# IIT KALRASHUKLA

## A Class Apart

# CLASS – 8th

**Time : 90 minutes**                                       **Maximum Marks : 180**

## -: Important Instructions :-

(i)     Use only Black Ball Point pen.

(ii)    This test booklet contains 3 Sections of question paper consisting of
        SECTION - I    →    SCIENCE                              (15 Questions)
        SECTION - II   →    MATHEMATICS                          (15 Questions)
        SECTION - III  →    MENTAL ABILITY & REASONING           (15 Questions)

(iii)   Each question is allotted **4 marks for correct response**.

(iv)    **1 mark will be deducted** for marking incorrect or multiple responses.

(v)     No deduction will be made from total marks for unattempted questions.

(vi)    For each question, there is **only 1 correct** response.

**Name of Student (in Capital Letter) :** _____

**Candidate Signature :** _____
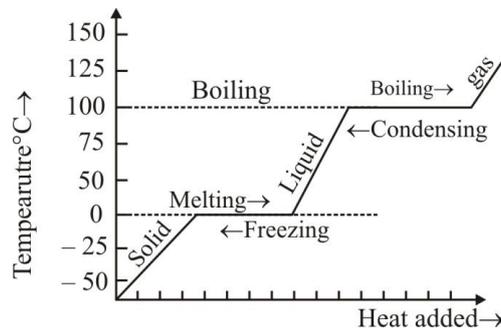
**Invigilator Signature :** _____

# SECTION - I
## SCIENCE

1. When we move in forward direction, tangential force exerted by ground on us will be
   (A) In the direction of motion            (B) Opposite direction of motion
   (C) In upward direction                   (D) Downward direction

2. Our bodies convert chemical energy from food into mechanical and _____energy. Fill in the blank space for given statement with suitable option
   (A) Sound energy     (B) Heat energy     (C) Electrical energy  (D) Light energy

3. Give the name of type of material for butter paper
   (A) Translucent
   (B) Opaque
   (C) Transparent
   (D) Perfect Reflecting

4. If resistance offered by ground is 5 N in opposite direction of motion of object, then find the speed when object crosses the man
   (A) $5\sqrt{2}$                           (B) 5 m/s
   (C) 10 m/s                                (D) $\sqrt{5}$ ms

5. While using an electric bulb, the reflection for street lighting should be from
   (A) Concave mirror                        (B) Convex Mirror
   (C) Cylindrical mirror                    (D) Parabolic Mirror

6. A student is performing an experiment of boiling water. He has taken water in a container made up of paper, what will be the possible result of the experiment.
   (A) He will not be able to boil water.
   (B) The paper will burn first.
   (C) Water will be boiled
   (D) The result can't be predicted in all the cases container will collapse.

7. Which of the following is only chemical change?
   (A) Burning of candle                     (B) Filling of Balloon
   (C) Melting of ice                        (D) Rusting of iron

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8.   Which of the following are $_{16}S^{32}$ & $_{15}P^{31}$?
     (A) Isotopes          (B) Isobars          (C) Isotones          (D) Isomers.

9.   The temperature at which the substance is melting is …………. the temperature at which the substance is freezing.



     (A) is less than                              (B) is more than
     (C) is same as                               (D) is different from

10.  Generally metals react with dilute acids and produce hydrogen gas. Which one of the following metals does not react with dilute hydrochloric acid.
     (A) Mg               (B) Al               (C) Fe               (D) Cu

11.  Cell wall is present in
     (A) Plant cell        (B) Human cell       (C) Animal cell       (D) DNA

12.  Goitre is caused due to deficiency of
     (A) Vitamin A         (B) Fluorine         (C) Iodine           (D) Vitamin C

13.  Ringworm is due to
     (A) Algae             (B) Virus            (C) Fungus           (D) Bacteria

14.  Vaccination is not available for
     (A) Polio             (B) Common cold      (C) Tetanus          (D) Tuberculosis

15.  The production and management of fish is called
     (A) Pisciculture      (B) Apiculture       (C) Sericulture      (D) Aquaculture

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# SECTION - II
## MATHEMATICS

16.  The LCM of 1/4 and 2/5 is:
     (A) 1          (B) 1/10          (C) 2          (D) 1/20

17.  Roshan wanted to type the first 190 whole numbers. Find the numbers of times he had to press the numbered keys.
     (A) 191          (B) 462          (C) 463          (D) 190

18.  Find how many three digit perfect cubes are there whose sum of the digits is a perfect square.
     (A) 1          (B) 2          (C) 3          (D) 4

19.  $\sqrt[3]{x} + \dfrac{48}{\sqrt[3]{x}} = 16$ which of the following can be the value of x ?

     (A) 27          (B) 1728          (C) 1331          (D) 2197

20.  If $4(4x)^7 = 4^{6^2}$ then what is the value of x?
     (A) 5          (B) 25          (C) 64          (D) 256

21.  Find the value of $\left(\dfrac{225}{49}\right)^{\frac{3}{2}}$ :

     (A) $\dfrac{343}{3375}$          (B) $\dfrac{15}{7}$          (C) $\dfrac{3375}{343}$          (D) $\dfrac{7}{15}$

22.  $\left(a + \dfrac{1}{a} + 2\right)^2 = 4$ then find $a^2 + \dfrac{1}{a^2}$ given that $a^2 + \dfrac{1}{a^2}$ cannot be negative:
     (A) 12          (B) 13          (C) 14          (D) −14

23.  If $x + y + z = 5$ and $xy + yz + zx = 7$ then $x^3 + y^3 + z^3 - 3xyz =$
     (A) 20          (B) 21          (C) 12          (D) 22

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24.   Which of the following is binomial :

(A) ax          (B) $(x-y)^2$          (C) $(x+y)^2$          (D) $(x+y)(x-y)$

25.   The price of rice dropped by 25%. As a result Sita was able to buy 5 kg more rice for Rs 240. Find the original price of rice (in Rs / kg).

(A) 16          (B) 18          (C) 15          (D) 20

26.   Mean of x and $\dfrac{1}{x}$ is k, then find the mean of $x^2$ and $\dfrac{1}{x^2}$ :

(A) $k^2-1$          (B) $2k^2-2$          (C) $k^2-2$          (D) $2k^2-1$

27.   If the difference between the mode and the median of certain observation is 54, then the difference between the median and the mean is ?

(A) 36          (B) 18          (C) 27          (D) 81

28.   The width of a ring is 6 cm and the area of the inner circle is 616 cm². Find the circumference of the outer circle.

(A) 88 cm          (B) $\dfrac{880}{7}$ cm          (C) $\dfrac{264}{7}$ cm          (D) $\dfrac{8800}{7}$ cm

29.   A conical tent is 12 m high and the radius of its base is 9 m. What is the cost of canvas required to make the tent, if the cost of 1m² canvas is Rs 14.

(A) Rs 5940          (B) Rs 4752          (C) Rs 5840          (D) Rs 4653

30.   The sides of a triangle are 45cm, 60cm and 75cm. Find the length of the altitude drawn to the longest side from its opposite vertex in cm.

(A) 27          (B) 21          (C) 39          (D) 36

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# SECTION - III

## MENTAL ABILITY & REASONING

31.   If > denote +,< denotes −,+ denotes ÷, ∧ denotes ×,− denotes =,x denotes > and = denotes <, choose the correct statement in the question given below.
      (A) $14 > 18 + 9 = 16 + 4 > 1$      (B) $4 > 3 \wedge 8 < 1 - 6 + 2 > 24$
      (C) $3 < 6 \wedge 4 > 25 = 8 + 4 > 1$      (D) $12 > 9 \wedge 3 < 6 \times 25 + 5 > 6$

**Direction : (32 to 33)** Study the following information to answer the given questions.
      (i)   Eight friends A, B, C, D, E, F, G and H are seated is a circle facing centre.
      (ii)  D is between B and G and F is between A and H.
      (iii) E is second to the right of A.

32.   Which of the following is A's position ?
      (A) left of F      (B) Right of F
      (C) Between E and F      (D) can't be determined

33.   Which of the following is C's position ?
      (A) Between E and A      (B) Between G and E
      (C) Second to the left of B      (D) Can't be determined

34.   Pointing to a man in a photograph, Anita said "His brother's father is the only son of my grandfather" How is the Anita related to the man in the photograph ?
      (A) Mother            (B) Aunt            (C) Sister            (D) Daughter
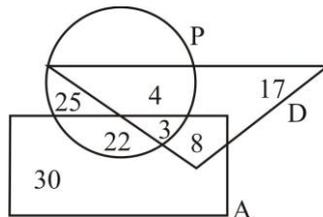
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35.  From point P, Akshay starts walking towards East. After walking 30 metres, he turns to his right and walks 10 metres. He then turns to his right and walks for 30 metres. He again turns to his right and walks 30 metres. How far is he from Point P and in which direction ?
     (A) Point P itself                          (B) 10 metres North
     (C) 20 metres West                          (D) 20 metres North

36.  **Bank** is related to **Money** in the same way **Transport** is related to.
     (A) Goods          (B) Road          (C) Terrace          (D) Floor

**Directions : (37)** In The given questions, three out of the four alternatives are same in a certain way and so form a group. Find the odd one that does not belong to the group.

37.  (A) Teeth          (B) Tongue          (C) Palate          (D) Chin

38.  If the alphabets were written in the reverse order, which letter will be the fifth letter to the right of the fourteenth letter from the left.
     (A) R          (B) I          (C) S          (D) H

**Directions : (39 to 42)** Study the following figure carefully and answer the questions :
     The triangle represented doctors. The circle represents players and the rectangle represents artists.
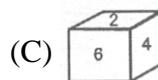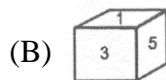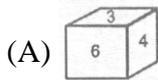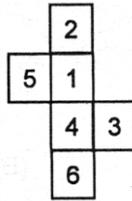


39.  How many doctors are both players and artists ?
     (A) 6          (B) 8          (C) 4          (D) 3

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40. How many artists are players ?
    (A) 30       (B) 29       (C) 25       (D) 17

41. How many artists are neither players nor doctors ?
    (A) 29       (B) 30       (C) 22       (D) 8

42. How many doctors are neither players nor artists ?
    (A) 17       (B) 30       (C) 8       (D) 19

43. Karan was born on Saturday 22nd March 1982. On what day of the week was he 14 years 7 months and 8 days of age ?
    (A) Sunday       (B) Tuesday       (C) Wednesday       (D) Monday

44. How many times are the hands of a clock coincide in a day ?
    (A) 10       (B) 11       (C) 12       (D) 22

45. Which of the following dices is identical to the unfolded figure as shown here ?



(A)    (B)    (C)    (D)

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