IMU CET UG
Technical

Previous Year Paper
(B.Tech,B.Sc.,DNS)
2024

IMU CET 2024

UG Technical Courses(B.Tech,B.Sc.,DNS)

Question: 1
Itemcode: EB1001

INSTRUCTION : Fill in the blanks in the sentences given below, choosing an appropriate word from the answer choices provided under each sentence. He is greatly admired for his _____ behaviour.	
A	decorous
B	decadent
C	decorative
D	decrepit
Correct Ans	**A**

Question: 2
Itemcode: EB1002

INSTRUCTION : Fill in the blanks in the sentences given below, choosing an appropriate word from the answer choices provided under each sentence. When the bus was at full speed, its brakes failed and an accident was _____.	
A	inevitable
B	infallible
C	essential
D	undeniable
Correct Ans	**A**

Question: 3
Itemcode: EB1003

INSTRUCTION : Fill in the blanks in the sentences given below, choosing an appropriate word from the answer choices provided under each sentence. He is working under such conditions that it is _____ for him to maintain his self-respect.	
A	low
B	inimical
C	difficult
D	humiliating
Correct Ans	**C**

Question: 4
Itemcode: EB1004

INSTRUCTION : Fill in the blanks in the sentences given below, choosing an appropriate word from the answer choices provided under each sentence. Sheela had a cold and could not go to the party, so I bought her a cake to make up for her _____.	
A	depression

B	disillusion
C	disgust
D	disappointment
Correct Ans	**D**

Question: 5
Itemcode: EB1005

INSTRUCTION : Fill in the blanks in the sentences given below, choosing an appropriate word from the answer choices provided under each sentence. Would you mind _____ to the principal how the trouble started?	
A	remarking
B	telling
C	talking
D	explaining
Correct Ans	**D**

Question: 6
Itemcode: EB1006

INSTRUCTION : Fill in the blanks in the sentences given below, choosing an appropriate word from the answer choices provided under each sentence. The sound of the running water in the stream had a pleasantly _____ effect on me.	
A	somnolent
B	loud
C	amusing
D	sonorous
Correct Ans	**D**

Question: 7
Itemcode: EB1007

INSTRUCTION : In each of the following questions, out of the four alternatives, choose the one which can be substituted for the given word/phrase/sentence A statement that is absolutely clear	
A	clean
B	confused
C	ambiguous
D	unequivocal
Correct Ans	**D**

Question: 8
Itemcode: EB1008

INSTRUCTION : In each of the following questions, out of the four alternatives, choose the one which can be substituted for the given word/phrase/sentence Person who abstains from all alcoholic drinks	
A	teetotaler
B	ambitious

C	abscond
D	escape
Correct Ans	**A**

Question: 9
Itemcode: EB1009

INSTRUCTION : In each of the following questions, out of the four alternatives, choose the one which can be substituted for the given word/phrase/sentence Easy to shape in desired form	
A	malleable
B	stiff
C	rigid
D	brittle
Correct Ans	**A**

Question: 10
Itemcode: EB1010

INSTRUCTION : In each of the following questions, out of the four alternatives, choose the one which can be substituted for the given word/phrase/sentence Lasting only for a very short time	
A	transient
B	enduring
C	enticing
D	lasting
Correct Ans	**A**

Question: 11
Itemcode: EB1011

INSTRUCTION : In each of the following questions, out of the four alternatives, choose the one which can be substituted for the given word/phrase/sentence Person leading a life of strict self discipline	
A	elaborate
B	encouraging
C	ascetic
D	indulgent
Correct Ans	**C**

Question: 12
Itemcode: EB1012

INSTRUCTION : In each of the following questions, out of the four alternatives, choose the one which can be substituted for the given word/phrase/sentence Medicine used to calm or pacify	
A	hypnotic
B	antidepressant
C	tranquillizer

D	fusion
Correct Ans	**C**

Question: 13
Itemcode: EB1013

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word nearest in meaning to the underlined word. The import of technology is an alternative to indigenous technology has not been discussed fully.	
A	aboriginal
B	indigent
C	terrestrial
D	native
Correct Ans	**D**

Question: 14
Itemcode: EB1014

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word nearest in meaning to the underlined word. Some people are extremely fastidious in their choice of dress.	
A	careless
B	pompous
C	fussy
D	discriminating
Correct Ans	**C**

Question: 15
Itemcode: EB1015

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word nearest in meaning to the underlined word. The number of aboriginal inhabitants in Africa is very large.	
A	unoriginal
B	irrational
C	primitive
D	ancient
Correct Ans	**C**

Question: 16
Itemcode: EB1016

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word nearest in meaning to the underlined word. He is being treated for his somnolence.	
A	sleepiness
B	weakness
C	intoxication
D	hardness
Correct Ans	**A**

Question: 17
Itemcode: EB1017

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word nearest in meaning to the underlined word. People who smoke stand greater chance of getting cancer than those who abstain.	
A	refuse
B	refrain
C	accept
D	teetotaler
Correct Ans	**B**

Question: 18
Itemcode: EB1018

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word nearest in meaning to the underlined word. A sumptuous dinner was served after the meeting.	
A	expensive
B	lavish
C	indigestible
D	very light
Correct Ans	**B**

Question: 19
Itemcode: EB1019

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word nearest in meaning to the underlined word. Illnesses are prevalent in ageing population.	
A	incurable
B	commonly occurring
C	infectious
D	curable
Correct Ans	**B**

Question: 20
Itemcode: EB1020

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word which is closest to the opposite in meaning of the underlined word. The soldier was greatly praised for his valor.	
A	Clumsiness
B	Cowardice
C	Selfishness
D	Tactlessness
Correct Ans	**B**

Question: 21
Itemcode: EB1021

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word which is closest to the opposite in meaning of the underlined word. She always organizes lavish parties on birthdays.	
A	Frugal
B	Decent
C	Cheap
D	Strange
Correct Ans	**A**

Question: 22
Itemcode: EB1022

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word which is closest to the opposite in meaning of the underlined word. Gandhiji always advocated indigenous goods.	
A	Cheap
B	Native
C	Silly
D	Foreign
Correct Ans	**D**

Question: 23
Itemcode: EB1023

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word which is closest to the opposite in meaning of the underlined word. Giving alms to the poor is considered holy.	
A	Horrible
B	Obnoxious
C	Profane
D	Offensive.
Correct Ans	**C**

Question: 24
Itemcode: EB1024

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word which is closest to the opposite in meaning of the underlined word. He abdicated his post of his own accord.	
A	Acquired
B	Inherited
C	Seized
D	Usurped
Correct Ans	**D**

Question: 25
Itemcode: EB1025

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word which is closest to the opposite in meaning of the underlined word. He climbed up a stationary wagon.	
A	Moving
B	Speeding
C	Shunting
D	Standing
Correct Ans	**A**

Question: 26
Itemcode: EB1026

INSTRUCTION : In the following sentences given below, a word is underlined. For each of the underlined word, 4 words are listed below each sentence. Choose the word which is closest to the opposite in meaning of the underlined word. He has a superficial knowledge of the subject.	
A	Wide
B	Profound
C	Sufficient
D	Excessive
Correct Ans	**B**

Question: 27
Itemcode: EB1027

INSTRUCTION : In each of the following questions, a sentence has been given in Active (or Passive) Voice. Out of the four alternatives suggested select the one which best expresses the same sentence in Passive (or Active) voice. Admittance was refused to him by the airport security.	
A	The airport security is refusing him admittance.
B	The airport security has refused him admittance.
C	The airport security had refused him admittance.
D	The airport security refused him admittance.
Correct Ans	**D**

Question: 28
Itemcode: EB1028

INSTRUCTION : In each of the following questions, a sentence has been given in Active (or Passive) Voice. Out of the four alternatives suggested select the one which best expresses the same sentence in Passive (or Active) voice. The manager explained the latest assignment to Lana.	
A	The latest assignment was explained to Lana by the manager.
B	The latest assignment had explained to Lana by the manager.
C	The latest assignment had been explained to Lana by the manager.
D	The latest assignment had been explain to Lana by the manager.
Correct Ans	**A**

Question: 29
Itemcode: EB1029

INSTRUCTION : In each of the following questions, a sentence has been given in Active (or Passive) Voice. Out of the four alternatives suggested select the one which best expresses the same sentence in Passive (or Active) voice. Robin rolled the marble through a small plastic pipe.	
A	The marble was rolled by Robin in a small plastic pipe.
B	A small plastic pipe was rolled through a marble by Robin.
C	The marble was rolled through a small plastic pipe by Robin.
D	The marble through a small plastic pipe was rolled by Robin.
Correct Ans	**C**

Question: 30
Itemcode: EB1030

INSTRUCTION : In each of the following questions, a sentence has been given in Active (or Passive) Voice. Out of the four alternatives suggested select the one which best expresses the same sentence in Passive (or Active) voice. Shalu has ordered new copies of the album.	
A	New copies of the album have being ordered by Shalu.
B	New copies of the album has been ordered by Shalu.
C	New copies of the album has been order by Shalu.
D	New copies of the album have been ordered by Shalu.
Correct Ans	**D**

Question: 31
Itemcode: EB1031

INSTRUCTION : In each of the following questions, a sentence has been given in Active (or Passive) Voice. Out of the four alternatives suggested select the one which best expresses the same sentence in Passive (or Active) voice. Was the message given by him?	
A	Was he given the message?
B	Does he give the message?
C	Did he gave the message?
D	Did he give the message?
Correct Ans	**D**

Question: 32
Itemcode: EB1032

INSTRUCTION : Complete the sentences with suitable alternatives. I _____ working all afternoon and have just finished the assignment.	
A	have been
B	had been
C	shall be
D	am
Correct Ans	**B**

Question: 33
Itemcode: EB1033

INSTRUCTION : Complete the sentences with suitable alternatives. Joseph _____ by everyone after he won the competition.	
A	was congratulated
B	congratulate
C	shall be congratulated
D	have been congratulated
Correct Ans	**A**

Question: 34
Itemcode: EB1034

INSTRUCTION : Complete the sentences with suitable alternatives. By the time she was fifteen, she _____ a beautiful singer.	
A	shall become
B	become
C	had become
D	has becoming
Correct Ans	**C**

Question: 35
Itemcode: EB1035

INSTRUCTION : Complete the sentences with suitable alternatives. The quality of products _____ over time.	
A	are degrading
B	has been degrading
C	have degrading
D	were degraded
Correct Ans	**B**

Question: 36
Itemcode: EB1036

INSTRUCTION : Complete the sentences with suitable alternatives. Had our flights been on time, we _____ reached by now.	
A	could have
B	would have
C	might have
D	need to
Correct Ans	**B**

Question: 37
Itemcode: EB1037

INSTRUCTION : Complete the sentences with suitable alternatives. There's not much time left. I _____ start packing for the tour.

A	need to
B	might
C	can
D	Could
Correct Ans	**A**

Question: 38
Itemcode: EB1038

INSTRUCTION : Complete the sentences with suitable alternatives. The director congratulated Mr. Verma _____ his success.	
A	on
B	for
C	at
D	about
Correct Ans	**A**

Question: 39
Itemcode: EB1039

INSTRUCTION : Complete the sentences with suitable alternatives. Dr. Sharma concluded his speech _____ stressing on Buddha's teaching of the importance of charity.	
A	by
B	with
C	at
D	in
Correct Ans	**A**

Question: 40
Itemcode: EB1040

INSTRUCTION : Complete the sentences with suitable alternatives. Unfortunately, we had to cancel it owing_____ the bad weather.	
A	in
B	to
C	of
D	about
Correct Ans	**B**

Question: 41
Itemcode: GA1001

Spot the Odd one out:	
A	Abandon
B	Desert
C	Pardon
D	Leave
Correct Ans	**C**

Question: 42
Itemcode: GA1002

Spot the Odd one out:	
A	Imitate
B	Mimic
C	Copy
D	Glorify
Correct Ans	**D**

Question: 43
Itemcode: GA1003

Spot the Odd one out :	
A	Explain
B	Educate
C	Instruct
D	Teach
Correct Ans	**C**

Question: 44
Itemcode: GA1004

Spot the Odd one out : 144, 289, 312, 625	
A	144
B	289
C	312
D	625
Correct Ans	**C**

Question: 45
Itemcode: GA1005

Spot the Odd one out: 105, 168 , 231 , 281	
A	105
B	168
C	281
D	231
Correct Ans	**C**

Question: 46
Itemcode: GA1006

INSTRUCTION : Choose the most appropriate option to fill in the blanks Reading is to Knowledge as _____ is to Experience	
A	Working
B	Job
C	Training

D	Travelling
Correct Ans	**A**

Question: 47
Itemcode: GA1007

INSTRUCTION : Choose the most appropriate option to fill in the blanks Punishment is related to Crime in the same way as Reprimand is related to _____	
A	Mistake
B	Blunder
C	Argument
D	Absence
Correct Ans	**A**

Question: 48
Itemcode: GA1008

INSTRUCTION : Choose the most appropriate option to fill in the blanks Pendulum is related to Clock in the same way as _____ is related to Compass	
A	Needle
B	Magnet
C	Direction
D	Ship
Correct Ans	**B**

Question: 49
Itemcode: GA1009

INSTRUCTION : Choose the pair, the items of which bear the same relationship- between them as the relationship between the items of the pair, given at the top of each question Sweet and Honey	
A	Salty and lemon
B	Bitter and Lemon
C	Ripe and Lemon
D	Sour and Lemon
Correct Ans	**D**

Question: 50
Itemcode: GA1010

INSTRUCTION : Choose the pair, the items of which bear the same relationship- between them as the relationship between the items of the pair, given at the top of each question Kelvin and Celsius	
A	Kilometer and Distance
B	Kilometer and Mile
C	Kilometer and Hour
D	Kilometer and meter
Correct Ans	**B**

Question: 51
Itemcode: GA1011

INSTRUCTION : Choose the pair, the items of which bear the same relationship- between them as the relationship between the items of the pair, given at the top of each question Manager and Office	
A	Doctor and Patient
B	Curator and Museum
C	Bank and Account
D	Fruit and Seed
Correct Ans	**B**

Question: 52
Itemcode: GA1012

INSTRUCTION : Write the number next in the series 2, 15, 41, 80, ___	
A	132
B	122
C	142
D	130
Correct Ans	**A**

Question: 53
Itemcode: GA1013

INSTRUCTION : Write the number next in the series 5, 20, 80, 320, 1280, _____	
A	5420
B	5120
C	4200
D	1680
Correct Ans	**B**

Question: 54
Itemcode: GA1014

INSTRUCTION : Choose the response which provides the answer for the following If 5 x 8 x 4 = 473 and 9 x 2 x 7 = 816 , Then 6 x 1 x 3 = _____	
A	845
B	510
C	596
D	502
Correct Ans	**D**

Question: 55
Itemcode: GA1015

INSTRUCTION : Choose the response which provides the answer for the following

If 19 x 11 = 180 , 15 x 12 = 130 then 25 x 13 =	
A	230
B	210
C	220
D	200
Correct Ans	**C**

Question: 56
Itemcode: GA1016

INSTRUCTION : Choose the response that will continue the given series 1, 2, 6, 15, 31	
A	56
B	58
C	54
D	62
Correct Ans	**A**

Question: 57
Itemcode: GA1017

INSTRUCTION : Choose the response that will continue the given series 5625, 1125, 225, 45	
A	15
B	11
C	9
D	13
Correct Ans	**C**

Question: 58
Itemcode: GA1018

INSTRUCTION : Choose the response that will continue the given series 48, 24, 12, 6	
A	4
B	3
C	2
D	1
Correct Ans	**B**

Question: 59
Itemcode: GA1019

INSTRUCTION : Choose the most appropriate response If the word "DELHI" is written as CDKGH , then KOCHI is written as	
A	JNHGB
B	JNBGH
C	NJHBG

D	JNBCD
Correct Ans	**B**

Question: 60
Itemcode: GA1020

INSTRUCTION : Choose the most appropriate response If the word SLAVE is written as UNCXG, then DIRECT is written as	
A	FTKGVE
B	FKTGVE
C	FTKVGE
D	FKTGEV
Correct Ans	**D**

Question: 61
Itemcode: GA1021

Global warming is increasing due to increasing concentration of	
A	Ozone
B	Carbon di oxide
C	Nitrogen
D	Sulphur di oxide
Correct Ans	**B**

Question: 62
Itemcode: GA1022

When a body is taken from the earth to the moon its weight	
A	Increases
B	Decreases
C	No change
D	None of the above
Correct Ans	**B**

Question: 63
Itemcode: GA1023

The name of India's first manned human space mission is	
A	Chandrayaan
B	Gaganyaan
C	Aditya
D	None of the above
Correct Ans	**B**

Question: 64
Itemcode: GA1024

The militant attack on shipping traffic in the Red sea is by	
A	Al Qaeda militants
B	Somali militants

C	Houthi militants
D	None of the above
Correct Ans	**C**

Question: 65
Itemcode: GA1025

National Maritime Day is celebrated on	
A	05 Apr
B	18 May
C	04 Dec
D	20 Sep
Correct Ans	**A**

Question: 66
Itemcode: GA1026

The Indian coast line is approximately	
A	7516 kms
B	7016 kms
C	8016 kms
D	6516 kms
Correct Ans	**A**

Question: 67
Itemcode: GA1027

The Vice President of India is	
A	Shri Ramesh Bias
B	Shri Mallikarjun Kharge
C	Shri Jagdeep Dhankhar
D	None of the above
Correct Ans	**C**

Question: 68
Itemcode: GA1028

Sagarmala Programme is related to	
A	Development of Indian Ports and Infrastructure
B	Development of Rail Infrastructure
C	Gati shakti
D	Air cargo movement
Correct Ans	**A**

Question: 69
Itemcode: GA1029

Which among the following countries is not a member of BIMSTEC?	
A	Bangladesh
B	Indonesia

C	Myanmar
D	Bhutan
Correct Ans	**B**

Question: 70
Itemcode: GA1030

The number of teams taking part in IPL 2024 is	
A	8
B	12
C	6
D	10
Correct Ans	**D**

Question: 71
Itemcode: GA1031

The deepest trench in the world is	
A	Kuril Kamchatka Trench
B	Mariana Trench
C	Bermuda triangle
D	Philippine Trench
Correct Ans	**B**

Question: 72
Itemcode: GA1032

Which among the following is not a source of renewable energy	
A	Solar
B	Wind
C	Hydro electric
D	Nuclear
Correct Ans	**D**

Question: 73
Itemcode: GA1033

The full form of MAKV 2047 is	
A	Maritime Amrit Kaal Vision 2047
B	Marine Area Kartavya View 2047
C	Maritime Area Kartavya vision 2047
D	None of the above
Correct Ans	**A**

Question: 74
Itemcode: GA1034

The speed of a ship is measured in	
A	Metres per sec
B	Km per hour

C	Knots
D	Mach
Correct Ans	**C**

Question: 75
Itemcode: GA1035

The Panama Canal links the	
A	Atlantic ocean with the Indian Ocean
B	Atlantic Ocean with the Pacific Ocean
C	Indian ocean with the Pacific Ocean
D	None of the above
Correct Ans	**B**

Question: 76
Itemcode: GA1036

The speed of wind is measured by	
A	Wind vane
B	Windmill
C	Pitot Tube
D	Anemometer
Correct Ans	**D**

Question: 77
Itemcode: GA1037

A solar eclipse occurs when	
A	The moon passes between the earth and the sun
B	Earth passes between the Sun and the Moon
C	Earth, Sun and Moon are at right angles
D	None of the above
Correct Ans	**A**

Question: 78
Itemcode: GA1038

The author of the book " My Experiments with Truth " is	
A	Jawaharlal Nehru
B	Daniel Steele
C	Graham Greene
D	Mohandas Karamchand Gandhi
Correct Ans	**D**

Question: 79
Itemcode: GA1039

Wet bulb and dry bulb thermometer are used to determine	
A	the minimum temperature at a place in a 24 hour period
B	Relative Humidity

C	Air pressure
D	the maximum temperature at a place in a 24 hour period
Correct Ans	**B**

Question: 80
Itemcode: GA1040

When a ship enters sea water from fresh water, due to change in density it will	
A	Remain at the same level
B	Float at higher level
C	Float at lower level
D	None of the above
Correct Ans	**B**

Question: 81
Itemcode: MA1001

The domain of the function $f(x) = \frac{1}{\log_{10}(1-x)} + \sqrt{x+2}$ is	
A	$[-2,0) \cap (0,1)$
B	[-2,1)
C	[-2,0)
D	$[-2,0) \cup (0,1)$
Correct Ans	**D**

Question: 82
Itemcode: MA1002

If the straight line 2x-3y+17=0 is perpendicular to the line passing through the points (7,17) and (15,β), then β equals	
A	-5
B	5
C	29
D	-29
Correct Ans	**B**

Question: 83
Itemcode: MA1003

If A is a skew symmetric matrix, then A^{2024} is	
A	Row matrix
B	Column matrix
C	Symmetric matrix
D	Skew symmetric matrix
Correct Ans	**C**

Question: 84
Itemcode: MA1004

If the vertices of a triangle are (-2,6),(3,-6) and (1,5), then the area of the triangle is	
A	40 sq. units

B	15.5 sq. units
C	30 sq. units
D	35 sq. units
Correct Ans	**B**

Question: 85
Itemcode: MA1005

If $A_n = \begin{bmatrix} 1-n & n \\ n & 1-n \end{bmatrix}$ then $\lvert A_1 \rvert + \lvert A_2 \rvert + ... + \lvert A_{2024} \rvert$ =	
A	-2024
B	$-(2024)^2$
C	$(2024)^2$
D	4048
Correct Ans	**B**

Question: 86
Itemcode: MA1006

The angle between the pair of lines The order of the matrix $\begin{bmatrix} 1 & 2 & 3 \end{bmatrix} \begin{bmatrix} 1 & 2 \\ 3 & 1 \\ 1 & -1 \end{bmatrix} \begin{bmatrix} 1 & 1 & -1 \\ 3 & 1 & 2 \end{bmatrix}$ is is	
A	$\theta = \cos^{-1}\left[\frac{31\sqrt{42}}{210}\right]$
B	$\theta = \cos^{-1}\left[\frac{8\sqrt{3}}{15}\right]$
C	$\theta = \cos^{-1}\left[\frac{19}{210}\right]$
D	$\theta = \cos^{-1}\left[\frac{5\sqrt{3}}{16}\right]$
Correct Ans	**A**

Question: 87
Itemcode: MA1007

The sum of the degree and order of the differential equation $(1+y_1^2)^{2/5} = y_2$ is	
A	4
B	6
C	5
D	7
Correct Ans	**D**

Question: 88
Itemcode: MA1008

If $\int \frac{dx}{(x+2)(x^2+1)} = a\log\lvert 1+x^2\rvert + b\tan^{-1} x + \frac{1}{5}\log\lvert x+2\rvert + c$, then

A	$a = \frac{-1}{10} b = \frac{2}{5}$
B	$a = \frac{1}{10} b = \frac{2}{5}$
C	$a = \frac{-1}{10} b = \frac{-2}{5}$
D	$a = \frac{1}{10} b = \frac{-2}{5}$
Correct Ans	**A**

Question: 89
Itemcode: MA1009

If $\lvert\vec{a}\rvert = 2$ and $\lvert\vec{b}\rvert = 3$ and the angle between $\vec{a}$ and $\vec{b}$ is 120^o, then the length of the vector $\left\lvert\frac{\vec{a}}{2} - \frac{\vec{b}}{3}\right\rvert^2$ is	
A	2
B	3
C	1/6
D	1
Correct Ans	**B**

Question: 90
Itemcode: MA1010

If If $f(x) = \frac{x+1}{x-1}$, then $f(f(x))$ is at (1,1) is equal to	
A	0
B	1/2
C	-1/2
D	-1/4
Correct Ans	**A**

Question: 91
Itemcode: MA1011

If 3x + i(4x - y) = 9 + i where x and y are real numbers, then the values of x and y are respectively,	
A	3,11
B	11,3
C	2,11
D	11,2
Correct Ans	**A**

Question: 92
Itemcode: MA1012

If a line makes the angle α, β, γ with three-dimensional coordinate axes respectively, then $cos2\alpha + cos2\beta + cos2\gamma =$	
A	-2

B	-1
C	1
D	2
Correct Ans	**B**

Question: 93
Itemcode: MA1013

If $a_1, a_2, a_3, ..., a_{10}$ is a geometric progression and $a_3/a_1 = 36$, then a_7/a_3 equals	
A	$3(6^2)$
B	6^4
C	6^3
D	$2(6^2)$
Correct Ans	**B**

Question: 94
Itemcode: MA1014

If A and B are two events such that P(A) = 1/2, P(B) = 1/3 and P(A|B) = 1/4, then P(A' ∩ B') is	
A	1/4
B	3/16
C	1/12
D	3/4
Correct Ans	**A**

Question: 95
Itemcode: MA1015

If $f: R \to R$ be defined by $f(x) = \begin{cases} 5x & : \ x > 3 \\ x^3 & : \ 1 < x \leq 3 \\ 3x & : \ x \leq 1 \end{cases}$ then $f(-1) + f(2) + f(4)$ is	
A	25
B	16
C	9
D	36
Correct Ans	**A**

Question: 96
Itemcode: MA1016

A forester wants to plant 66 apple trees, 88 banana trees and 110 mango trees in equal rows (in terms of number of trees). Also he wants to make distinct rows of trees (i.e., only one type of trees in one row). The number of minimum rows required are	
A	2
B	3
C	10
D	12
Correct Ans	**D**

Question: 97
Itemcode: MA1017

If The integrating factor of the differential equation $\frac{1}{\cos x}\frac{dy}{dx}+\frac{1}{\sin x}y=1$ is then the value of x is	
A	$\frac{\sqrt{5}+\sqrt{2}}{9}$
B	$\frac{\sqrt{5}+4\sqrt{2}}{9}$
C	$\frac{\sqrt{5}+2\sqrt{2}}{9}$
D	None of the above
Correct Ans	**B**

Question: 98
Itemcode: MA1018

The number of integral points (integral point means both the coordinates should be integer) that lie exactly in the interior of the triangle with vertices (0,0), (0,21),(21,0) is	
A	133
B	190
C	233
D	105
Correct Ans	**B**

Question: 99
Itemcode: MA1019

If n(A) = 2 and n(B ⋃ C) = 3, then n[(A x B)⋃(A x C)] is	
A	8
B	9
C	6
D	5
Correct Ans	**C**

Question: 100
Itemcode: MA1020

A five digit number divisible by 3 is to be formed using the numbers 0,1,2,3,4 and 5 without repetitions. The total number of ways this can be done is	
A	240
B	3125
C	216
D	600
Correct Ans	**C**

Question: 101
Itemcode: MA1021

The abscissa of the point on the curve $f(x)=\sqrt{8-2x}$ at which the slope of the tangent is -1/4 is

A	-8
B	-4
C	-2
D	0
Correct Ans	**B**

Question: 102
Itemcode: MA1022

The value of $\int_0^{\pi} \sin^4 x \, dx$ is	
A	$3\pi/8$
B	$3\pi/10$
C	$3\pi/4$
D	$3\pi/2$
Correct Ans	**A**

Question: 103
Itemcode: MA1023

The area between $y^2 = 4x$ and its latus rectum is	
A	2/3
B	4/3
C	8/3
D	5/3
Correct Ans	**C**

Question: 104
Itemcode: MA1024

The integrating factor of the differential equation $\frac{dy}{dx}$ + p(x)y = Q(x) is x, then p(x) is	
A	x
B	$x^2/2$
C	1/x
D	$1/x^2$
Correct Ans	**C**

Question: 105
Itemcode: MA1025

The radius of the circle $3x^2 + by^2 + 4bx - 6by + b^3 = 0$ is	
A	1
B	3
C	2
D	$\sqrt{11}$
Correct Ans	**C**

Question: 106
Itemcode: MA1026

From the top of a cliff 50 m high, the angles of depression of the top and bottom of a tower are observed to be 30^o and 45^o. The height of the tower in metres is	
A	50
B	$50\sqrt{3}$
C	$50\sqrt{3-1}$
D	$50\left(1-\frac{\sqrt{3}}{3}\right)$
Correct Ans	**D**

Question: 107
Itemcode: MA1027

The coordinates of the foot of the perpendicular drawn from the point (2,5,7) on the x-axis are given by	
A	(2,0,0)
B	(0,5,0)
C	(0,0,7)
D	(0,5,7)
Correct Ans	**A**

Question: 108
Itemcode: MA1028

$\int e^x \left(\frac{1-x}{1+x^2}\right)^2 dx$ is equal to	
A	$\frac{5\pi}{6}$
B	$\frac{\pi}{6}$
C	$-\frac{5\pi}{6}$
D	$\frac{-e^x}{(1+x^2)^2}+C$
Correct Ans	**A**

Question: 109
Itemcode: MA1029

The value of λ for which the two vectors $2\hat{i}-\hat{j}+2\hat{k}$ and $3\hat{i}+\lambda\hat{j}+\hat{k}$ are perpendicular is	
A	2
B	4
C	6
D	8
Correct Ans	**D**

Question: 110
Itemcode: MA1030

Corner points of the feasible region for an LPP are (0,2),(3,0),(6,0),(6,8) and (0,5). Let F = 4x + 6y be the objective function. The Minimum value of F occurs at	
A	(0,2) only
B	(3,0) only
C	the mid point of the line segment joining the points (0,2) and (3,0) only
D	any point on the line segment joining the points (0,2) and (3,0).
Correct Ans	**D**

Question: 111
Itemcode: MA1031

Five sticks of length 1,3,5,7 and 9 feet are given. Three of these sticks are selected at random. What is the probability that the selected sticks can from a triangle?	
A	0.5
B	0.4
C	0.3
D	0.1
Correct Ans	**C**

Question: 112
Itemcode: MA1032

If A is matrix of order m x n and B is a matrix such that AB' and B'A are both defined, then order of matrix B is	
A	m x m
B	n x n
C	n x m
D	m x n
Correct Ans	**D**

Question: 113
Itemcode: MA1033

Let us define a relation R in **R** as aRb if a $\geq$ b. Then R is	
A	an equivalence relation
B	reflexive, transitive but not symmetric
C	symmetric, transitive but not reflexive
D	neither transitive nor reflexive but symmetric.
Correct Ans	**B**

Question: 114
Itemcode: MA1034

The value of $\sin(45^o + \theta) - \cos(45^o - \theta)$ is	
A	$2\cos\theta$
B	$2\sin\theta$
C	1
D	0

Correct Ans	**D**

Question: 115
Itemcode: MA1035

If $\|x+2\| \leq 9$, then	
A	$x \in (-7,11)$
B	$x \in [-11,7]$
C	$\frac{1}{12}$
D	$\frac{1}{36}$
Correct Ans	**B**

Question: 116
Itemcode: MA1036

If the coefficients of 2^{nd}, 3^{rd} and the 4^{th} terms in the expansion of $(1+x)^n$ are in A.P., then value of n is	
A	2
B	7
C	11
D	14
Correct Ans	**B**

Question: 117
Itemcode: MA1037

If [x] is the greatest integer function not greater than x then The value of $\sin\left(\frac{\pi}{3} - sin^{-1}\left(-\frac{1}{2}\right)\right)$ is_____. is equal to	
A	28
B	30
C	29
D	20
Correct Ans	**A**

Question: 118
Itemcode: MA1038

$\lim_{y\to 0} \frac{\sqrt{3+y^3}-\sqrt{3}}{y^3} =$	
A	$\frac{1}{2\sqrt{3}}$
B	$\frac{1}{3\sqrt{2}}$
C	$2\sqrt{3}$
D	$3\sqrt{2}$
Correct Ans	**A**

Question: 119
Itemcode: MA1039

If A is a matrix of order 3 x 3, then $(A^2)^{-1}$ is equal to	
A	$(-A^2)^2$
B	$(A^{-1})^2$
C	A^2
D	$(-A)^{-2}$
Correct Ans	**B**

Question: 120
Itemcode: MA1040

If there are two values of 'a' which makes determinant $\int \left(\frac{\sin^2 x - \cos^2 x}{\sin^2 x \cos^2 x}\right) dx$ is equal to then the sum of these numbers is	
A	-4
B	9
C	4
D	5
Correct Ans	**A**

Question: 121
Itemcode: MA1041

If f(1) = 1, f'(1) = 3 then the derivative of $f(f(f(x)))+(f(x))^2$ at x = 1 is	
A	10
B	33
C	35
D	12
Correct Ans	**B**

Question: 122
Itemcode: MA1042

The eccentricity of the hyperbola whose latus rectum is 8 and conjugate axis is equal to half the distance between the foci is	
A	4/3
B	$4/\sqrt{3}$
C	$2/\sqrt{3}$
D	3/2
Correct Ans	**C**

Question: 123
Itemcode: MA1043

If $\left\lvert z - \frac{3}{z} \right\rvert = 2,$ then the greatest value of |z| is	
A	1
B	2

C	3
D	5
Correct Ans	**C**

Question: 124
Itemcode: MA1044

The number of parallelograms that can be formed from a set of five parallel lines intersecting another set of three parallel lines is	
A	9
B	18
C	12
D	30
Correct Ans	**D**

Question: 125
Itemcode: MA1045

A set of n values x_1, x_2, ..., x_n has standard deviation σ. The standard deviation of n values x_1 + k, x_2 + k,..., x_n + k will be	
A	σ
B	σ + k
C	σ - k
D	k σ
Correct Ans	**A**

Question: 126
Itemcode: MA1046

The slope of the line which makes an angle 45^o with the line 3x - y = -5 are	
A	1, -1
B	1/2, -2
C	1, 1/2
D	2, -1/2
Correct Ans	**B**

Question: 127
Itemcode: MA1047

In $^{2n}C_3$: $^nC_3$ = 11 : 1 then n is	
A	5
B	6
C	11
D	7
Correct Ans	**B**

Question: 128
Itemcode: MA1048

$\int e^{-4x} cosx\ dx$ is

A	$\frac{e^{-4x}}{17}(4cosx - sinx) + C$
B	$\frac{e^{-4x}}{17}(-4cosx + sinx) + C$
C	$\frac{e^{-4x}}{17}(4cosx + sinx) + C$
D	$\frac{e^{-4x}}{17}(-4cosx - sinx) + C$
Correct Ans	**B**

Question: 129
Itemcode: MA1049

If f is an even function then $\int_{-a}^{a} f(x)\,dx =$	
A	discontinuous at x = 1/2
B	continuous at x = 1/2
C	continuous everywhere
D	discontinuous everywhere
Correct Ans	**B**

Question: 130
Itemcode: MA1050

If X ={8^n - 7n - 1| n ∈ N} and Y = {49n - 49	n ∈ N}. Then	
A	X ⊂ Y
B	Y ⊂ X
C	X = Y
D	X ∩ Y = ∅
Correct Ans	**A**

Question: 131
Itemcode: PY1001

If vectors a = 2i + 3j - nk and b = i - 3j - 2k are perpendicular then value of n is	
A	3/2
B	5/2
C	7/2
D	9/2
Correct Ans	**C**

Question: 132
Itemcode: PY1002

A ball thrown vertically up is caught in 10s. Then the maximum height attained by the ball (neglect air resistance) is (g = 10 ms^{-2})	
A	125 m
B	145 m

C	155 m
D	200 m
Correct Ans	**A**

Question: 133
Itemcode: PY1003

A projectile is thrown obliquely such that its range equals the maximum height attained. Then the angle of projection is	
A	Tan-(2)
B	Tan-(4)
C	Tan-(6)
D	45^o
Correct Ans	**B**

Question: 134
Itemcode: PY1004

Which of the following is the largest unit of energy?	
A	Electron Volt
B	Joule
C	Calorie
D	Erg
Correct Ans	**C**

Question: 135
Itemcode: PY1005

A gas is compressed to half its initial volume isothermally. The same gas is compressed again until the volume reduces to half through an adiabatic process. Then	
A	Work done during isothermal compression is more
B	Work done during isothermal compression is equal to the work done during adiabatic compression
C	Work done is more during adiabatic process
D	Work done is independent of the processes used for compression
Correct Ans	**C**

Question: 136
Itemcode: PY1006

When steam is converted into water, internal energy of the system	
A	Increases
B	Becomes zero
C	Remains constant
D	Decreases
Correct Ans	**D**

Question: 137
Itemcode: PY1007

A spherical liquid drop of radius R is divided into 8 equal droplets. If surface tension is T, then work done in this process will be	
A	$2\pi R^2T$

B	$3\pi R^2T$
C	$4\pi R^2T$
D	$2\pi RT^2$
Correct Ans	**C**

Question: 138
Itemcode: PY1008

Two wires of copper having the length in the ratio 4:1 and their radii in the ratio 1:4 are stretched by same force. The ratio of longitudinal strain in the two will be	
A	1:64
B	64:1
C	1:16
D	16:1
Correct Ans	**D**

Question: 139
Itemcode: PY1009

A cubical block is floating in a liquid with half of its volume immersed in the liquid. When the whole system accelerates upwards with acceleration g/3, the fraction of volume immersed in the liquid will be	
A	1/2
B	3/8
C	2/3
D	3/4
Correct Ans	**A**

Question: 140
Itemcode: PY1010

Three liquids of densities d, 2d and 3d are mixed in equal volumes. Then the density of the mixture is	
A	d
B	2d
C	3d
D	5d
Correct Ans	**B**

Question: 141
Itemcode: PY1011

Water rises to a height of 20 mm in a capillary. If the radius of the capillary is made one third of its previous value, then what is the new value of capillary rise?	
A	20 mm
B	40 mm
C	60 mm
D	80 mm
Correct Ans	**C**

Question: 142
Itemcode: PY1012

As the temperature of water increases, its viscosity	
A	Remains unchanged
B	Decreases
C	Increases
D	Increases or decreases depending on the external pressure
Correct Ans	**B**

Question: 143
Itemcode: PY1013

A ball of mass m kg hangs from a spring of spring constant k. The ball oscillates with a period of T seconds. If the ball is removed, the spring is shortened by	
A	$gT^2/(2\pi)^2$ metre
B	$3T^2g/(2\pi)^2$ metre
C	Tm/k metre
D	Tk/m metre
Correct Ans	**A**

Question: 144
Itemcode: PY1014

A body of mass m attached to a spring oscillates with a time-period of 4s. If the mass of the body is increased by 4kg, its time-period increases by 2s. Find the value of initial mass m.	
A	1.2 kg
B	2.2 kg
C	3.2 kg
D	4.2 kg
Correct Ans	**C**

Question: 145
Itemcode: PY1015

A body is executing S.H.M. When its displacement from the mean position is 4 cm and 5 cm, the corresponding velocity of the body is 10 cm/sec and 8 cm/sec. Then the time- period of the body is	
A	2π sec
B	π /2 sec
C	π sec
D	3π /2 sec
Correct Ans	**C**

Question: 146
Itemcode: PY1016

A source of sound with adjustable frequency produces 4 beats per second with a tuning fork when its frequency is either 474 Hz or 482 Hz. What is the frequency of the tuning fork?	
A	472 Hz
B	474 Hz
C	476 Hz
D	478 Hz
Correct Ans	**D**

Question: 147
Itemcode: PY1017

Velocity of sound in air I. Increases with temperature II. Decreases with temperature III. Increase with pressure IV. Is independent of pressure V. Is independent of Temperature Choose the correct answer	
A	Only I and II are true
B	Only I and III are true
C	Only II and III are true
D	Only I and IV are true
Correct Ans	**D**

Question: 148
Itemcode: PY1018

A transverse periodic wave on a string with a linear mass density of 0.200 kg/m is described by the following equation $y = 0.05 \sin(420t - 21.0x)$ Where x and y are in meters and t is in seconds. Then tension in the string is equal to	
A	32N
B	42N
C	66N
D	80N
Correct Ans	**D**

Question: 149
Itemcode: PY1019

A vessel contains an ideal monoatomic gas which expands at constant pressure, when heat Q is given to it. Then the work done in expansion is :	
A	Q
B	3/5 Q
C	2/5 Q
D	2/3 Q
Correct Ans	**C**

Question: 150
Itemcode: PY1020

The volume of a certain mass of gas at constant pressure is doubled to its value at 0^oC. The temperature of the gas will be	
A	100^oC
B	173^oC
C	273^oC
D	546^oC
Correct Ans	**C**

Question: 151
Itemcode: PY1021

A Carnot's engine is made to work between 200^{o}C and 0^{o}C first and then between 0^{o}C and -200^{o}C. The ratio of efficiencies of the engine in the two cases is	
A	1.73 : 1
B	1 : 1.73
C	1 : 1
D	1 : 2
Correct Ans	**B**

Question: 152
Itemcode: PY1022

A perfect gas at 27^{o}C is heated at constant pressure so as to triple its volume. The temperature of the gas will be	
A	81^{o}C
B	900^{o}C
C	627^{o}C
D	450^{o}C
Correct Ans	**C**

Question: 153
Itemcode: PY1023

A progressive wave of frequency 500 Hz is travelling with a velocity of 360 ms^{-1}. How far apart are the two points 60^{o} out of phase?	
A	0.12 m
B	0.14 m
C	0.16 m
D	0.18 m
Correct Ans	**A**

Question: 154
Itemcode: PY1024

The change in frequency due to Doppler effect does not depend on	
A	The speed of the source
B	The speed of the observer
C	The frequency of the source
D	Separation between source and observer
Correct Ans	**D**

Question: 155
Itemcode: PY1025

If the distance between the earth and the sun doubles, what would be the duration of the year	
A	1032 days
B	730 days
C	366 days
D	365 days
Correct Ans	**A**

Question: 156
Itemcode: PY1026

An object of mass 2kg moves along a circle of radius 4m. If it moves with constant speed of 10 ms^{-1}, then work done by the centripetal force is	
A	-10 J
B	zero
C	+10 J
D	100 J
Correct Ans	**B**

Question: 157
Itemcode: PY1027

Displacement of a particle varies with time given by $x(t) = 3t^3 - 3t^2 + 2t + 6$. Acceleration of this particle at t = 1 sec will be	
A	14 ms^{-2}
B	16 ms^{-2}
C	18 ms^{-2}
D	20 ms^{-2}
Correct Ans	**B**

Question: 158
Itemcode: PY1028

Area under force-time graph equals	
A	Work
B	Impulse
C	Energy
D	Acceleration
Correct Ans	**B**

Question: 159
Itemcode: PY1029

Angle between electric dipole moment and electric field at a point on the perpendicular bisector is	
A	0^o
B	45^o
C	90^o
D	180^o
Correct Ans	**D**

Question: 160
Itemcode: PY1030

A point charge 2 μC placed at a distance 'r' from an electric dipole experiences a force of 64 x 10^{-4} N. What force does the same charge experience when placed at a distance 2r ?	
A	32 x 10^{-4} N
B	8 x 10^{-4} N
C	64 x 10^{-4} N

D	64 x 10^{-6} N
Correct Ans	**B**

Question: 161
Itemcode: PY1031

Electric flux through spherical Gaussian surface of radius 2m is 4 x 10^{-4} Nm^2C^{-1}. If the radius of this surface is doubled, then the flux will be	
A	4 x 10^{-4} Nm^2C^{-1}
B	8 x 10^{-4} Nm^2C^{-1}
C	2 x 10^{-4} Nm^2C^{-1}
D	12 x 10^{-4} Nm^2C^{-1}
Correct Ans	**A**

Question: 162
Itemcode: PY1032

A wire of resistance 16 Ω is stretched to double its length. What will be the new resistance of the wire?	
A	16 Ω
B	8 Ω
C	32 Ω
D	64 Ω
Correct Ans	**D**

Question: 163
Itemcode: PY1033

Two identical cells of emf 3V and internal resistance 1 Ω. are connected in series to a resistor 4 Ω. Then the current passing through the circuit is	
A	0.5 A
B	0.75 A
C	1.0 A
D	1.25 A
Correct Ans	**C**

Question: 164
Itemcode: PY1034

A circular coil of radius 'a' has N number of turns. When a current I flow through it, magnetic field at the center is found to be 0.4 T. What will be the magnetic field at the center if number of turns is doubled, radius is halved and current doubled?	
A	0.8 T
B	1.6 T
C	3.2 T
D	6.4 T
Correct Ans	**C**

Question: 165
Itemcode: PY1035

A charge of 2 μC moves with a velocity v = (2i + 3j) ms^{-1} enters a uniform magnetic field B = (2k) T. Then the path traced by

the particle is	
A	Straight line
B	Helix
C	Circle
D	Random path
Correct Ans	**C**

Question: 166
Itemcode: PY1036

Two particles with their charges in the ratio 2:3 and their momenta in the ratio 3:4 enter the same magnetic field. Ratio of the radius of circular paths traced by them is	
A	9:8
B	1:2
C	2:1
D	8:9
Correct Ans	**A**

Question: 167
Itemcode: PY1037

A very long current carrying wire produces a magnetic field of 3T at a distance 'd' from it. The same wire at a distance 3d will produce a magnetic field of	
A	3T
B	1T
C	6T
D	9T
Correct Ans	**B**

Question: 168
Itemcode: PY1038

An object is placed at the center of curvature of a concave mirror. Then linear magnification (m) of the mirror for this position will be	
A	+2
B	-2
C	-1
D	+1
Correct Ans	**C**

Question: 169
Itemcode: PY1039

Critical angle for a medium is 45^{o}. Then what will be the refractive index of this medium?	
A	$\sqrt{3}$
B	1.5
C	1.33
D	$\sqrt{2}$
Correct Ans	**D**

Question: 170
Itemcode: PY1040

Intensity of incident radiation falling on a metal is doubled. Then the number of photoelectrons emitted will	
A	remain the same
B	be halved
C	be tripled
D	be doubled
Correct Ans	**D**

Question: 171
Itemcode: PY1041

Refractive index of vacuum is	
A	2
B	1
C	0
D	∞
Correct Ans	**B**

Question: 172
Itemcode: PY1042

Angular width of central maximum in a single slit diffraction is 5^o when a light of $5000A^o$ is used. Angular width of central maximum when a light of $7000A^o$ is used will be	
A	7^o
B	5^o
C	3^o
D	10^o
Correct Ans	**A**

Question: 173
Itemcode: PY1043

The radius of the innermost electron orbit of a hydrogen atom is 5.3×10^{-11} m. Radius of the orbit n=3 will be	
A	47.7×10^{-11} m
B	15.9×10^{-11} m
C	10.6×10^{-11} m
D	5.3×10^{-11} m
Correct Ans	**A**

Question: 174
Itemcode: PY1044

A radioactive isotope has a half life of T years. How long will it take for the activity to reduce to 1% of original value?	
A	5.55 T years
B	6.65 T years
C	7.65 T years
D	8.65 T years

Correct Ans	**B**

Question: 175
Itemcode: PY1045

Input frequency for a half-wave rectifier is 50Hz. What will be the output frequency?	
A	25 Hz
B	50 Hz
C	100 Hz
D	150 Hz
Correct Ans	**B**

Question: 176
Itemcode: PY1046

In Young's double-slit experiment, the slits are separated by 0.28mm and the screen is placed 1.4m away. The distance between the central bright fringe and the fourth bright fringe is measured to be 1.2 cm. The wavelength of the light used is	
A	$4000A^o$
B	$5000A^o$
C	$6000A^o$
D	$7000A^o$
Correct Ans	**C**

Question: 177
Itemcode: PY1047

Monochromatic light of wavelength 589 nm is incident from air on a water surface. Speed of refracted light will be (Given refractive index of water is 1.33)	
A	2.26×10^8 m/s
B	3.26×10^8 m/s
C	4.26×10^8 m/s
D	5.26×10^8 m/s
Correct Ans	**A**

Question: 178
Itemcode: PY1048

A convex lens of focal length 30 cm is in contact with a concave lens of focal length 20 cm. Focal length of the combination is	
A	-60 cm
B	+60 cm
C	-40 cm
D	+40 cm
Correct Ans	**A**

Question: 179
Itemcode: PY1049

LED converts	
A	Electrical energy into light energy
B	Light energy into electrical energy

C	Mechanical energy into electrical energy
D	Electrical energy into mechanical energy
Correct Ans	**A**

Question: 180
Itemcode: PY1050

Angle of minimum deviation for an equilateral prism is found to be 30^o. Then the refractive index of the material of the prism is	
A	$\sqrt{3}$
B	$\sqrt{3}/2$
C	1.5
D	$\sqrt{2}$
Correct Ans	**D**

Question: 181
Itemcode: CM1001

Colloidal solution commonly used in the treatment of skin disease is	
A	Colloidal Gold
B	Colloidal Antimony
C	Colloidal Sulphur
D	Colloidal Silver
Correct Ans	**C**

Question: 182
Itemcode: CM1002

The general name of the compound formed by the reaction between aldehyde and alcohol is	
A	Glycol
B	Acetate
C	Ester
D	Acetal
Correct Ans	**D**

Question: 183
Itemcode: CM1003

Which of the following hydrides is electron deficient?	
A	CH_4
B	B_2H_6
C	NaH
D	CaH_2
Correct Ans	**B**

Question: 184
Itemcode: CM1004

In Fuel cells _____ are used as catalysts.	
A	Zinc - Mercury
B	Lead - Manganese

C	Platinum - Palladium
D	Nickel - Cadmium
Correct Ans	**C**

Question: 185
Itemcode: CM1005

The complex hexamine platinum (IV) chloride will give _____ number of ions on ionization.	
A	3
B	2
C	5
D	4
Correct Ans	**C**

Question: 186
Itemcode: CM1006

The test to differentiate between pentan-2-one and pentan-3-one is	
A	Fehling's test
B	Iodoform test
C	Baeyer's test
D	Benedict's test
Correct Ans	**B**

Question: 187
Itemcode: CM1007

An aqueous solution of alcohol contains 18g of water and 414g of ethyl alcohol. The mole fraction of water is	
A	0.7
B	0.9
C	0.1
D	0.4
Correct Ans	**C**

Question: 188
Itemcode: CM1008

The correct IUPAC name of cis-platin is	
A	Diammine dichloride platinum (O)
B	Dichlorido diammine platinum (IV)
C	Diammine dichlorido platinum (II)
D	Diammine dichloride platinum (IV)
Correct Ans	**C**

Question: 189
Itemcode: CM1009

An organic compound with molecular formula C_7H_8O dissolves in NaOH and gives a characteristic colour with $FeCl_3$. On treatment with bromine, it gives a tribromo derivative $C_7H_5OBr_3$. The compound is	
A	m-Cresol

B	p-Cresol
C	Benzyl alcohol
D	o-Cresol
Correct Ans	**A**

Question: 190
Itemcode: CM1010

The major product obtained when ethanol is heated with excess of conc. H_2SO_4 at 443K is	
A	ethane
B	methane
C	ethene
D	ethyne
Correct Ans	**C**

Question: 191
Itemcode: CM1011

Among the following, the products formed by the reaction of anisole with HI are	
A	Benzene + Methanol
B	Phenol + Methane
C	Phenol + Iodomethane
D	Sodium phenate + Methanol
Correct Ans	**C**

Question: 192
Itemcode: CM1012

In Kolbe's reaction the reacting substances are	
A	Sodium phenate and CCl_4
B	Phenol and $CHCl_3$
C	Sodium phenate and CO_2
D	Phenol and CCl_4
Correct Ans	**C**

Question: 193
Itemcode: CM1013

Ethanoic acid undergoes Hell-Volhard Zelinsky reaction but Methanoic acid does not, because of	
A	absence of α-H atom in ethanoic acid
B	higher acidic strength of ethanoic acid than methanoic acid
C	presence of α-H atom in methanoic acid
D	presence of α-H atom in ethanoic acid
Correct Ans	**D**

Question: 194
Itemcode: CM1014

Vacant space in body centered cubic lattice unit cell is about	
A	23%

B	46%
C	32%
D	10%
Correct Ans	**C**

Question: 195
Itemcode: CM1015

If wavelength of photon is 2.2×10^{-11} m and h = 6.6×10^{-34} Js , then momentum of photon is	
A	1.452×10^{-44} $kgms^{-1}$
B	6.89×10^{43} $kgms^{-1}$
C	3×10^{-23} $kgms^{-1}$
D	3.33×10^{-22} $kgms^{-1}$
Correct Ans	**C**

Question: 196
Itemcode: CM1016

Identify the products A and B in the reactions: R - X + AgCN $\longrightarrow$ A + Ag X R - X + KCN $\longrightarrow$ B + K X	
A	A = RNC; B = RCN
B	A = RNC; B = RNC
C	A = R - CN; B = RCN
D	A = RCN; B = RNC
Correct Ans	**A**

Question: 197
Itemcode: CM1017

The work done when 2 moles of an ideal gas expands reversibly and isothermally from a volume of 1L to 10 L at 300K is (R - 0.0083 kJ K mol-1)	
A	0.115 kJ
B	58.5 kJ
C	11.5 kJ
D	5.8 kJ
Correct Ans	**C**

Question: 198
Itemcode: CM1018

A first order reaction is half completed in 45min. How long does it need 99.9% of the reaction to be completed?	
A	10 Hours
B	20 Hours
C	5 Hours
D	7.5 Hours
Correct Ans	**D**

Question: 199
Itemcode: CM1019

For spontaneity of a cell, which is correct?	
A	ΔG = +ve, ΔE = +ve
B	ΔG = -ve
C	ΔG = 0, ΔE = 0
D	ΔG = -ve, ΔE = 0
Correct Ans	**B**

Question: 200
Itemcode: CM1020

Solubility of a gas in a liquid increases with	
A	increase of P and decrease of T
B	decrease of P and decrease of T
C	increase of P and increase of T
D	decrease of P and increase of T
Correct Ans	**A**