NAVPRAYAS
(A GROUP OF INNOVATIVE THOUGHTS)

MTSE 2020

Class-10

1.Which one will replace the question mark ?

4	7	5
33	78	46
8	?	9

   1.12
   2.13
   3.11
   4.10

2.According to a code language ,words in column I are written in capital letters and in column II their codes are given.The codes in column II are jumbled up.Decode the language and choose the correct code for the words given in question.

Code for M is

Column I	column II
FISH	zmkj
TEA	fir
GAIN	kpgf
DOG	peh
ROSE	cmre
NUT	igq
TRAM	cvif

   1.v
   2.c
   3.i
   4.m

3.It is 3 o'clock in the watch.If the minute hand point towards North-east, then hour hand will point towards the:
   1.South
   2.South-west

3.North-west
4.South-east

4.P,Q,R,S,T,U,V and W are eight friends sitting around a circular table facing the centre.P sits second to the left of S,who is third to the left of T.R sits third to the right of V,who is not an immediate neighbour of T.W sits third to the right of Q, who sits second to the right of V. What is the position of P with respect to W?

    1.Third to the left
    2.Third to the right
    3.Second to the left
    4.Second to the right

5.Solve this:

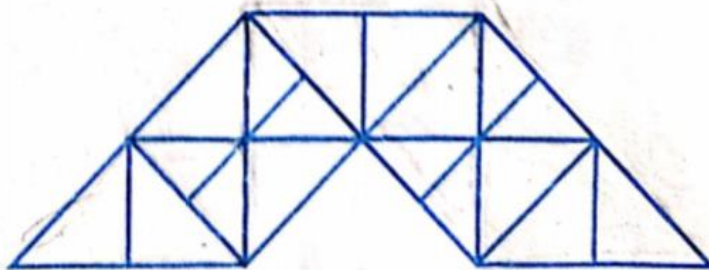| 3	8	10	2	?	1
6	56	90	2	20	0

    1.0

    2.3

    3.5

    4.7

6.Find the number of triangles formed in the given figure.

    1.33

    2.35

    3.36

    4.None of these

7.Which of the following diagrams represents the relationship of Sailor, Ship and

A)

B)

C)

D)

Ocean?

    1.Figure-A

    2.Figure-B

    3.Figure-C

    4.Figure-D

8.A cube of side 10cm is coloured red with a 2cm wide green strip along all the sides on all the faces.Now, the cube is cut into 125 smaller cubes of equal size.How many cubes have three green faces each?

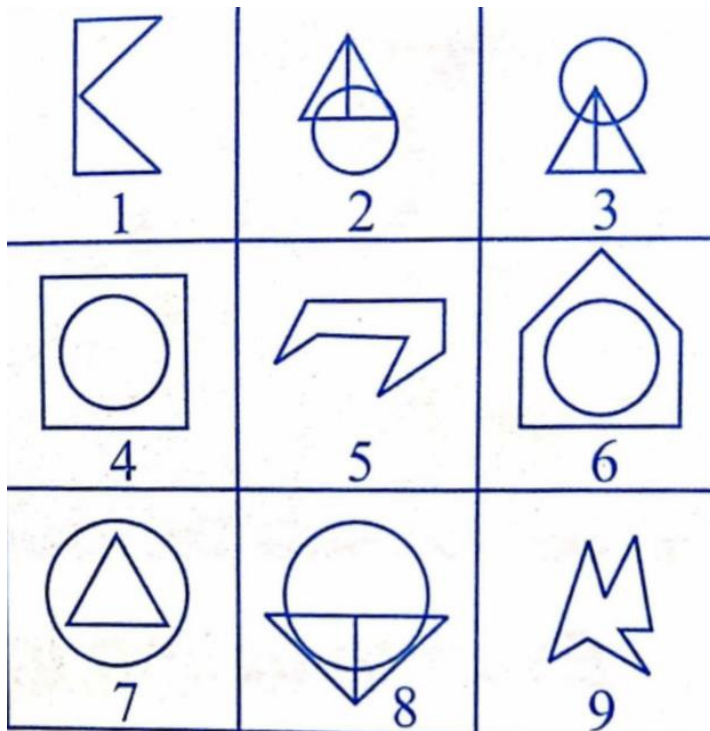   1.0

    2.4

    3.6

    4.8

9.Group the similar pictures

1.1,4,9 ; 2,3,8 ; 5,6,7

2.2,3,7 ; 4,6,9 ; 1,5,8

3.1,5,9 ; 2,3,8 ; 4,6,7

4.1,6,7 ; 2,3,8 ; 4,5,9

10.Direction (Qs 10-12):Read the given information carefully and answer below Question.

There are 7 family members P, Q, R, S, T, U and V standing in ground in which there are 2 married couples. P is sister of Q who is maternal grandson of T. Maternal grandfather of Q is standing 3m to the right of Q who is facing north. The father of S has 2 maternal grandchildren. V is facing north. V is standing 4m to the South of the maternal grandson of U.S is 2m to the right of V. P is 1m south of S and 1m west of U. R is sister-in-law of V and standing 9m to the north of her mother. V is the father of P. U is a female.

What is the direction and distance and relationship of S with respect to P?

1.1m north, Mother

2.1m south, Sister

3.1m north, Mother-in-law

4.1m north, Daughter

11. Maternal granddaughter of U is standing in which direction with respect to her husband?

1.South-East

2.South

3.North

4.South-West

12. What is a minimum distance between V and his Father-in-Law?

1.3m

2.4m

3.5m

4.None of these

13.How many gift boxes were sold on Monday?

I. It was 10% more than the boxes sold on the earlier day i.e. Sunday.

II. Every third visitor to the shop purchased the box and 1500 visitors were there on Sunday

1.If the data in statement I alone are sufficient to answer the question

2.If the data in statement II alone are sufficient answer the question

3.If the data either in I or II alone are sufficient to answer the question

4.If the data in both the statements together are needed.

14.A contractor will build five houses in a certain town in a street that currently has no houses. The contractor will select from seven different models of houses A, B, C, D, E, F and G. The town's planning board has placed the following restrictions on the contractor:

Following the given restrictions answer the question given below. If model B is one of the models selected for the street, then which of the following models- must also be selected?

| (i) No model can be selected for more than one house. Either model D must be selected or model G, but both cannot be selected. |
| (ii) If model F is selected, model C must also be selected. |
| (iii) If model B is selected, model D cannot be selected. |

1.A

2.D

3.G

4.None of these

15.A, B, C, D and E play a game of cards. A says to B, "If you give me 3 cards, you will have as many as I have at this moment while if D takes 5 cards from you, he will have as many as E has." A and C together have twice as many cards as E has. B

and D together also have the same number of cards as A and C taken together. If together they have 150 cards, how many cards has C got ?

   1.28

   2.29

   3.31

   4.35

16.Find the missing number in the series:-

   5,15,10,45,17,135 , ? , 1005
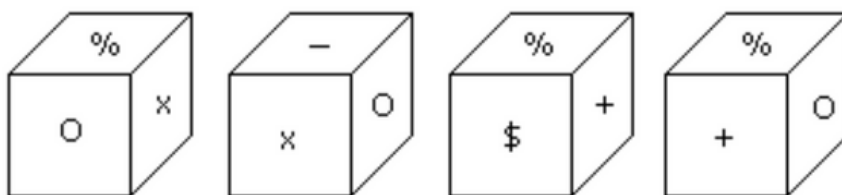
   1.27

   2.25

   3.26

   4.None of these

17.

   In the sequence given below,in some cases the sum of the two digits which immediately precede the digit "3" exceeds the sum of the two digits which immediately follow the digit 3 and sum of the two digits which immediately follow the digit "5" exceeds the sum of the two digits which immediately precedes the digit 5.How many such 3's and 5's are there altogether?

   2 5 4 3 6 7 5 2 8 3 9 7 5 4 3 4 6 5 2 6 3 5 8 3 5 2 4 6 3 7 5 8 3 5 2 6

   1.5

   2.6

   3.7

   4.4

18.Which sign is on the opposite of the side of the cube containing '+' ?

1."%"

2."-"

3."x"

4."$"

19.Assume that:
   @ = not less than
   # = not equal to
   + = not greater than
   x= less than
   % = equal to
   $ = greater than
According to above assumption choose one option which implies a @ b $ c

   1.b + a $ c

   2.b $ a % c

   3.a $ b x c

   4.a+bxc

20.At what time between 5 and 6 O'clock the hands of a clock will make an angle of 18° ?

   1.20 minutes past 5

   2.24 minutes past 5

   3.25 minutes past 5

   4. 22 minutes past 5

21.If Saturday falls on the fourth day after today which is 6th January,then on what day did 1st December of the previous year fall?
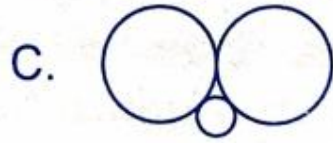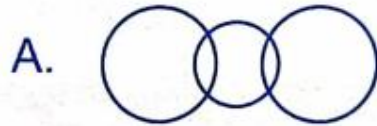
   1.Sunday

   2.Wednesday

   3.Tuesday

   4.Monday

22.If animals that live on land and the animals that live in water are represented by two big circles and animals that live in water and on land are represented by small circle, the combination of these three can be best represented as

A. B.

C. D.

1.Figure A

2.Figure B

3.Figure C

4.Figure D

23.In a class of 60 students where girls are twice that of boys, Pragya ranks 27th from the top. If there are 9 boys ahead of Pragya, how many girls are after her rank?

1.23

2.21

3.22

4.24

24.Garima and Saurabh are children of Mr.Jindal. Garima marries Amit Goel and Sahil, Sameer and Sanchit are born to them. Sahil is married to the eldest daughter of Mr. and Mrs.Mittal. Kaya is younger to Priya but older than Riya who are the daughters of Mr. and Mrs. Mittal.Latika is Sahil's daughter. How is Saurabh related to Sanchit?

1.Brother-in-law

2.Uncle

3.Maternal uncle

4.Brother

25.Manish is the brother of Aarav and Shyam is the father of manish. Deepak is the brother of ankita and ankita is daughter of aarav. Who is the uncle of deepak?

1.Manish

2.Aarav

3.Shyam

4.Can't be determined

26.How many meaningful English words can be formed using the second,third,fifth and seventh letters of the word 'KITCHEN' using each letter once in each word?

    1.Only One

    2.Two

    3.Three

    4.Four

27.Select the combination of numbers so that the letters arranged accordingly will form a meaningful word.

P	N	O	A	C	L	M	I
1	2	3	4	5	6	7	8

    1.2,7,8,6,4,3,1,5

    2.4,7,5,2,6,8,1,3

    3.5,3,7,1,6,4,8,2

    4.7,1,8,5,6,2,4,3

28.If A denotes X, B denotes /, C denotes +, and D denotes -, then 8C36B6D6B2A3=?
    1.5
    2.13/6
    3.1/6
    4.29/2

29.1,12,40,93,?
    1.160
    2.174
    3.176
    4.179

30.Sheetal and Ritu start from a fixed point.Ritu moves 5km northward and turns right and then covers 4km. Sheetal moves 5km westwards, turns right and walks 3 km. The distance between Ritu and Sheetal now is

    1.9 km

    2.5 km

    3. √85km

    4. √17km

31.Study the pattern from (X) and find the missing element in (Y)

   (X)

5	256	11
46	52	330
30	41	6

(Y)

2	144	10
28	36	?
16	26	8

    1.160

    2.80

    3.240

    4.320

32.If P$Q means P is the father of Q, P#Q means P is mother of Q & P*Q means P is the sister of Q.Then how is Q related to N if N#L$P*Q.

    1.Grandson

    2.Granddaughter

    3.Nephew

    4.Data inadequate

33.If in a certain language, FLOWER is coded as UOLDVI, then how is TERMINAL coded in that language?

    1.FLKPMROZ

    2.GVINRMZO

    3.RVNIGLKA

    4.MNIVGYEO

34.Monica is 20 weeks older than Priyanka and Priyanka is 63 days younger than Jyoti.If Jyoti was born on Sunday then on what day of the week Monika was born.

    1.Saturday

    2.Sunday

    3.Monday

    4.None

35.Find out the wrong term in the series : 2,3,4,4,6,8,9,12,16.

    1.9

    2.12

    3.16

    4.8

36.Australian government will bring together anti-terror laws. (Which word is a nominative noun?)

    1.Bring

    2.Australian

    3.Anti-terror

    4.Government

37.If $a=2+\sqrt{3}+\sqrt{5}$ and $b=3+\sqrt{3}-\sqrt{5}$,then

    1.$a^2 +b^2-4a-6b=3$

    2.$a^2+b^2-4a-6b=5$

    3.$3a+2b-ab=9$

    4.$3a+2b-ab=6$

38.Prime Minister Shri Narendra Modi plans to drive from city A to city C, at the speed of 70 km per hour, to catch a train arriving there from B. He must reach C at least 15 minutes before the arrival of the train. The train leaves B, located 500 km south of A, at 8:00 am and travels at a speed of 50 km per hour. It is known that C is located between west and northwest of B, with BC at 60° to AB. Also, C is located between south and southwest of A with AC at 30° to AB. The latest time by which Narendra Modi must leave A and still catch the train is closest to

    1.6:15 AM

    2.6:30 AM

3.6:45 AM

4.7:00 AM

39.Let $(1+2x)_{20} = a_0+a_1x+a_2x_2+.......+a_{20}x_{20}$. Then,
$3a_0+2a_1+3a_2+2a_3+3a_4+2a_5+.....+2a_{19}+3a_{20}$.

1.$(5.3_{20}-3) /2$

2.$(5.3_{20}+3)/2$

3.$(5.3_{20}+1)/2$

4.$(5.3_{20}-1)/2$

Directions(Qs-40- 44) :Read the following passage to answer the given questions based on it.

One day Nandu rode his horse to the village fair. On his way back he met Somendra, the merchant. The merchant was a crafty man, ready to do anything to earn some money. The villages knew this. In fact no one knew what trick he would be up to next. Now, Nandu was poor and had no one in the world to call his own except a beautiful, white horse. He loved it more than anything else in the world. The merchant had his eye on the horse for a long time and tried to think of a way to get it for himself. Seeing Nandu, the merchant thought, Nandu is a simpleton. Let me see if I can trick him out of his horse. So he said to Nandu, You live all alone. How do you manage? What does a young boy like you need with a horse? Sell it to me and I shall make you rich in return. Nandu replied, "No I don't want to sell my horse."

But the merchant refused to give up so easily. He offered Nandu more money. Finally, when the offer reached five hundred gold coins, Nandu paused and said. Five hundred gold coins seems like a good price. But I have a condition. If you agree to it, I shall give you my horse. "What is it?", the merchant asked impatiently. "Give me the money right now and I shall give you my horse when I have given you ten lashes." After all he would resell the horse for over a thousand gold coins in the market. He would take twenty lashes for such a gain. He agreed instantly. He ran home and got the money for Nandu and brought along his whip as well. Nandu counted the money carefully. He then took the whip and the lashes fell on the merchant's back in quick succession. By the eighth lash the merchant was almost in tears but he told himself that there were only two lashes to go and the horse would be his. The merchant held his breath waiting for the final lashes. But Nandu had mounted his horse and was riding off. "Wait!", shouted the merchant in anger. "What about the last lashes? Where are you going with the horse? We had a deal.

Nandu stopped and said, "I agree to give you the horse only after I had given you ten lashes. But it is upsetting my horse. I'll give you the last lashes later. Till then goodbye!" "Come back you cheat!", the merchant shouted. But the crowd that had gathered around agreed with Nandu. A deal was a deal. Till the last lash was given, the horse could not belong to the merchant. Nandu rode away richer by five

hundred gold coins and Somendra waited in vain for several days for the final lash which never came.

40. Which of the following can be said about Nandu?

   1. He was very cunning.

   2. He needed money.

   3. He was cruel to people but loved animals.

      1.Only 1

      2.Both 1 & 2

      3.Both 2 & 3

      4.None of these

41.What made that merchant agree to Nandu's strange condition for buying the horse?

   1.He wanted to show Nandu how brave he was.

   2.The thought of the profit he would make on selling the horse.

   3.The fear that Nandu would raise the price of his horse otherwise.

   4.He did not think that Nandu would actually whip him.

42.Why did Nandu consider selling his horse to the merchant?

   1.He had no real use for the horse.

   2.The merchant's offer was more than what the horse was worth.

   3.He had not managed to sell it at the village fair.

   4.None of these

43.Which of the following best describes the merchant's reputation in the village?

   1.He was enterprising and had made a lot of money.

   2.He was dishonest and would do anything to get what he wanted.

   3.He would squander his money on things he liked.

   4.He was generous and helped the less fortunate.

44.Choose the word that is most similar in meaning:

RETURN

1.Reject
2.Profit
3.Exchange
4.Replace

45.NITI Aayog, the National Institution for Transforming India, is a Government of India policy think-tank established by the Narendra Modi government to replace the Planning Commission. Who Is the present Vice Chairperson of the NITI Aayog?

1.Arvind Pangariya
2. Urjit Patel
3.Rajiv Kumar
4.Raghuram Rajan

46.Which of the following statements are correct about the menstrual cycle?

(i)A girl who has reached puberty will menstruate throughout her life.
(ii) Menstruation occurs in every 28 days necessarily in all females reaching puberty.
(iii)During every menstrual cycle ,one mature ovum is released by the ovary.

1.Only (i) and (ii)
2.Only (i)
3.Only (iii)
4.Only (ii) and (iii)

47.Let p be any positive integer and $2x + p = 2y$, $p + y = x$ and $x + y = z$. For what value of p would $x + y + z$ attain its maximum value?

1.0
2.1
3.2
4.3

48.Which one of the following personalities did not get awarded with Bharat Ratna in 2019?

1.Pranab Mukherjee
2.Teejan Bai
3.Bhupen Hazarika
4.Nanaji Deshmukh

49.Match List I with List II and select the correct answer using the codes given below the lists:

List I	List II
1. Pressure group	A. Narmada Bachao Andolan
2. Long term movement	B. Asam Gana Parishad
3. Single issue movement	C. Women's movement
4. Political party	D. Fertilizer dealers, association

1.1-D,2-C,3-A,4-B
2.1-B,2-A,3-D,4-C
3.1-C,2-D,3-B,4-A
4.1-B,2-D,3-C,4-A

50.What is a 'stubble'?

1. Spring crop usually harvested after March
2.Crop grown during summer
3.Lower ends of grain stalks left in the ground after harvesting
4.Settlements in the dry plateau region

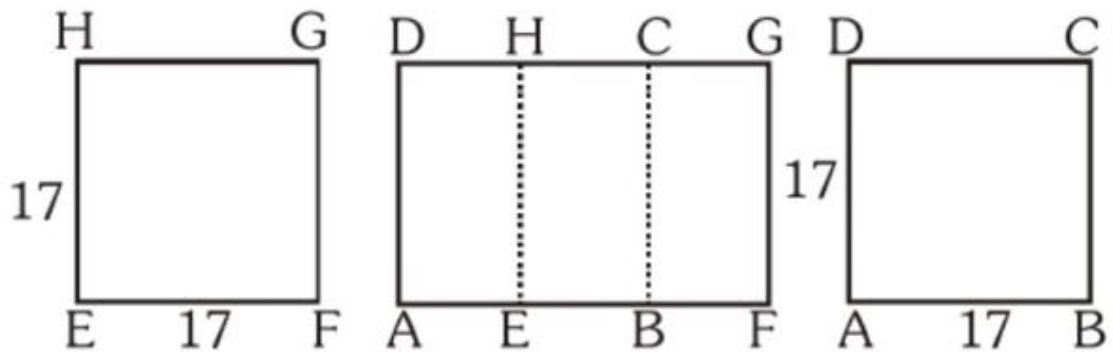51.Which one of the following statements is correct?

STATEMENT1:-In aerobic respiration ,38 molecules of ATP are produced by complete oxidation of 1 gram-mole of glucose .
STATEMENT2:-In anaerobic respiration,only 2 molecules of ATP are formed.

1.Statement 1 is correct
2.Statement 2 is correct
3.Both statements are correct.
4.Both statements are incorrect.

52.Which Global Technology Company is first ever to hit a market cap of 2 trillion dollars?

1.Microsoft Corporation
2. Apple
3.Alphabet Inc.
4. Amazon.com

53.Two squares 17cm X 17cm overlap to form a rectangle 17cm X 30cm. The area of the over lapping region is

    1.289
    2.68
    3.510
    4.34

54.Complete shutdown _____ _____ observed today against new law.
    1.is being
    2.can be
    3.is been
    4.was been

55.Let Mr. Somesh Babu has two sons Dharam and Viru .Both sons have two solid spheres A and B respectively such that the surface area of B is 300% higher than the surface area of A. The volume of A is found to be k% lower than the volume of B. The value of k must be
    1. 85.5
    2.90.5
    3.92.5
    4.87.5

56.Find the plural subjective pronoun in the sentence "They will have a party, so all of their friends are invited."
    1. they
    2.their
    3.have
    4.of

57.Which Indian Cricketer has been nominated for Rajiv Gandhi Khel Ratna Award 2020?

    1. Ishant Sharma
    2. Sikhar Dhawan
    3.Rohit Sharma
    4.Ravindra Jadeja

58.By 1900, which was the only country in the world where every adult had voting rights?

    1. USA

2.New Zealand
3.Britain
4.Germany

59.If p, q and r are the zeros of the polynomial

f(x) = ax^3 - bx^2 + cx - d, then $p^2+q^2+r^2$=

1.$(b^2-ac)/a^2$
2.$(b^2+2ac)/b^2$
3.$(b^2-2ac)/a$
4.$(b^2-2ac)/a^2$

60.Mother said to child, "You must do your homework, after that you can go for playing."

Convert this sentence into indirect speech:-

1.Mother asked to child that he must did his homework after that he could go for playing.
2.Mother said to child that he must done his homework after that he could be go for playing.
3.Mother was requested to the child that he does his homework after that he can go for playing.
4.Mother is ordered to the child that he did his homework after that he can gone for playing.

61.When Kishor's cerebellum is injured in an accident,he is unable to do which of the given actions ?

1.Thinking and reasoning activity
2.Coordinate his body movements.
3.Tasting sensation.
4.Speaking and listening activity.

62.What led to the Civil Disobedience Movement?

1.Arrival of the Simon Commission
2. Working at the farm without payments
3.Violation of salt tax by Gandhi
4. Fall in demand for agricultural goods

63.READ THE FOLLOWING SENTENCE AND MARK THE CORRECT OPTION.

ASSERTION(A) :-Bohr's orbits are called stationary orbits.
REASON(R) :-As electrons remain stationary in these orbits for sometime.

1.BOTH (A) and (R) are true and (R) is the correct explanation of (A).
2. BOTH (A) and (R) are true and (R) is not the correct explanation of (A).
3.(A) IS TRUE but (R) is false.
4. (A) IS false but (R) is true.

64. x and y are real numbers such that $7^x-16y=0$ and $4^x-49y=0$,then the value of (y-x) is

1.5/2
2.19/5
3.4115/2013
4.1569/784

65.Teacher asked the students to use colour pencils during art period. (Which word is a compound noun?)

1.colour pencil
2.students
3.period
4.teacher

66.There are 3 brothers A, B and C in a family. All of them have some prime numbers p,q and r respectively. If r is 2 more than q and q is 2 more than p, then the number of triplets of the (p,q,r) is

1.0
2.1
3.2
4.3

67.Which Football club won UEFA Champions League in 2020?

1.Paris-Saint German F.C.
2.F.C. Barcelona
3.Liverpool F.C.
4.Bayern Munich F.C.

68.If $P = (101)^{100}$ and $Q = (100)^{101}$, then the correct relation is :
1. P > Q
2. P < Q
3. P = Q
4.10P=11Q

69.Which of the following reaction is correct?
1.Pyruvate -> $6CO_2$ $6H_2O$ + 38 ATP {Oxygen (krebs cycle)in mitochondria}.
2.Pyruvate -> 2 lactic acid {in absence of oxygen in yeast }
3.Pyruvate -> $C_2H_5OH+2CO_2$ {YEAST fermentation}
4.Pyruvate -> 2 lactic acid +2ATP {in muscle tissue anaerobically}

70.STATEMENT :- Some metals are extracted just by heating with the help of their sulphide ores in the air.

 Which of the following are most suitable for the above statement?

1.Hg and Cu

2.Mg and Hg

3.Ag and Pb

4.Fe and Ag

71.Why did the weavers suffer from a problem of raw cotton in India during the Industrialization period?

1.The cotton crop perished

2.Raw cotton exports increased

3.Local markets shrank

4.Export market collapsed.

72.Reenu does 600 J of work in 20 minutes and Seema does 400 J of work in 10 minutes. Let the power delivered by Reenu and Seema be P1 and P2 then

1.P1 = P2

2.P1 > P2

3.P1 < P2

4.Nothing can be said

73.A metallic sphere of mass 2.0kg and volume 0.00025 m_3 is completely immersed in water. Find the buoyant force exerted by the water on the sphere. Density of water =1000 Kg/m_3 (take g=9.8)

1.5 N

2.2.25 N

3.2.45 N

4.4 N

74.A thin sheet of gold foil is bombarded with Alpha- particles as in Rutherford's experiment.Which of the given descriptions most accurately represents the path of Alpha-particles?

S.no.	undeflected	No. of particles deflected through a small angle
I	all	none
II	none	all
III	most	A few
IV	A few	most

1.I

2.III

3.II

4.IV

75.Which compound is present in LPG that helps us to detect smell in case of leakage of LPG?

1.H_2S

2.Sulphur

3.Ethyl Mercaptan

4. NO_2

76.A particle is moving with the speed of 2m/s in a circle,then

1.It's acceleration is equal to zero.

2.The net force on the object is constant

3.It's velocity is changing continuously

4.None of the above

77.In the following reaction identify the reducing agent:

$3MnO_2 + 4Al -> 3Mn + Al_2O_3$

1.MnO_2

2.Mn

3.Al_2O_3

4.Al

78.Which of the following animals can keep their body temperature constant?

      1.Frogs and Sparrow

      2.Sharks and Seahorses

      3.Whales and bats

      4.Frogs and snakes

79.A Sound wave source produces 10 crests and 10 troughs in 0.4 second. What is the frequency of the wave

      1.100 Hz

      2.250 Hz

      3.25 Hz

      4.50 Hz

80.If the potential difference remains unchanged and resistance of the circuit is halved. Then, what be the effect on current

      1.One-fourth

      2.Halved

      3.Doubled

      4.Four times