
Alt4	D



Alt3	С
Alt4	D

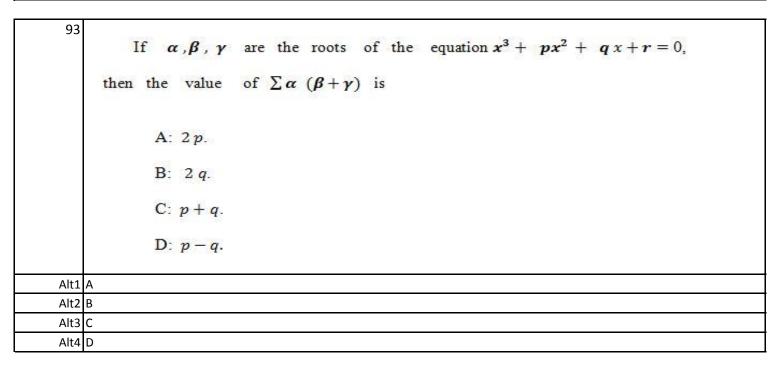
88	If the	function	$u(x,y)=ax^2-y^2$	+ xy , is	harmonic,	then	the	value
	of a , is							
	A:	0.						
	B:	-1.						
	C:	-2 .						
	D:	1.						
Alt1	A							
Alt2	В							
Alt3	С							
Alt4	D							_



90	P and Q are two unlike parallel forces. When P is doubled, it is
	found that the line of action of Q is midway between the lines of
	action of P and the new resultant. Then P:Q is
	A: 1 : 4.
	B: 2 : 1.
	C: 2 : 3.
	D: 3 : 2.
Alt1	A
Alt2	В
Alt3	С
Alt4	D

91	For a particle executing a Simple Harmonic Motion, the period required to move from the position of maximum displacement to one in which the displacement is one-half the amplitude, is A: $\frac{1}{4}$ (period). B: $\frac{1}{2}$ (period).
	C: $\frac{1}{3}$ (period).
	D: $\frac{1}{6}$ (period).
Alt1	A
Alt2	В
Alt3	C
Alt4	

92	If one of the roots of the equation $3x^5 - 4x^4 - 42x^3 + 56x^2 + 27x - 36 = 0, \text{ is } \sqrt{2} + \sqrt{5}, \text{ then the roots}$ of the equation are $A: \pm \sqrt{2} \pm \sqrt{5}, \frac{3}{4}.$ $B: \pm \sqrt{2} \pm \sqrt{5}, \frac{1}{4}.$ $C: \pm \sqrt{2} \pm \sqrt{5}, \frac{4}{3}.$ $D: \pm \sqrt{2} \pm \sqrt{5}, \frac{3}{2}.$
Alt1	A A
Alt2	
Alt3	С
Alt4	D



94	The probability that a company director will travel by train is $\frac{1}{5}$ and
	byplane is $\frac{2}{3}$. The probability of his travel by train or plane is,
	A: $\frac{1}{6}$.
	$B: \frac{3}{5}$.
	$C:\frac{13}{15}$.
	$D:\frac{3}{7}$.
Alt1	A A
Alt2	В
Alt3	С
Alt4	D

95	The two regression equations of the variables x and y are $x = 19.13 - 0.87 y$ and $y = 11.64 - 0.50 x$. Then mean of x and mean of y are
	A: 10.20, 11.04.
	B: 15.79, 3.74.
	C: 2.70, 3.40.
	D: 6.00, 4.00.
Alt1 A	
Alt2 B	
Alt3 C	
Alt4 D	

96	
	The sequence $\{a_n\}$ defined by $a_1 = \frac{3}{2} a_{n+1} = 2 - \frac{1}{a_n}$, for all $n \ge 1$, is
	convergent, then the limit of the sequence is,
	A: 0
	B: -1
	C: 1
	D: 2
Alt1	A
Alt2	
Alt3	C
Alt4	D

97	The series $\frac{1}{1+x} + \frac{x}{1+x^2} + \frac{x^2}{1+x^3} + \cdots$ to ∞ A: converges if $x > 1$ and diverges if $x \le 1$. B: converges if $x > 1$. C: converges if $x < 1$ and diverges if $x \ge 1$. D: diverges if $x < 1$.
Alt1	A
Alt2	В
Alt3	С
Alt4	D

98	The function $f:(0,2)\to \mathbb{R}$ defined by $f(x)= x-1 $, is
	A: continuous at $x = 1$ and differentiable at $x = 1$.
	B: not continuous at $x = 1$ and differentiable at $x = 1$.
	C: not continuous at $x = 1$ and not differentiable at $x = 1$.
	D: continuous at $x = 1$ and not differentiable at $x = 1$.
Alt1	A
Alt2	В

Alt3	C
Alt4	D
99	::
	A body originally at 80°C cools down to 60°C in 20 minutes, the temperature
	of the air being 40°C. The temperature of the body after 40 minutes from the
	original is
	A: 45°C.
	B: 50°C.
	C: 53°C.
	D: 48°C

Alt1 A
Alt2 B
Alt3 C
Alt4 D

100		in a certai	n culture	increase at	a rate pr	oportional	to the n	umber
	present. It	f the number	r N incre	eases from	1000 to 2	2000 in 1	hour. At	the
	end of 1	.5 hours, the	number	of bacteria	present	is		
	A :	2256.76						
	B :	2356.76						
	C:	2828.42						
	D:	2528.42						
Alt1	A							
Alt2	В							
Alt3	С							
Alt4	D							