Talent Search Exam. 2023
for class-VIII

Duration:1:30 Hr   **Max. Marks 240**
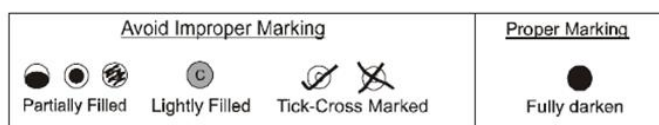
INSTRUCTIONS

A. General :

1. This booklet is your Question Paper. DO NOT break seal of Booklet until the invigilator instructs to do so. Total Questions to be Attempted 60: **Physics : 10, Chemistry : 10, Biology : 10, Mathematics : 20 & MAT : 10 Questions.**

2. 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 & blue ball point pen.

3. 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 risk.

4. Do not use white-fluid or any other rubbing material on answer sheet. Before handing over the answer sheet to the invigilator, candidate should check that **Roll No, Test code and Book Code** have been filled and marked correctly. Immediately after the prescribed examination time is over, the **Answer sheet is to be returned to the invigilator.**

B. Filling the Answer Sheet :

5. On Side-1 of Answer Sheet write your Name and Roll Number in the respective boxes. Do not write anything on Side-2.

6. **Marking Scheme:**
    a. If darkened bubble is RIGHT answer : 4 Marks.
    b. If no bubble is darkened in any question: No Mark.
    c. If darkened bubble is WRONG answer: –1 Mark (Minus One Mark).

7. Think wisely before darkening bubble as there is negative marking for wrong answer

PROCEDURE OF FILLING UP THE ANSWER IN ANSWER SHEET

Avoid Improper Marking

Partially Filled   Lightly Filled   Tick-Cross Marked

Proper Marking

Fully darken

Name of the candidate (In Capital Letters)

Roll Number

I have read all the instruction and shall abide by them.

....
(Signature of the candidate)

I have verified all the information filled in by the candidate.

....
(Signature of the Invigilator)

You can never quit. Winners never quit, and quitters never win.

[Science]

1. Which of the following conversions is (are) correct?
   (i) $N = 10^5$ dynes
   (ii) 1 kgf = g N
   (iii) 1 kg m s^{-2} = 1000 g cm s^{-2}
   (a) (i) and (ii) only
   (b) (ii) and (iii) only
   (c) (iii) and (i) only
   (d) (i), (ii) and (iii)

2. An unbalanced force acts when
   (i) Force acts in one direction is greater than in the other directions
   (ii) No net force acts on an object
   (iii) An object undergoes acceleration
   (a) (i) and (ii) only
   (b) (ii) and (iii) only
   (c) (iii) and (i) only
   (d) (i), (ii) and (iii)

3. If a force of 24 N is applied on a body of mass 4 kg placed on a rough surface with $\mu_s = 0.2$ (g= 9.8 ms^{-2}), then acceleration of the body is
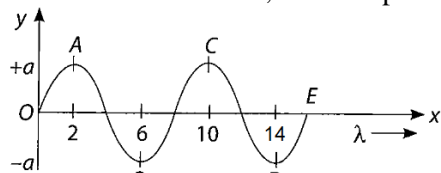   (a) 4.04 ms^{-2}
   (b) 7.96 ms^{-2}
   (c) 0 ms^{-2}
   (d) 6 ms^{-2}

4. If the coefficient of friction is $\dfrac{1}{\sqrt{3}}$, then the angle of friction is
   (a) 30°
   (b) 45°
   (c) 60°
   (d) 0°

For the wave shown below, the time period is 0.8 s.

5. The wavelength of wave is
   (a) 12 m
   (b) 8 m
   (c) 16 m
   (d) 4 m

6. The time taken by wave from O to E is
   (a) 1.6 s
   (b) 0.8 s
   (c) 1.0 s
   (d) 0.24 s

7. The velocity of the wave is
   (a) 4 m s^{-1}
   (b) 9 m s^{-1}
   (c) 10 m s^{-1}
   (d) 12 m s^{-1}
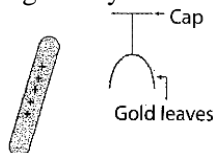
8. A charge of 32×10^{-19} C contains how many numbers of electrons?
   (a) 5
   (b) 2
   (c) 50
   (d) 20

9. If a current of 25 mA flows through a circuit for 1 hour, what is the charge flowing through conductor?
   (a) 9 C
   (b) 900 C
   (c) 90 C
   (d) 60 C

10. A positively charged glass rod is held near the cap of a neutral Gold leaf electroscope. It is observed that gold leaves diverge. Why?

   (a) The charge on the cap is positive and gold leaves negative
   (b) The charge on the cap is negative and gold leaves positive
   (c) Both the cap and gold leaves have positive charge
   (d) Both the cap and gold leaves have negative charge

11. Thermosetting polymers are
    (a) cross linked polymers
    (b) such that they do not melt on heating
    (c) such that during heating it hardness irreversibly
    (d) all of the above

12. Four 'R's in 4R principle are reduce, reuse and
    (a) recycle and recover
    (b) recycle and retain
    (c) regain and retain
    (d) reform and regain

13. Among the following the weakest interparticle forces of attraction are present in
    (a) thermosetting polymers
    (b) thermoplastic polymers
    (c) fibres
    (d) elastomers

14. Read the given statements and select the correct option.
    Statement I: Bakelite is used for making electrical switches and handles of various utensils
    Statement II: Bakelite is a good conductor of heat and electricity.
    (a) Both statement I and II are true and statement II is the correct explanation of statement I
    (b) Both statements I and II are true but statement II is not the correct explanation of statement I
    (c) Statement I is true and statement II is false
    (d) Both statements I and II are false

15. Match column I with column-II and choose the correct option using the codes given below:

Column-I	Column-II
(P) Terylene	1. Rayon
(Q) Bakelite	2. Thermoplastic
(R) PVC	3. Polyester
(S) Artificial silk	4. Thermosetting

    (a) P-3, Q-4, R-2, S-1
    (b) P-4, Q-1, R-3, S-2
    (c) P-3, Q-2, R-4, S-1
    (d) P-2, Q-4, R-1, S-3

16. The correct order of increasing chemical reactivity is
    (a) Zn < Fe < Mg < K
    (b) Fe < Mg < Zn < K
    (c) Fe < Mg < K < Zn
    (d) Fe < Zn < Mg < K

17. Which of the following pairs will give displacement reaction?
    (a) NaCl solution and copper metal
    (b) MgCl$_2$ solution and aluminium metal
    (c) FeSO$_4$ solution and silver metal
    (d) CuSO$_4$ solution and zinc metal

18. Choose the reactions which are not feasible.
    I. Iron + Zinc sulphate $\rightarrow$ Iron sulphate + Zinc.
    II. Magnesium + Silver nitrate $\rightarrow$ Magnesium nitrate + Silver
    III. Copper + dil. Sulphuric acid $\rightarrow$ Copper sulphate + Hydrogen
    IV. Zinc + Ferrous sulphate $\rightarrow$ Iron + Zinc sulphate
    (a) I, II and III
    (b) III and IV only
    (c) I and III only
    (d) I, II, III and IV

19. Extraction of highly electropositive metal is done by
    (a) electrolysis of aqueous solution of metal chloride
    (b) electrolysis of molten metal chloride
    (c) carbon reduction of the oxide of the metal
    (d) strongly heating the oxide of the metal
20. Metallurgy is a process of extracting
    (a) metal from its mineral
    (b) metal from its ore
    (c) pure metal from its ore
    (d) metal from its pure ore
21. Raju is a village farmer. He adapts the traditional ways of farming. He wanted to do some experiments on why people grow wheat as a Rabi crop. He showed some seeds in a patch of land in June before the rainy season, along with maize. The possible observations may be
    1. The seeds germinated but spoiled when water got logged in the field
    2. All the seeds grow healthy
    3. Some plants were destroyed by the water but others gave a good yield
    4. It could withstand the attack of pests.
    (a) 2   (b) 4
    (c) 1   (d) 2 and 3
22. The scientist who discovered penicillin is
    (a) Edward Jenner   (b) Albert Einstein
    (c) Alexander Fleming   (d) Isaac newton
23. Match column-I with column-II and select the correct option from the given codes:

	Column-I		Column-II
P.	*Anopheles*	(i)	A fungus from which antibiotic is obtained
Q.	*Rhizobium*	(ii)	A viral disease
R.	*Penicillium*	(iii)	A bacterium responsible for curding of milk
S.	Hepatitis B	(iv)	Nitrogen fixing bacterium
T.	*Lactobacillus*	(v)	Edible fungus
U.	Mushroom	(vi)	Vector for malarial parasite

    (a) P – (vi), Q – (iv), R – (i), S – (ii), T – (iii), U – (v)
    (b) P – (ii), Q – (v), R – (iii), S – (i), T – (vi), U – (iv)
    (c) P – (iv), Q – (vi), R – (i), S – (v), T – (ii), U – (iii)
    (d) P – (i), Q – (iii), R – (iv), S – (ii), T – (vi), U – (v)
24. Read the given statements and select the correct option.
    (i) _____is the first biosphere reserve of India.
    (ii) _____is the number and variety of plants, animals and other organisms that exist.
    (iii) Species that no longer exist anywhere on the earth are called _____species.
    (iv) Cutting down forest and using the land for other purpose is known as_____.

		(i)	(ii)	(iii)	(iv)
(a)	Sunderban Biosphere Reserve	Species	endangered	afforestation
(b)	Nilgiri Biosphere Reserve	Biodiversity	extinct	deforestation
(c)	Nilgiri Biosphere Reserve	Species	extinct	afforestation
(d)	Sunderban Biosphere Reserve	Biodiversity	endangered	deforestation

25. Which of the following statements is correct about plant cells?
    (a) In plant cell, lysosomes are membrane-bound organelles that comprise of own DNA
    (b) Plant cells have channels in the cell wall through which strands of cytoplasm pass
    (c) Plant cells are linked to neighboring cells by means of fine strands of cytoplasm called plasmodesmata.
    (d) Both (b) and (c) are correct
26. An endemic animal to Pachmarhi Biosphere Reserve
    (a) Grey elephant   (b) Gharial
    (c) Flying squirrel   (d) White tiger
27. Statements
    I. The earthworm and microbes present in the soil consume the all nutrients of the soil
    II. The growth of plants depends on the top layer of the soil
    III. Turning the soil helps to the roots to penetrate deep into the soil
    IV. The hollow shape seeds are those that sink in the water.
    (a) Both statement I & statement II are true
    (b) Only statement I is true
    (c) Only statement II is true
    (d) Both statement II & statement III are true
28. Match column-I with column-II and select the correct option from the given codes:
    Column-I   Column --II
    (A) Nucleus   (i) Control center
    (B) Cell membrane   (ii) Gate of the cell
    (C) Vacuoles   (iii) Food producers for the cell
    (D) Cell wall   (iv) Storage tanks
    (E) Chloroplast   (v) Supporter and protector
    (a) A-(v), B-(iv), C- (i), D-(ii), E-(iii)
    (b) A-(iii), B-(v), C- (i), D-(iv), E-(ii)
    (c) A-(i), B-(ii), C- (iv), D-(v), E-(iii)
    (d) A-(i), B-(iii), C- (ii), D-(v), E-(iv)
29. Raju has a powerful hand lens with him. He boasted that he had seen a microorganism with his hand lens. It may be a
    (a) Bacteria   (b) Protozoan
    (c) Fungus   (d) Virus

30. Chromosomes that determine the sex of an individual are called
(a) autosomes
(b) allosomes
(c) plasmid
(d) gaint chromosomes

[Mathematics]

31. By what number should we multiply $\dfrac{3}{-14}$, so that the product is $\dfrac{5}{12}$?
(a) $\dfrac{-35}{18}$
(b) $\dfrac{34}{19}$
(c) $\dfrac{35}{18}$
(d) $\dfrac{-34}{19}$

32. A rational number equivalent to $\dfrac{-7}{-4}$ is
(a) $\dfrac{-42}{24}$
(b) $\dfrac{-49}{28}$
(c) $\dfrac{35}{20}$
(d) none of these

33. Which of the following rational numbers lie(s) between -1 and -2 ?
(a) $\dfrac{-19}{10}$
(b) $\dfrac{-11}{10}$
(c) $\dfrac{-17}{10}$
(d) All of these

34. Simplify: $\left(\dfrac{3}{5}\times\dfrac{-15}{21}\right)+\left(\dfrac{-9}{14}\div\dfrac{45}{28}\right)-\left(\dfrac{2}{3}\times\dfrac{30}{12}\right)$
(a) $1\dfrac{17}{35}$
(b) $-2\dfrac{52}{105}$
(c) $-1\dfrac{4}{11}$
(d) $\dfrac{-40}{41}$

35. An employee works in a company on a contract of 30 days on the condition that he will receive Rs. 120 for each day he works and he will be fined Rs. 10 for each day he is absent. If he receives Rs. 2300 in all, then for how many days did he remain absent?
(a) 10
(b) 20
(c) 30
(d) 40

36. Find p, if $4(3p+2)-5(6p-1)=2(p-8)-6(7p-4)$
(a) -5
(b) $-5/22$
(c) 22
(d) -22

37. Sonu's grandmother is 80 years old and Sonu is 20 years old. How many years ago was his grandmother 7 times as old as Sonu?
(a) 8 years
(b) 10 years
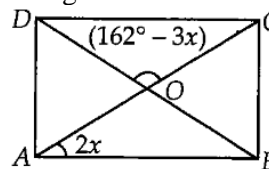(c) 12 years
(d) 15 years

38. The numerator and the denominator of a rational number are in the ratio 7:5. When 4 is added to both the numerator and denominator, the ratio becomes 5:4. What is the rational number?
(a) $\dfrac{7}{5}$
(b) $\dfrac{5}{7}$
(c) $\dfrac{2}{5}$
(d) $\dfrac{13}{14}$

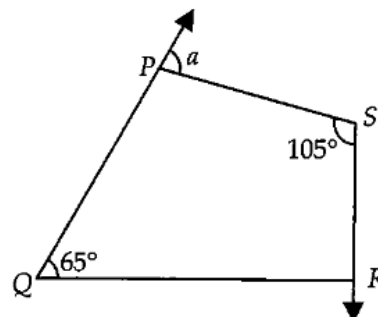39. The angles of a quadrilateral are in the ratio $1:2:3:4$. The smallest angle is
(a) $36°$
(b) $72°$
(c) $144°$
(d) none of these

40. $ABCD$ is a rectangle. Find the value of x.

(a) $54°$
(b) $36°$
(c) $24°$
(d) $18°$

41. In the adjacent figure, angle P and angle R are in the ratio of 3:7, then the value of a is:

(a) $47°$
(b) $57°$
(c) $123°$
(d) none of these

42. A letter is chosen at random from the letters in the word "PROBABILITY". What is the probability that the letter will be a vowel?
(a) 5/11
(b) 4/11
(c) 2/11
(d) 7/11

43. The number of students in a hostel speaking different languages is given.

Language	Number of students
Hindi	40
English	12
Marathi	9
Tamil	7
Bengali	4
Total	72

The central angle for Tamil is:
(a) $75°$
(b) $45°$
(c) $35°$
(d) $32°$

44. Simplify: $\sqrt{7\dfrac{1}{5}}+\sqrt{3\dfrac{1}{8}}-\sqrt{8\dfrac{1}{10}}$
(a) 37/40
(b) 41/43
(c) 39/40
(d) 18/23

45. Find the value of $\sqrt{147}\times\sqrt{243}$.
(a) 63
(b) 189
(c) 198
(d) 178

46. If $x=\sqrt[3]{13\dfrac{103}{125}}$, then the value of x is

(a) $2\dfrac{1}{5}$ (b) $2\dfrac{2}{5}$

(c) $3\dfrac{4}{5}$ (d) $4\dfrac{1}{5}$

47. $\dfrac{\sqrt[3]{1.728} - \sqrt[3]{0.216}}{\sqrt[3]{2.197} - \sqrt[3]{0.343}} =$

(a) 1   (b) – 1

(c) 2   (d) – 2

48. If 540 is 10% of y and z% of y is 16200, then find the values of y and z respectively.

(a) 5400, 20   (b) 5400, 300

(c) 300, 5400   (d) 20, 5800

49. Simple interest on a sum of money for 1 year at 12% per annum is Rs. 1200. What will be the compound interest when compounded half-yearly on that sum at the same rate for the same period?

(a) Rs. 1236   (b) Rs. 1326

(c) Rs. 11236   (d) Rs. 13260

50. The present population of a city is 8000. If it increases by 10% during the first year and by 20% during the second year, then population after two years will be

(a) 12400   (b) 14400

(c) 10560   (d) none of these

[MAT]

Direction (Q. No. 51-52): In each of the following questions, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.
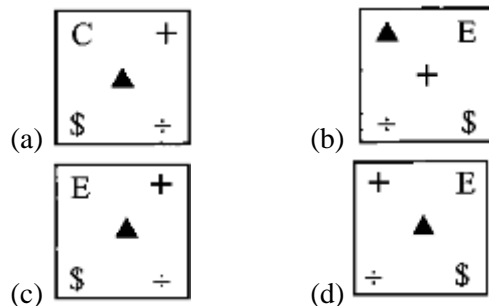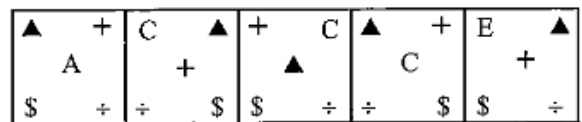
51. 1, 4, 27, 16,….?...., 36, 343

(a) 25   (b) 87

(c) 120   (d) 125

52. 120, 99, 80, 63, 48,…?....

(a) 35   (b) 38

(c) 39   (d) 40

53. Find the missing term in the given series.

CMP, ENN, HOK, LPG,____?

(a) PRC   (b) OQA

(c) RPC   (d) QQB

54. The way in which 'Whale' is related to 'Mammal' in the same way to which the 'Crocodile' will be related?

(a) Amphibian   (b) Aquatic

(c) Mammal   (d) Bird

55. If 'cook' is called 'driver', 'driver' is called 'manager', 'manager' is called 'teacher', 'teacher' is called 'clerk' and 'clerk' is called 'principal', who will teach in a class?

(a) cook   (b) clerk

(c) teacher   (d) driver

56. In a certain code language, if 'MOUSE' is written as PRUQC, then how will SHIFT be written in that code language?

(a) VJIDR   (b) VKIDR

(c) RKIVD   (d) VIKRD

57. One day, Akbar left home and cycled 10 km southwards, turned right and cycled 5 km and turned right and cycled 10 km and turned left and cycled 10 km. How many kilometers will he have to cycle to reach his home straight?

(a) 10 km   (b) 15 km

(c) 20 km   (d) 25 km

58. Vijay walks 10 kilometres towards North. From there, he walks 6 kilometres towards South. Then, he walks 3 kilometres towards East. How far and in which direction is he with reference to his starting point?

(a) 5 kilometres West   (b) 5 kilometres North East

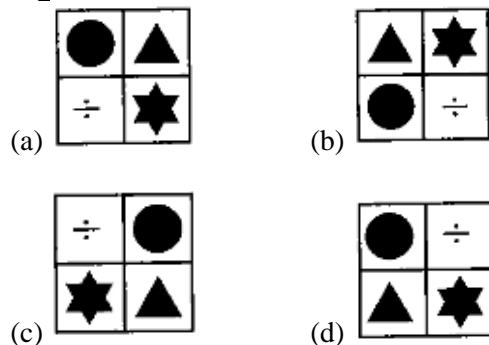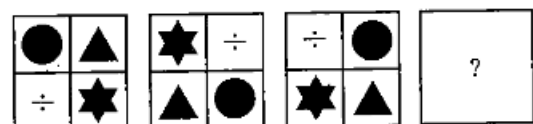(c) 7 kilometres East   (d) 7 kilometres West

59. Find the figure from the options which will continue the same series as established by the problem figures.

PROBLEM FIGURES.

60. Find the missing figure which will replace the (?) to complete the series.

PROBLEM FIGURES.

[For Rough Work]

[For Rough Work]

[For Rough Work]