SciQuest

CLASS VIII

by Zaariya

16 November, 2019.   TIME ALLOTTED: 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. The Answer Sheet is kept inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully.

2. This examination paper contains **EIGHTY(80)** questions and comprises **TWENTY ONE(21)** printed pages. The maximum marks are 200.

3. There are **FIVE(5)** parts in this question paper A, B, C, D and E having 20, 15, 15, 15 and 15 questions respectively.

4. The **last 5 questions** of each part (except A-MAT) are worth **+FOUR(4)** marks each and a wrong answer will result in deduction of **ONE(1)** mark.

5. The remaining questions are worth **+TWO(2)** marks and a wrong answer will result in deduction of **HALF(1/2)** mark from the total score.

6. Unattempted questions will not affect your score.

7. There is only one correct response to each question. Filling up more than one response in any question will be treated as a wrong response.

8. No candidate is allowed to carry any textual material, printed or written, bits of papers, pager, mobile phone, any electronic device, etc. inside the examination room/hall.

Personal Details

Name of the Candidate

Registration Number

Centre Code

1

1. Choose the correct replacement for '?'

   Sherlock Holmes : Sir Arthur C. Doyle :: Harry Potter : ?

   (a) Albus Dumbledore   (c) J.K. Rowling

   (b) Arthur C. Clarke   (d) J.R.R. Tolkien

2. According to a private analysis, the best car company of 2018 was Mercedes, followed by Lamborghini, BMW and Ferrari. This year again, the top four places are secured by these four companies. Lamborghini kept its position, but BMW lost its position by one. Mercedes scored an overall less points than Lamborghini. What is the best car of this year according to the analysis?

   (a) Mercedes   (b) BMW   (c) Ferrari   (d) Data insufficient

3. Arrange (i) to (v) according to the best relation you can get among them. (i) Snake (ii) Grasshopper (iii) Frog (iv) Hawk (v) Grass

   (a) $(i) \rightarrow (ii) \rightarrow (iii) \rightarrow (iv) \rightarrow (v)$

   (b) $(v) \rightarrow (ii) \rightarrow (iii) \rightarrow (i) \rightarrow (iv)$

   (c) $(v) \rightarrow (i) \rightarrow (ii) \rightarrow (iii) \rightarrow (iv)$

   (d) $(v) \rightarrow (i) \rightarrow (iii) \rightarrow (ii) \rightarrow (iv)$

4. If the first letter of SCIQUEST is interchanged with the second, also the third with the fourth, the fifth with the sixth and the seventh with the eighth, then what is the fifth letter from the last after all these interchanges?

   (a) Q   (b) U   (c) E   (d) I

5. If '+' means '×', '×' means '−', '−' means '/'and '/' means '+', then $\{(32 \times 8) - 8 \times 2\}/4 + 188 + 91 =$?

   (a) 0   (b) 1   (c) 12   (d) None of These

   Space for rough work

6. One morning just after sunrise, Aditi and Anusmita were talking to each other at Acharya Vihar Square. If Anusmita's shadow was exactly to the right of Aditi, which direction Anusmita was facing?
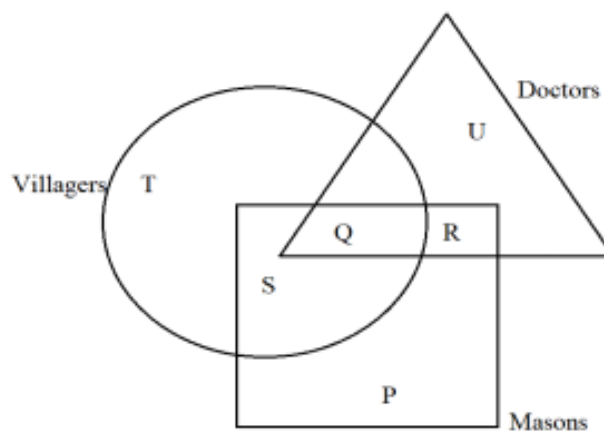
 (a) North (b) East (c) South (d) West

7. Which of the following figures best represents the best relation between Furniture, Tables and Chairs?
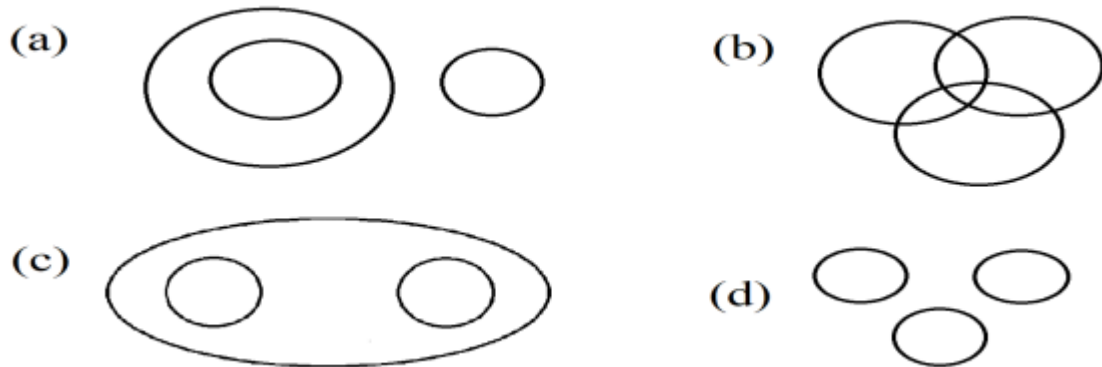
8. In the diagram below, triangle represents doctors, square represents masons and circle represents the people living in village.
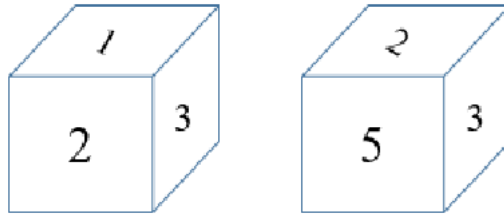
 The Masons, who are living in village but not working as doctor are represented by

 (a) U (b) R (c) P (d) S

Space for rough work

3

9. The second dice is obtained by rotating the first dice once by 90. The faces of this dice shows numbers 1, 2, 3, 4, 5 and 6. Number of the face opposite to the face showing '1' is

(a) 4   (b) 5   (c) 6   (d) Data Insufficient

10. What is the angle rotated by the hour hand of a normal wall-clock between 10:10 a.m. and 10:35 a.m.?

(a) 12.5°

(b) 15°

(c) 25°

(d) 150°

11. Vasant can eat maximum of 4 ice-creams in 3 consecutive days. Having any more will make him sick. What is the maximum number of ice-creams he can eat in the month of November without falling sick?

(a) 30

(b) 31

(c) 32

(d) 33

Space for rough work

4

12. What is the sum of the numbers which comes between 40 and 50 in the series given below?

$$7,11,15,19,23$$

(a) 88   (b) 90   (c) 86   (d) 135

13. There are 53 Sundays in the year 2040. The year starts with a _____

(a) Saturday   (b) Sunday   (c) Monday   (d) Data Insufficient

14. What are the next two numbers of the number series given below?

$$2, 4, 12, 48, 240,$$

(a) 1440,10080   (b) 1080,10080   (c) 1080,14400   (d) 1440,10400

15. Water has highest density at temperature $4°C$. Read the following statements carefully and choose which of the followings can be concluded directly from the given statement.

(A) Water expands on cooling, starting from $4°C$

(B) Water contracts on cooling, starting from $4°C$

(C) Water expands on heating, starting from $4°C$

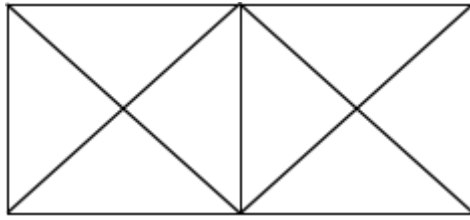(D) Water contracts on heating, starting from $4°C$

(a) A & C   (b) A & D   (c) B & C   (d) B & D

16. Your friend Raj loves to explain things in tricky ways. He introduces a woman as his Grandfather's daughter-in-law's husband's only sister. How is that woman related to Raj?

(a) Mother   (b) Aunt   (c) Sister   (d) Either A or B

Space for rough work

17. How many triangles are there in this diagram?
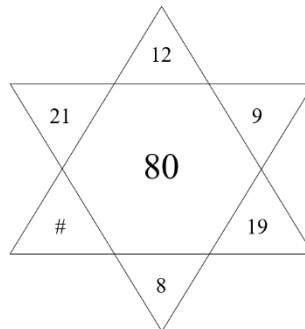

   (a) 12   (b) 8   (c) 18   (d) 22

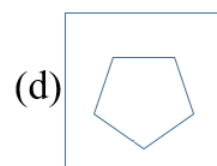18. In a coding system, PEN is coded as CRA, ANT is coded as NAG. What is POT coded in that particular system?
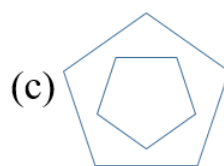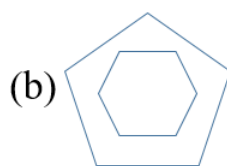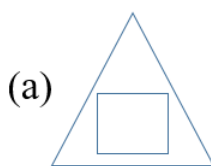
   (a) CBG   (b) GOT   (c) CRG   (d) GRT

19. What comes in place of '' ?

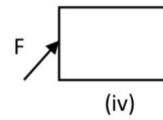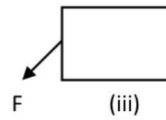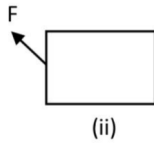   (a) 11   (b) 7   (c) 3   (d) 1

20. Which of these following diagrams is odd in a particular way than the others?

Space for rough work

6

21. In the following cases, forces are applied in different directions to an object placed on a rough surface. In which case(s) will the action be easier?
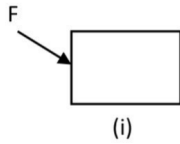
(a) I and III

(c) only II

(b) II and IV

(d) All will be of the same difficulty

22. The voice of which of the following is likely to have a maximum frequency?

    (a) A woman   (b) Baby girl   (c) A man   (d) Baby boy

23. The angle of reflection is always equal to the angle of reflection.

    (a) Yes, Always

    (b) Not if the mirror is curved

    (c) Not if the mirror is zigzag

    (d) Both b and c

24. A sound with higher pitch

    (a) is louder than one with lower pitch

    (b) has lower frequency than one with lower pitch

    (c) will be heard at a further distance than one with lower pitch

    (d) None of these

25. The definition of pressure is

    (a) different for forces by solids and forces by liquids

    (b) different for forces by liquids and forces by gases

    (c) different for forces by all states of matter

    (d) same for forces applied by all states of matter

Space for rough work

26. An object is placed in different places. Where will it suffer maximum pressure?

(a) On ground

(b) In an ocean

(c) Attached to a kite

(d) In outer space

27. Three metal balls but sizes of marble, tennis ball, football are sunk in a fluid. Which one experiences most thrust?

(a) Marble sized

(b) Tennis ball-sized

(c) Football sized

(d) Same thrust for all

28. Oxides of which element mixes with rainwater to form acid rain?

(a) Sulphur

(b) Nitrogen

(c) Magnesium

(d) Both a and b

29. The layers of earth in order from outermost to innermost is

(a) Mantle,core,crust

(b) Crust,core,mantle

(c) Crust,mantle,core

(d) None of the above

30. The star which does nor appears to move when observed from earth is

(a) Sirius

(b) Orion

(c) Pole star

(d) Arcturus

31. The water in a paper cup can even boil when heated without burning of paper, this is because:

(a) the paper cup is thick

(b) Conduction of heat through the paper cup

(c) Water has a lower boiling point than the ignition temperature of paper

(d) there is no oxygen for the paper to burn

Space for rough work

32. Which of the following statements is correct regarding rods and cones cells in the human eye?

   (a) Rods can sense colour

   (b) Cones are sensitive to dim light

   (c) Rods are sensitive to bright light

   (d) Cones are sensitive to bright light

33. A ball placed on an inclined plane starts rolling instead of translational motion. Which is the force that causes this motion?

   (a) Rolling force   (c) Friction

   (b) Gravitational pull by the Earth   (d) Due to the air

34. You and your friends are playing a game of tug of war. A team is winning as they are pulling by a force of 10N while the other team pulls with 8N. No team will win the game if

   (a) A person providing 2N is removed from the winning team

   (b) A person who will provide 2N is added in the losing team

   (c) There is no way

   (d) Either a or b

35. Three holes are made in a bottle filled with water. The water starts to come out. The increasing order of the speed of water coming out is:

   (a) $C > B > A$

   (b) $B > A > C$

   (c) $C > A > B$

   (d) $A > B > C$

Space for rough work

9
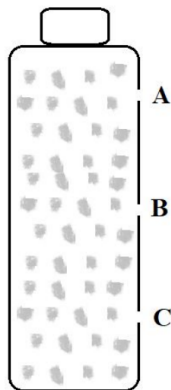
36. A cricketer hits only 6's and 4's to score 88 runs.If he scored 20 runs less by hitting only 6's.Then,how many 6'sand 4's respectively did he hit?

    (a) $14, 9$

    (b) $8, 8$

    (c) $9, 14$

    (d) $10, 6$

37. $x^{a+1} = y^{b+1} = z^{c+1}$ and $xyz = 1$. Then, $\dfrac{b-a}{b+1} + \dfrac{c-a}{c+1} =$

    (a) 4   (b) 3   (c) 6   (d) 2

38. $x^3 \alpha \dfrac{x^3 - y^2}{x^3 + y^2}$ and $x^3 \alpha \dfrac{x^3 - y^2}{x^3 + y^2}$. Then, $\dfrac{(xy)^2 - \dfrac{1}{xy}}{\dfrac{y^2}{x} - \dfrac{x^2}{y}}$ is proportional to

    (a) $\dfrac{x-y}{x+y}$ (b) $\dfrac{(xy)^2 - 1}{(xy)^2 + 1}$ (c) $\dfrac{x^2 - y}{x^2 + y}$ (d) $\dfrac{xy + 1}{xy - 1}$

39. What must be the side of an equilateral triangle so that its area is equal to the area of an isosceles triangle with base 10 m and equal sides to be 12m

    (a) 9   (b) 10   (c) 10.5   (d) 11.5

40. $x + \dfrac{1}{x} = K$ has no solution for natural number K. How many such values of K exist?

    (a) 1   (b) 2   (c) 3   (d) None

Space for rough work

41. $a + b = 8$ and $ab = 13$.   Then, $a^3 + b^3 =$

    (a) 200   (b) 242   (c) 136   (d) 312

42. What is the sum of the angles of a 12 sided polygon

    (a) 1440   (b) 1200   (c) 1800   (d) 360

43. The ratio of the age of a son and his father is 3:8. 6 years ago the ratio was 2:7. Find the age of the son.

    (a) 18   (b) 20   (c) 16   (d) 12

44. In a farm there are only sheep.70% of these sheep are healthy and 18 sheep are diseased. How many sheep are there in the farm and how many sheep are healthy?

    (a) 60, 42   (b) 70, 42   (c) 100, 70   (d) 80, 70

45. If you add numbers from 1 to 555.Then what is the units place digit of the resulting number

    (a) 5   (b) 3   (c) 0   (d) 9

46. After scoring a century in a match in his 11th match ,the average of the cricketer increased by 5 runs. What is his current average?

    (a) 45   (b) 50   (c) 65   (d) 70

47. A box contains 12 marbles of three different colours green,yellow and blue (4 of each).What is the minimum number of marbles you should pick so that you have at least one pair of marbles of the same colour. is

    (a) 2   (b) 3   (c) 4   (d) 5

Space for rough work

48. A prime number is a natural number greater than 1 that has no divisor except 1 and itself. How many prime numbers are there between 1 and 200?

   (a) 23

   (b) 25

   (c) 46

   (d) 35

49. If the interior angle of a regular polygon is twice its exterior angle. How many diagonals does the polygon have?

   (a) 9   (b) 5

   (c) 14   (d) 2

50. 4 circles of radius r surround a unit circle such that each circle just touches all its adjacent circles as shown in the figure.What is r?
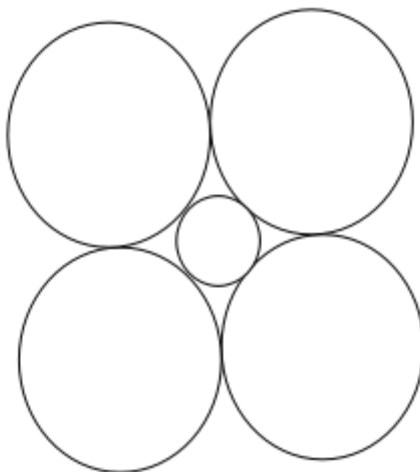
   (a) $1 + \sqrt{2}$ (b) $\sqrt{2}$ (c) $\sqrt{2} - 1$ (d) $\sqrt{3}$

Space for rough work

51. We often hear that plants can make their own food while animals cannot. In regard to this, which of the following statements is **incorrect**?

    (a) Plants use sunlight directly to make their food.

    (b) Photosynthesis is generally performed by plants

    (c) Animals indirectly depend on sunlight for their food

    (d) Animals can perform photosynthesis.

52. Viruses are so unique in their life cycle that it is hard to tell whether they are living or not. What makes viruses different from other microbes?

    (a) They cause diseases

    (b) They reproduce only outside their hosts

    (c) They behave like a living organism only inside their hosts

    (d) They can be seen with naked eyes

53. Is quite unfortunate that hundreds of species go extinct every day. Human activities have disturbed ecosystems. Which of the following statement(s) support this fact?

    (a) Deforestation and habitat destruction are causing mass extinction.

    (b) Extinction of a species disturbs the food chain which causes further extinctions.

    (c) Climate change is not responsible for the mass extinction.

    (d) All except

54. All organisms can be classified into Prokaryotes or Eukaryotes. Which structure(s) of the cell is taken into consideration while grouping organisms into the above two categories?

    (a) Nucleus size

    (b) Nucleus number

    (c) Nuclear membrane

    (d) All of the above.

55. At the age of 12, Sheetal observes unfamiliar changes in her body, such as acne breakouts and enlargement of hips and breasts. The direct cause of these changes is:

    (a) Psychological   (b) Hormonal   (c) Environmental   (d) Genetic

Space for rough work

56. Oral Polio Vaccine has saved millions of lives in our country. World Health Organisation has declared India a polio-free country. Keeping the working principle of vaccines in mind, identify the correct statement(s):

   (a) Vaccines contain dead or weakened microbes

   (b) Our bodies kill microbes by producing suitable antibodies and keeps the antibodies for future use.

   (c) Vaccines are only for adults

   (d) a and b are both correct

57. Living organisms show variety in cell shape, size, and number. Which of the following is common to all living beings?

   (a) All of them start as a single-celled organism

   (b) The cell number is the same for all.

   (c) Cell shapes are not linked to cell function.

   (d) All of the above.

58. Which of the following is/are true for the test-tube babies?

   (a) These babies develop inside test tubes

   (b) The only have one biological parent

   (c) Fertilization takes place inside a test tube

   (d) All of the above.

59. Which of the following lists contains items all of which are produced by microbial activity?

   (a) Milk, curd, bread.

   (b) Wine, curd, silk.

   (c) Antibiotics, sugar, cotton

   (d) Vinegar, curd, antibiotics

60. Endemic species are organisms exclusively found in a specific area. Which of the following does not endanger their existence?

   (a) Destruction of their habitat

   (b) Introduction of a new species in their habitat

   (c) Destruction of their food source.

   (d) None of the above

Space for rough work

61. Suppose you are an astrobiologist on a spaceship, looking for life on different planets. The spaceship approaches an Earth-like planet R132, where water is present. Some samples of the water at different places on the planet were taken and observed under a microscope. The samples contain small organisms. Five members of your crew ended up being sick and experienced severe diarrhea and dehydration. What do you think is the probable cause, from the information given?

    (a) A virus was attacking the bodies of different hosts

    (b) Invisible alien races were trying to control humans by making them sick

    (c) A bacterial infection was contracted through contaminated water samples

    (d) Both a and c are probable events

62. Somali is a mother of two. One day, she buys two cartons of milk from the supermarket - one with a label that reads 'pasteurized', and another of the same brand which reads 'raw milk'. She then does the following:

    A - Feeds milk in the 'pasteurized' carton to her kids without boiling it.

    B - Declares that milk in both cartons has the same chemical composition.

    C - Leaves the open cartons with leftover milk on the counter-top. After several hours, she feeds the milk in 'pasteurized' carton to her kids, but not the raw one.

    D - As there is not enough to drink, Somali boils the 'raw milk'. She immediately transfers this milk to an empty carton that reads 'pasteurized', and stores it in the refrigerator for the rest of the family to consume.

    From the hygiene point of view, all but which of her actions would you appreciate?

    (a) A   (b) B   (c) C   (d) D

63. Tina is from Rajnagar. Rajnagar's weather allows good production of Rabi crops but not Kharif crops. Which of the following may be the menu for a dinner at Tina's house. (Assume Tina's father buys only local produce.)

    (a) Roti and Mutter Paneer (Flatbread and Peas Cottage Cheese)

    (b) Rajma-Chawal (Kidney Beans and Rice)

    (c) Spinach fry with crunchy groundnuts

    (d) Rice and Mustard-Fish

Space for rough work

64. Bhitarakanika national park of Odisha hosts thousands of Olive Ridley Turtles every year who visit the place to lay eggs. Fortunately, these wonderful creatures don't feature on the Red Data Book. With reference to this text mark the correct option

    (a) Olive Ridley turtles are endemic to Bhitarakanika.

    (b) Olive Ridley turtles are an endangered species.

    (c) Olive Ridley turtles are a migratory species.

    (d) None of the above

65. Water is essential for the proper growth and development of living beings. Plants contain nearly 90% water. Now consider the following statements:

    I. Water helps in the transport of minerals in plants.

    II. Seed germination requires water.

    III. Water protects plants from frost and hot air currents.

    IV. There is no limit to the amount of watering the plants.

    V. In summer, the frequency of watering increases due to a decreased rate of evaporation from leaves.

    Which of the above statements about water is/are true?

    (a) I, II, III

    (b) All except IV

    (c) IV, V

    (d) All except III

Space for rough work

16

66. Carbon is capable of forming many allotropes due to its valency. Among them, which is the purest form of carbon:

    (a) Coal

    (b) Diamond

    (c) Charcoal

    (d) All of these as these are allotropes of carbon and has no basic difference in their purity

67. You must have seen your mother putting Naphthalene balls inside your wardrobe. But after a few days, you notice that its size has reduced to half. Which of the following is a probable explanation for the above phenomena :

    (a) They have melted and the clothes have absorbed the liquid.

    (b) They have vaporized directly.

    (c) They have been eaten up by insects.

    (d) Cannot be concluded.

68. Which of the following metal will not spread on the base of a container at 60 degree celsius?

    (a) Mercury

    (b) Bismuth

    (c) Gallium

    (d) Both (a) and (c)

69. You are on a camping trip. You have brought wood and coal with you and want to make a campfire. Being a science student, will you burn wood or pure coal and why?

    (a) Wood because coal will only glow on burning

    (b) Coal because it is easier to burn

    (c) Wood because it is cheaper

    (d) Coal, because it has higher calorific value

70. Adwaith wants an element to help him cool a certain piece of laboratory machinery. He wants to keep the temperature at about 50 degree kelvin. What element should he prefer to buy?

    (a) Ethanol

    (b) Mercury

    (c) Liquid Nitrogen

    (d) Tungsten

Space for rough work

71. Sun is the source of energy for the entire planet. What is the source of energy the sun?

    (a) Thermonuclear fusion
    (c) Combustion of hydrogen
    (b) Thermonuclear fission
    (d) Combustion of helium

72. Astronaut Pulkit is on an astronomical mission in ISS(International Space Station).During their stay in ISS, they lit a candle to understand how a flame will behave in a gravity-free atmosphere. What will he observe?

    (a) The flame is of a different colour
    (c) The flame forms a sphere
    (b) The flame goes higher than that on earth
    (d) The lighter fails to start a flame.

73. We use synthetic fibre for a variety of jobs. Among the following, which is the first synthetic fibre to be developed?

    (a) Rayon
    (b) Nylon

    (c) PVC
    (d) Acrylic

74. Brass is hard and durable, making it suitable for plumbing fixtures and machined parts. It is an alloy of

    (a) Copper and iron
    (b) Iron and zinc

    (c) Zinc and copper
    (d) Silver and copper

75. Batman was chasing the Joker in his batmobile. During the chase batmobile breaks down. In order the kick start the engine he need to connect a battery with the batmobile's engine, however he finds out that he is short of conducting wires. Which of the following materials can he use instead of conducting wires[given that he has accessories like valves,tubes blade, rocket etc with him?

    (a) Distilled water
    (b) Nylon

    (c) Wood
    (d) Pond water

Space for rough work

76. Iron copper aluminium etc are among the most abundant metals on the earth's crust. Most of the electric wirings are done by using either of these 3 metals. But the filament of a bulb is made of Tungsten(W), which is very less abundant compared to other metals. Why is tungsten used for this?

    (a) Tungsten has a very high melting point

    (b) Tungsten is a very good insulator of heat

    (c) Tungsten is a very good insulator of electricity

    (d) It is not very malleable

77. Metallic oxides are basic in nature; however, some are also amphoteric. Which one of the following metallic oxides are amphoteric? While working in a lab, one of your friends spilled acid on his hands, while another spills a base on her hands. You are a super-chemist and you know that you have very less time to react. What compound will you use to help both of the simultaneously?

    (a) Al_2O_3 (c) CuO

    (b) MgO   (d) Fe_2O_3

78. The indian railways recently decided to use biodegradable plastic for making its water bottles. Which one of the following synthetic polymer can they use?

    (a) Rayon   (c) PHBV

    (b) Acrylic   (d) Polyester

79. Saswat is a well known international chef. Being a philanthropist he decided to come with a new idea to serve the people of his country. He decides to cook food for free and serve it to homeless people. Among the following which type of material will you not prefer for making his out-fit ?

    (a) Cotton

    (b) Nylon

    (c) Wool

    (d) Silk

Space for rough work

19

80. A Gas X is composed of two gases Y and Z,with a composition of 35% and 65% respectively. 20 grams of Y burns completely giving 12 joules of energy, and 20 grams of Z burns giving 28 joules of energy. What is the calorific value of X?

   (a) 1.34 Kj/Kg

   (b) 2.0 Kj/kg

   (c) 1.5 Kj/kg

   (d) 1.12 Kj/kg

Space for rough work

END OF QUESTIONS

END OF QUESTIONS