## CLASS - $9^{\text {th }}$ (IX)

## Duration: 2 Hrs.

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.
Things NOT ALLOWED in EXAM HALL : Blank Paper, clipboard, log table, slide rule, calculator, camera, mobile and any electronic or electrical gadget. If you are carrying any of these, then keep them at a place specified by invigilator at your own responsibility.

## INSTRUCTIONS

1. This Booklet is your Question Paper. DO NOT break seal of Booklet until the invigilator instructs to do so.
2. Fill yourTALLENTEX Form No. \& Answer Sheet No. in the space provided on the top of this page.
3. Fill your PAPER CODE in space provided (Point No. 6) of optical response sheet (ORS).
4. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS). You have to mark your answers in the ORS by darkening bubble, as per your answer choice, by using black or blue ball point pen.
5. After breaking the Question Paper seal, check the following:
a. There are 16 pages in the booklet containing question no. 1 to 80 under 2 Parts i.e. Part-I \& Part-II.
b. Part-I contains total 20 questions of IQ (Mental Ability).
c. Part-II contains total 60 questions under 4 sections, which are Physics, Chemistry, Biology \& Mathematics.
6. Think wisely before darkening bubble as there is negative marking for wrong answer. Answer once marked by pen cannot be cancelled.
7. Marking Scheme:
a. If darkened bubble is RIGHT answer: 4 Marks.
b. If darkened bubble isWRONG answer:-1 Mark (Minus One Mark).
c. If no bubble is darkened in any question: No Mark.
8. If you are found involved in cheating or disturbing others, then your ORS will be cancelled.
9. Do not put any stain on ORS and hand it over back properly to the invigilator.
10. You can take along the question paper after the test is over.

## PART-I

## IQ (MENTAL ABILITY)

This section contains 20 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

1. Facing towards South, Ram started walking and turned left after walking 30 m , he walked 25 m and turned left and walked 30 m . How far is he from his starting position and in which direction ?
(1) At the starting point only
(2) 25 m , West
(3) 25 m , East
(4) 30 m , East
2. Deepa's school is to the West of her hostel while her office is to the North-West of the Hostel and the market is to the South East of her school. If the distance between her school and market, hostel and market, office and school and office and hostel are equal, then in which direction is the office with respect to her school ?
(1) South-West
(2) North-West
(3) South-East
(4) North-East
3. If CURVE is written as XFIEV, what stands for THEORY ?
(1) MUTPGK
(2) GSVLIB
(3) GKPQUM
(4) GKNSPF
4. In a row of boys, Mukesh is $8^{\text {th }}$ from the right and Suresh is $8^{\text {th }}$ from the left. When Mukesh and Suresh interchange their positions, Suresh becomes $16^{\text {th }}$ from the left. What will be Mukesh's new position from the right ?
(1) 15
(2) 16
(3) 17
(4) 18
5. A cube painted red on two adjacent faces and pink on the faces opposite to the orange faces and violet on the remaining faces is cut into sixty-four smaller cubes of equal size. How many cubes have less than three but atleast one face painted ?
(1) 8
(2) 24
(3) 28
(4) 48
6. How many circles are there in the adjoining figure ?

(1) 13
(2) 16
(3) 15
(4) 10
7. We've assigned different whole numbers to letters and then multiplied their values together to make the values of words.

Given that TEEN $=52$, TILT $=77$, TALL $=363$
What's the value of TATTLE?
(1) 20
(2) 34
(3) 56
(4) 66
8. Choose the alternative figure in which the question figure (X) is embedded.

(X)

(1)

(2)

(3)

(4)
9. Choose the missing terms out of the given alternatives.
$\mathrm{Z}, \mathrm{Y}, \mathrm{X}, \mathrm{U}, \mathrm{T}, \mathrm{S}, \mathrm{P}, \mathrm{O}, \mathrm{N}, \mathrm{K}, ?$, ?
(1) HG
(2) GF
(3) IH
(4) JI
10. All the surface of the dice contain different numbers in the form of dots. Consider both the figures of dice and tell how many dots are contained on the face opposite to the face that contains four dots ?

(1) 2
(2) 3
(3) 5
(4) 6
11. Which of the following will be the value of the expression : $\frac{(6+6+6+6) \div 6}{4+4+4+4 \div 4}$
(1) 1
(2) $\frac{3}{2}$
(3) $\frac{4}{13}$
(4) $3 \frac{6}{13}$
12. The given question is based on the following diagram in which rectangle represents males, triangle represents eduated, circle represents urban, square represents civil servants. Numbers are shown in the different sections of the diagram. On the basis of these number, answer the question.


How many uneducated male are there who are neither a civil servant nor from urban area ?
(1) 13
(2) 8
(3) 31
(4) 14
13. Find the missing character (?)

| (4) | 1 | 11 | 11 | 3 |
| :--- | :--- | :--- | :--- | :--- |
| 3 | 3 | 1 | 6 | 5 |
| 9 | 2 | 9 | 4 | 2 |
| 6 | 4 | 8 | 9 | 3 |
| 5 | 1 | $?$ | 4 | 1 |

(1) 6
(2) 7
(3) 8
(4) 9
14. Which diagram represents the best relation between Newspaper, Paper and Times of India ?
(1)

(2)

(3)

(4)

15. ' $L \% M$ ' means that $M$ is brother of $L$
' $\mathrm{L} \times \mathrm{M}$ ' means that $L$ is mother of $M$
$' L \div M$ ' means that $L$ is the sister of $M$
' $L=M$ ' means that $M$ is father of $L$
Which of the following means "I is the nephew of Q"?
(i) $\mathrm{Q} \% \mathrm{~J}=\mathrm{I}$
(ii) $\mathrm{Q} \div \mathrm{M} \times \mathrm{B} \% \mathrm{I}$
(iii) $\mathrm{C} \div \mathrm{I}=\mathrm{B} \% \mathrm{Q}$
(1) Only (iii)
(2) Only (i)
(3) Only (ii)
(4) None of these
16. Complete the series, choosing the correct figure from the given alternatives.

(1)

(2)

(3) $\left.\begin{array}{l}\square \\ \square \\ \square\end{array}\right)$
(4)

17. In a family of 8 persons viz. A, B, C, D, E, F, G and H, there are 3 couples and 4 females. All couples except one particular, have 1 child each. $G$ and $F$ are cousins. $B$ is the grandmother of $G$ and $C$ is the son of $A$. If couple $\mathrm{C}-\mathrm{H}$ has a daughter F then how is G related to E ?
(1) Grandson
(2) Granddaughter
(3) Son
(4) Daughter-in-law
18. Choose the correct mirror image of fig.(X) from alternative (1), (2), (3) \& (4).

(X)

(1)

(2)

(3)

(4)
19. Find the missing term (?)
$10,47,232,1157,5782, ?$
(1) 27641
(2) 28907
(3) 28903
(4) 27689
20. Find the water image of the object given in the question figure denoted by (A), out of the figure given in the answer choices, (1), (2), (3) and (4).

(A)

(1)
(2)
(3)
(4)

## PART-II

## SECTION-A : PHYSICS

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.
21. Hottest planet of our solar system
(1) is the only planet which supports life
(2) is the planet closest to Sun
(3) contains a large amount of carbon dioxide
(4) is also known as red planet
22. A point object traverses half the distance with velocity $\mathrm{v}_{0}$. The remaining part of the distance was covered with velocity $v_{1}$ for the half the time and with velocity $v_{2}$ for the rest half. The average velocity of the object for the whole journey is
(1) $2 \mathrm{v}_{1}\left(\mathrm{v}_{0}+\mathrm{v}_{2}\right) /\left(\mathrm{v}_{0}+2 \mathrm{v}_{1}+2 \mathrm{v}_{2}\right)$
(2) $2 \mathrm{v}_{0}\left(\mathrm{v}_{0}+\mathrm{v}_{1}\right) /\left(\mathrm{v}_{0}+\mathrm{v}_{1}+\mathrm{v}_{2}\right)$
(3) $2 \mathrm{v}_{0}\left(\mathrm{v}_{1}+\mathrm{v}_{2}\right) /\left(\mathrm{v}_{1}+\mathrm{v}_{2}+2 \mathrm{v}_{0}\right)$
(4) $2 \mathrm{v}_{2}\left(\mathrm{v}_{0}+\mathrm{v}_{1}\right) /\left(\mathrm{v}_{1}+2 \mathrm{v}_{2}+\mathrm{v}_{2}\right)$
23. A lighted candle $S$ stands in front of vertical plane mirror $M_{1} M_{2}$ as shown below


The image of S is not visible to
(1) A
(2) B
(3) C
(4) All A, B and C
24. A force of 6 N acts on a body at rest and mass 1 kg . During this time, the body attains a velocity of $30 \mathrm{~m} / \mathrm{s}$. The time for which the force acts on the body is
(1) 10 s
(2) 8 s
(3) 7 s
(4) 5 s
25. A body is thrown vertically upwards from the top of a tower from point A. It reaches the ground in time $t_{1}$. If it is thrown vertically downwards from A with the same speed, it reaches the ground in time $t_{2}$, if it is allowed to fall freely from $A$, then the time it takes to reach the ground is given by
(1) $t=\frac{t_{1}+t_{2}}{2}$
(2) $t=\frac{t_{1}-t_{2}}{2}$
(3) $t=\sqrt{t_{1} t_{2}}$
(4) $t=\sqrt{\frac{t_{1}}{t_{2}}}$
26. Which of the following statement is NOT correct ?
(1) loudness of sound is determined by the amount of energy received by the ear per unit time.
(2) pitch doesn't depend upon the amount of energy.
(3) loudness changes with change of frequency.
(4) pitch changes with change in frequency.
27. Which of the following correctly indicates the approximate effective values of $g$ on various parts of a journey to the moon?

| Before take off | one minute | in earth | on the |
| :--- | :--- | :--- | :--- |
| from earth | after lift off | orbit | moon |


| $(1)$ | 9.80 | 9.80 | 0 | 1.6 |
| :--- | :--- | :--- | :--- | :--- |
| $(2)$ | 9.80 | 0.98 | 0 | 1.6 |
| $(3)$ | 9.80 | 0 | 0 | $9.8 \times 6$ |
| $(4)$ | 9.80 | 7 | 0 | 1.6 |

28. Correctly identify planets $\mathrm{A}, \mathrm{B}, \mathrm{C}$ and D on the basis of given information.

Planet A- It rotates from east to west and has no satellite.

Planet B- It is the least dense planet of our solar system.
Planet C- It rotates from east to west and has highly tilted rotational axis.
Planet D- It is slightly reddish in color and has two satellites.
(1) Planet-A: Uranus, Planet-B: Mercury, Planet-C: Venus, Planet-D: Jupiter
(2) Planet-A: Venus, Planet-B: Saturn, Planet-C: Uranus, Planet-D: Mars
(3) Planet-A: Venus, Planet-B: Mercury, Planet-C: Uranus, Planet-D: Jupiter
(4) Planet-A: Uranus, Planet-B: Saturn, Planet-C: Venus, Planet-D: Mars
29. Look at the picture of a xylophone.


When struck, a short bar vibrates more quickly than a long bar. What is true about the long bar when it is struck?
(1) It has the same pitch as the short bar.
(2) It has a lower pitch than the short bar.
(3) It has a higher pitch than the short bar.
(4) Its pitch depends how hard you strike it.
30. Suppose the acceleration due to gravity at the Earth's surface is $10 \mathrm{~m} / \mathrm{s}^{2}$ and at the surface of Mars it is $4.0 \mathrm{~m} / \mathrm{s}^{2}$. A 60 kg passenger goes from Earth to the Mars in a space ship moving with a constant velocity. Neglect all other objects in sky. Which part of figure best represents the weight (net gravitational force) of the passenger as a function of time ?

(1) A
(2) B
(3) C
(4) D
31. A series of fast moving still pictures can create an illusion of movement because
(1) the eye can focus on very rapidly changing pictures.
(2) eye is quicker than the brain.
(3) eye can seqarate two images only when the interval of separation between them is one-tenth of a second.
(4) the optical cortex can see through the rapidly moving images.
32. In which of the following cases is the displacement's magnitude half the distance travelled?
(1) 10 steps east followed by 3 steps west
(2) 22 steps east followed by 11 steps west
(3) 5 steps east followed by 10 steps west
(4) 15 steps east followed by 5 steps west
33. A hammer of mass $M$ strikes a nail of mass $m$ with velocity of $u \mathrm{~m} / \mathrm{s}$ and drives it 'a' metres into fixed block of wood. The average resistance of the wood to the penetration of nail is
(1) $\frac{M}{M+m} \frac{u^{2}}{2 a}$
(2) $\frac{M^{2}}{\left(M+m^{2}\right)} \frac{u^{2}}{2 a}$
(3) $\frac{M+m}{M} \frac{u}{2 a}$
(4) $\frac{M^{2}}{M+m} \frac{u^{2}}{2 a}$
34. Same force ' $F$ ' acts on two bodies of different masses 9 kg and 25 kg which are initially at rest. Then the ratio of time required by the two objects to acquire equal final velocity is
(1) $1: 3$
(2) $5: 3$
(3) $9: 25$
(4) $25: 9$
35. The displacement-time graph of a body is shown in figure.


The velocity-time graph of the motion of the body will be
(1)

(2)

(3)

(4)


## SECTION-B : CHEMISTRY

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.
36. Study the characteristics

- It is a dark coloured viscous liquid.
- It has a strong smell.

Identify the substance among the following based on the above characteristics.
(1) Kerosene
(2) Petrol
(3) Petroleum
(4) Alcohol
37. Which metal oxide shows amphoteric nature ?
(1) Calcium
(2) Zinc
(3) Magnesium
(4) Both (1) and (3)
38. Four colourless salt solutions are placed in separate containers and copper rod is dipped in each. In which container solution turns blue?
(1)

(2)

(3)

(4)

39. Kerosene when burnt in a lamp gives
(1) Blue flame
(2) Yellow flame
(3) Orange flame
(4) First gives blue flame \& then yellow
40. The chemical added to LPG to help in detection of its leakage is
(1) isobutane
(2) alcohol
(3) methyl mercaptan
(4) ethyl mercaptan
41. Choose the correct option :

Statement - I : It is difficult to cook food at hill.
Statement - II : The boiling point of water increases at hill.
(1) Statement I and II are correct and statement II is the correct explanation of statement I.
(2) Statement I and II are incorrect.
(3) Statement I is correct but statement II is incorrect.
(4) Statement I is incorrect but statement II is correct.
42. In liquids, intermolecular forces of attraction are
(1) very weak compared with kinetic energies of the molecules
(2) strong enough to hold molecules relatively close together
(3) strong enough to keep the molecules confined to vibrating about their fixed lattice points
(4) strong enough to hold molecules relatively close together but not strong enough to keep molecules from moving past each other
43. The weight of a china dish with a saturated solution of sodium nitrate at $40^{\circ} \mathrm{C}$ is 80 g . After evaporating the whole solution the dish's weight along with the crystals is 40 g and solubility of $\mathrm{NaNO}_{3}$ at $40^{\circ} \mathrm{C}$ is 20 g . What is the weight of empty china dish ?
(1) 30 g
(2) 32 g
(3) 34 g
(4) 28 g
44. In case of aerosol, $\qquad$ is the dispersed phase and $\qquad$ is the dispersion medium.
(1) Liquid, solid
(2) Liquid or gas, solid
(3) Solid, liquid
(4) Solid or liquid, Gas
45. Read the following statements, State whether the statements given below are true or false.
(i) Digestion of food is an example of spontaneous combustion.
(ii) Carbon or charcoal burns in presence of nitrogen gives $\mathrm{CO}_{2}$ with the production of heat and light.
(iii) The type of combustion in which a material suddenly bursts into flames with production of heat, sound and large amount of gas is called explosion.
(1) FFF
(2) FFT
(3) TTF
(4) None of these
46. Arrange the following changes of energy during following phase transition in a proper order. Ice $\left(0^{\circ} \mathrm{C}\right) \longrightarrow$ water $\left(50^{\circ} \mathrm{C}\right) \longrightarrow$ ice $\left(0^{\circ} \mathrm{C}\right)$
(a) kinetic energy remains constant
(b) kinetic energy remains constant
(c) kinetic energy increases
(d) kinetic energy decreases
(1) d b c a
(2) a c b d
(3) a c d b
(4) c a d b
47. Vapourised wax gets completely oxidised in which zone of candle flame ?
(1) Non- luminous zone
(2) Dark zone
(3) Luminous zone
(4) Both (1) and (2)
48. Select the correct sequence of formation of coal.
(1) Peat $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Wood $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Lignite $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Bituminous $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Anthracite
(2) Wood $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Peat $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Lignite $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Bituminous $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Anthracite
(3) Anthracite $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Bituminous $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Peat $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Lignite $\xrightarrow[\text { Pressure }]{\text { Heat }}$ Wood
(4) None of these
49. The heat energy is required to change the state of a substance causes
(1) rise in temperature
(2) no rise in its temperature
(3) separation of forces of attraction between the particles
(4) Both (2) and (3)
50. Calculate the final mass percentage of the solution obtained by mixing of 200 gm of $30 \% \mathrm{mass} / \mathrm{mass}$ solution and 300 gm of $20 \%$ mass/mass solution ?
(1) $24 \%$
(2) $25 \%$
(3) $26 \%$
(4) $27 \%$

## SECTION-C : BIOLOGY

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.
51. Some farmers were seen adding a type of algae to paddy field to support crop growth. Which algae could they be using ?
(1) Red algae
(2) Green algae
(3) Blue green algae
(4) Brown algae
52. Which of these soils will be most likely to experience the greatest amount of erosion?
(1)

(2)

(3)

(4)

53. Which is the correct sequence of arrangement of types of W.B.C. in decreasing order in terms of number per $\mathrm{mm}^{3}$ of human blood?
(1) Eosinophils > Basophils > Neutrophils
(2) Basophils $>$ Eosinophils $>$ Neutrophils
(3) Neutrophils $>$ Eosinophils $>$ Basophils
(4) Eosinophils > Neutrophils > Basophils
54. Which of the following types of human body cells would likely have a high number of lysosomes?
(1) Heart cells
(2) Retinal cells
(3) Muscle cells
(4) White blood cells
55. Match Column I with Column II and select the correct option from codes given below.

## Column I

(a) Combine
(b) Thresher
(c) Winnowing machine
(d) Silos

## Column II


(ii)

(iv)

(iii)
(2) (a) - (ii), (b) - (iii), (c) - (i), (d) - (iv)
(4) (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)
(1) (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)
(3) (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)
to increase food production to meet the demand of an increasing population?
I. Practising efficient land management for agriculture.
II. Continuous research to ensure sustainable development.
III. Using more chemical pesticides to control pests.
(1) I and II only
(2) I and III only
(3) II and III only
(4) I, II and III
57. Study the following chart and identify X and Y .
Deforestation $\rightarrow$ Natural cause $\rightarrow$ Yes $\rightarrow \mathrm{X}$
$\downarrow$
No
$\downarrow$
Y
(1) $\mathrm{X}=$ Agriculture; $\mathrm{Y}=$ Grazing
(2) $\mathrm{X}=$ Forest fire; $\mathrm{Y}=$ Agriculture
(3) $\mathrm{X}=$ Forest fire; $\mathrm{Y}=$ Drought
(4) Both (1) and (2)
58. What can you conclude about the animal's reproduction shown below?

(1) It is sexual reproduction.
(2) It is mimicry.
(3) It is asexual reproduction.
(4) It requires both an egg and a sperm.
59. Which of the following options justify A, B and C ?

CLASSIFICATION OF PLANT TISSUES

i - A is lateral meristem responsible for secondary growth.
ii - B is Parenchyma which is a universal plant tissue.
iii - A is lateral meristem responsible for growth in length of plant.
iv - C is tissue related with translocation of food.
$\mathrm{v}-\mathrm{C}$ is tissue related with ascent of sap.
(1) i, ii and v
(2) ii, iii and iv
(3) i, ii and iv
(4) ii, iii and v
60. Which of the following implement is used for harvesting grain crops ?
(1)

(2)

(3)

(4) None of these
61. What happens during menopause?
I. Ovulation and menstruation stops.
II. Loss of functioning ovarian follicles.
III. Ovarian activity will be reduced.
IV. Increased level of estrogen and progesterone in blood.
(1) I and II
(2) III and IV
(3) I, II and IV
(4) I, II and III
62.


Observe the figure and select the correct option of diseases caused by it.
(1) Typhoid and Common cold
(2) Polio and Chicken pox
(3) Tuberculosis and Polio
(4) Polio and Typhoid
63. Choose the wrong statement.
(1) The nature of matrix differs according to the function of the tissue.
(2) Fats are stored below the skin and in between the internal organs.
(3) Epithelial tissues have large intercellular spaces between them.
(4) Skeletal muscle fibres are multinucleate and unbranched.
64. A high surface area to volume ratio in cells is important because it
(1) Enables efficient transfer of wastes, nutrients and gases across the cell membrane
(2) Prevents overproduction of cell proteins due to structural limitations
(3) Allows many antigens on the surface for identification of self and non self
(4) Provides for better structural support to cope with external physical pressure
65. A cell has mitochondria, ribosomes, endoplasmic reticulum and other organelles. Based on this information, it could not be
(1) A cell from a pine tree
(2) A bacterium
(3) A grasshopper cell
(4) A protozoan

## SECTION-D : MATHEMATICS

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.
66. $\frac{(125)^{\mathrm{n}} \times 5^{2} \times\left(5^{-\frac{\mathrm{n}}{2}}\right)^{3}-\left(5^{\mathrm{n}}\right)^{3 / 2}}{5^{3 \mathrm{~m}} \times 2^{3} \times 3}=\frac{1}{125}$ then which of the following is true
(1) $2 \mathrm{~m}-\mathrm{n}+2=0$
(2) $n-2 m-2=0$
(3) $2 \mathrm{~m}+\mathrm{n}-2=0$
(4) $n-2 m+2=0$
67. If ' $x$ ' is any natural number, then $x^{3}-\frac{1}{x^{3}}$ will always be greater than or equal to
(1) $x+\frac{1}{x}$
(2) $3\left(x-\frac{1}{x}\right)$
(3) $3\left(x+\frac{1}{x}\right)$
(4) $\left(\mathrm{x}^{3}+\frac{1}{\mathrm{x}^{3}}\right)$
68. Find the value of $300[0.09]^{1 / 2} \times[0.027]^{1 / 3}$
(1) 25
(2) 9
(3) 27
(4) 3
69. Factorise $\left(1-2 x-x^{2}\right)\left(1-2 x+3 x^{2}\right)+4 x^{4}$
(1) $(x-1)^{2}$
(2) $(x-1)^{4}$
(3) $(x+1)^{2}$
(4) $(x+1)^{4}$
70. If $x=\sqrt[3]{2 \frac{93}{125}}$ then the value of $x$ is
(1) $2 \frac{1}{5}$
(2) $1 \frac{2}{5}$
(3) $3 \frac{4}{5}$
(4) $4 \frac{4}{5}$
71. Find number of possible pairs of positive integers $(m, n)$ such that $m^{3}+11^{3}=n^{3}$.
(1) 1
(2) 0
(3) 2
(4) 4
72. If the polynomial $f(x)=x^{4}-6 x^{3}+16 x^{2}-25 x+10$ is divided by another polynomial $x^{2}-2 x+k$, the remainder comes out to be $\mathrm{x}+\mathrm{a}$, find $\mathrm{k}+\mathrm{a}$.
(1) 5
(2) 0
(3) 10
(4) -10
73. If $x=\sqrt{2}+1$ then find the value of $\left(x-\frac{1}{x}\right)^{2}$
(1) 1
(2) 3
(3) 2
(4) 4
74. A cube with a side 1 m long has been cut into cubes of a side 1 dm each. All small cubes have been put one on top of the other, to form a vertical structure. What is the height of this structure?
(1) 100 m
(2) 1 km
(3) 10 km
(4) 1000 km
75. In the diagram $A B$ is a straight line. The value of $x$ is
(1) 67
(2) 59
(3) 62
(4) 40

76. An equilateral triangle $B P C$ is drawn inside a square $A B C D$. What is the value of the angle $A P D$ in degrees.
(1) 75
(2) 90
(3) 12
(4) 150
77. $f(x)$ is a linear function. If $f(1)=-1$ and $f(2)=14$. Find the value of $f(15)$
(1) 214
(2) 201
(3) 213
(4) 209
78. The ratio of marks obtained by Vinod and Basu is $6: 5$. If the combined average of their percentage is 68.75 and their sum of the marks is 275 , find the total marks for which exam was conducted.
(1) 150
(2) 200
(3) 400
(4) none
79. A right circular cone is enveloping a right circular cylinder such that the base of the cylinder rests on the base of the cone. If the radius and the height of the cone is 4 cm and 10 cm respectively, then the largest possible curved surface area of the cylinder of radius $r$ is
(1) $20 \pi r^{2}$
(2) $5 \pi r(4-r)$
(3) $5 \pi(r-4)$
(4) $5 \pi r(2-r)$
80. Factorize : $2 \sqrt{2} x^{3}+3 \sqrt{3} y^{3}+\sqrt{5}(5-3 \sqrt{6} x y)$
(1) $(\sqrt{2} x+\sqrt{3} y+\sqrt{5})\left(2 x^{2}+3 y^{2}+5-\sqrt{6} x y-\sqrt{15} y-\sqrt{10} x\right)$
(2) $(\sqrt{2} x-\sqrt{3} y+\sqrt{5})\left(2 x^{2}+3 y^{2}+5-\sqrt{6} x y-\sqrt{15} y-\sqrt{10} x\right)$
(3) $(\sqrt{2} x-\sqrt{3} y-\sqrt{5})\left(2 x^{2}+3 y^{2}+5-\sqrt{6} x y-\sqrt{15} y-\sqrt{10} x\right)$
(4) None of these

SPACE FOR ROUGH WORK

## ALLEN Champion's Day 2015



## Revised Answer Key

# Class- $9^{\text {th }}$ (IX) 

Held on : 04 October 2015

| Q.No. | Ans |
| :---: | :---: |
| 1 | 3 |
| 2 | 4 |
| 3 | $\mathbf{2}$ |
| 4 | $\mathbf{2}$ |
| 5 | $\mathbf{4}$ |
| 6 | $\mathbf{1}$ |
| 7 | $\mathbf{4}$ |
| 8 | $\mathbf{1}$ |
| 9 | $\mathbf{4}$ |
| 10 | 4 |
| 11 | 3 |
| 12 | 3 |
| 13 | 2 |
| 14 | $\mathbf{1}$ |
| 15 | 3 |
| 16 | 3 |
| 17 | 3 |
| 18 | $\mathbf{1}$ |
| 19 | $\mathbf{2}$ |
| 20 | 2 |
|  |  |


| Q.No. | Ans |
| :---: | :---: |
| 21 | 3 |
| 22 | 3 |
| 23 | 2 |
| 24 | 4 |
| 25 | 3 |
| 26 | 3 |
| 27 | 4 |
| 28 | 2 |
| 29 | 2 |
| 30 | 3 |
| 31 | 3 |
| 32 | 4 |
| 33 | 4 |
| 34 | 3 |
| 35 | 4 |
| 36 | 3 |
| 37 | 2 |
| 38 | 2 |
| 39 | 2,4 |
| 40 | 4 |
|  |  |


| Q.No. | Ans |
| :---: | :---: |
| 41 | 3 |
| 42 | 4 |
| 43 | 1,2 |
| 44 | 4 |
| 45 | 2 |
| 46 | 3 |
| 47 | 1 |
| 48 | 2 |
| 49 | 4 |
| 50 | 1 |
| 51 | 3 |
| 52 | 2 |
| 53 | 3 |
| 54 | 4 |
| 55 | 4 |
| 56 | 1 |
| 57 | 2 |
| 58 | 3 |
| 59 | 3 |
| 60 | 2 |
|  |  |


| Q.No. | Ans |
| :---: | :---: |
| 61 | 4 |
| 62 | 2 |
| 63 | 3 |
| 64 | $\mathbf{1}$ |
| 65 | 2 |
| 66 | 4 |
| 67 | 2 |
| 68 | 3 |
| 69 | 2 |
| 70 | 2 |
| 71 | 2 |
| 72 | 2 |
| 73 | 4 |
| 74 | 1 |
| 75 | 1 |
| 76 | 4 |
| 77 | 4 |
| 78 | 2 |
| 79 | 2 |
| 80 | $\mathbf{1}$ |



