

# Talent Search Exam -2022

## Class-viii

TEST  
CODE **8000**

BOOKLET **A**

**Duration: 1:30 Hours**

**Max. Marks: 240**

*Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.*

### 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			Proper Marking
			
Partially Filled	Lightly Filled	Tick-Cross Marked	Fully darken

Name of the candidate (In Capital Letters)

Roll Number

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

.....  
(Signature of the candidate)

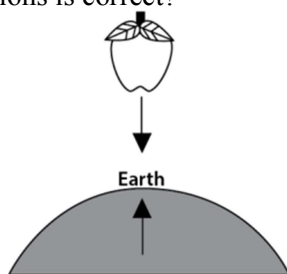
I have verified all the information filled in by the candidate.

.....  
(Signature of the Invigilator)

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

# SCIENCE

- The force of freely falling body is directly proportional to  
(a) mass of body (b) acceleration of body  
(c) velocity of body (d) both (a) & (b)
- With the help of given figure, find which of the following options is correct?



- The apple pulls with greater force than the earth pulls the apple
  - The apple pulls with smaller force than the earth pulls the apple
  - The apple pulls the earth with the same force that the earth pulls the apple
  - All of these
- A car travels east with a certain constant velocity. The direction of the friction force on the car is  
(a) due east (b) due west  
(c) up (d) zero
  - When pressure is applied through a piston at the top of a closed tube containing water, the pressure is transmitted to  
(a) Only the bottom of container  
(b) All directions  
(c) Only the side faces and the bottom of the container  
(d) none of these
  - When a wheel is rolling on the road the direction of frictional force between the wheel and the road is  
(a) forward (b) backwards  
(c) no direction (d) none of these
  - On which of the following parameters, force of friction depends?  
(a) mass of body (b) nature of the surface  
(c) both (a) & (b) (d) none of these
  - Friction has  
(a) always disadvantages  
(b) always advantages  
(c) sometimes disadvantages and sometimes advantages  
(d) neither a disadvantage nor an advantage
  - Which of the following statement is true?  
(a) Sound and light both require medium for propagation  
(b) Sound travel through vacuum, but light can not  
(c) Sound needs medium, but light doesn't need medium for its propagation.

- Sound and light both can not travel in a medium
  - The full form of LED is  
(a) light emitting diode (b) layer emission diode  
(c) light emission diode (d) none of these
  - A cell converts  
(a) electricals energy into chemical energy  
(b) chemical energy into electrical energy  
(c) magnetic energy into electrical energy  
(d) electrical energy into mechanical energy
  - Find the incorrect match  
(a) Haemoglobin - Magnesium  
(b) Fertilisers - Nitrogen and phosphorus  
(c) Chlorophyll - Iron  
(d) Both (a) & (c)
  - Identify A, B, C and D in the given sequence of reactions.  

$$2A + 2B \rightarrow 2AOH + H_2$$

$$S + O_2 \rightarrow C$$

$$C + B \rightarrow D$$

A	B	C	D
(a) Na	H <sub>2</sub> O	SO <sub>2</sub>	H <sub>2</sub> SO <sub>3</sub>
(b) Na	H <sub>2</sub> O	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>
(c) K	H <sub>2</sub> O	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>
(d) K	H <sub>2</sub> O	SO <sub>3</sub>	H <sub>2</sub> SO <sub>3</sub>
  - Which of the following metals occurs in free state in nature?  
(a) Aluminium (b) Calcium  
(c) Gold (d) Sodium
  - Which of the following is not a property of a non-metal?  
(a) Forms anions  
(b) Forms acidic oxides  
(c) High tensile strength  
(d) Low density
  - 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
  - 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
- P - 3, Q - 4, R - 2, S - 1
  - P - 4, Q - 1, R - 3, S - 2
  - P - 3, Q - 2, R - 4, S - 1
  - P - 2, Q - 4, R - 1, S - 3

- Read the given statements and select the correct option.

Statement 1: Bakelite is used for making electrical switches and handles of various utensils

- Statement 2: Bakelite is a good conductor of heat and electricity
- (a) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1  
 (b) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1  
 (c) Statement 1 is true and statement 2 is false  
 (d) Both statements 1 and 2 are false
18. The strength of a material to withstand a weight without breaking is  
 (a) tensile strength (b) flexibility  
 (c) hardness (d) metallic strength
19. A polymer which is commonly used as a packaging material is  
 (a) polythene (b) bakelite  
 (c) PVC (d) polypropylene
20. 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
21. Fertilisers are the chemicals rich in  
 (a) N (b) P  
 (c) K (d) all of these
22. Transferring and combination of desirable characteristic features into plants and then multiplying them are involved in  
 (a) eugenics (b) plant  
 (c) genetic engineering (d) crop improvement
23. Bacterial virus is called  
 (a) cyanophage (b) bacteriophage  
 (c) mycophage (d) proteophage
24. Which of the following is matched correctly in the table given below?
- | Disease                | Transmission               |
|------------------------|----------------------------|
| I. AIDS                | Through sexual intercourse |
| II. Malaria            | Through body contact       |
| III. Hepatitis A and B | Through contaminated food  |

- (a) I only (b) I and II  
 (c) I and III (d) II and III
25. Which of the following is a correctly matched pair of useful microorganisms and their activities?
- | Microorganism                 | Activity                                |
|-------------------------------|---|
| I. Yeast                      | Ferments glucose to produce alcohol     |
| II. Bacteria                  | Decompose dead materials                |
| III. Nitrogen-fixing bacteria | Convert nitrogen into protein in plants |
- (a) I only (b) I and II  
 (c) II and III (d) I, II and III
26. Cheek cell are made up of  
 (a) muscle cells (b) epithelial cells  
 (c) nerve cells (d) brain cells
27. "*Omnis cellula-e-cellula*", an idea of Rudolf Virchow means that  
 (a) all organisms are composed of cells  
 (b) all living cells arise from pre-existing cells  
 (c) cells are basic units of life  
 (d) every organism starts its life as a single cell
28. Which of the following matches is are incorrect?
- | Organelle        | Fuction              | Presence              |
|------------------|----------------------|-----------------------|
| (a) Ribosome     | Secretion of enzymes | Plant and animal cell |
| (b) Mitochondria | Site of respiration  | Animal cell only      |
| (c) Chloroplast  | Storage of cell sap  | Plant cell            |
| (d) All of these |                      |                       |
29. Which of these national parks is not paired correctly with its state?  
 (a) Gir National Park – Gujarat  
 (b) Corbett National Park – Uttaranchal  
 (c) Kanha National Park – Madhya Pradesh  
 (d) Bharatpur National Park – Karnataka
30. MAB (Man and biosphere) programme is an initiative of  
 (a) IUCN (b) UNESCO  
 (c) WWF (d) MEF

## MATHEMATICS

31. p: Every natural number is a rational number.  
 q: Every rational number is a natural number.  
 Which of the following is correct?  
 (a) p is true and q is false  
 (b) p is false and q is true  
 (c) both p and q are true  
 (d) both p and q are false
32. Which of the following numbers does not lie between -1 and -2?  
 (a)  $-\frac{16}{10}$  (b)  $-\frac{4}{5}$   
 (c)  $-\frac{15}{10}$  (d)  $-\frac{13}{10}$
33. Nine times the reciprocal of a rational number equals 6 times the reciprocal of 17. Find the rational number

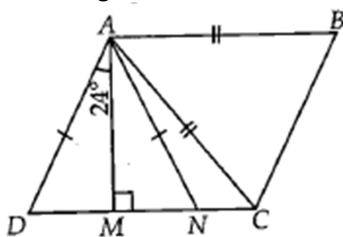
- (a)  $11\frac{1}{3}$  (b)  $25\frac{1}{2}$   
 (c)  $10\frac{1}{3}$  (d) none of these
34. Solve for  $x$ :  $\frac{x+9}{28} + \frac{x-4}{3} = \frac{5x-32}{9} - \frac{2x-3}{35}$   
 (a) 19 (b) -19  
 (c) 29 (d) -29
35. The average age of three girls is 35 years. The ratio of there is 3 : 5 : 7. Find the age of the youngest one.  
 (a) 12 years (b) 17 years  
 (c) 21 years (d) 23 years
36. State 'T' for true and 'F' for false  
 (i)  $y^2 + 9$  is a linear equation in one variable.  
 (ii) The terms linear equation and linear expression

are same.

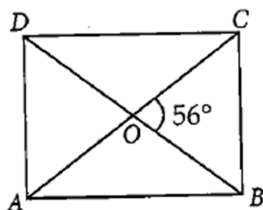
- (iii) If  $x$  is an even number, then the next odd number is  $(2x + 1)$ .
- (iv) If both sides of an equation is divided by the same (non-zero) positive number, then there is a change in equality.
- (v) 1 is the solution  $\frac{2x+1}{3x+5} = \frac{3}{8}$

	(i)	(ii)	(iii)	(iv)	(v)
(a)	T	F	T	F	T
(b)	T	T	T	T	T
(c)	F	F	F	F	T
(d)	F	T	F	F	F

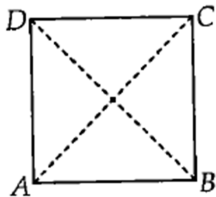
37. If ABCD is a parallelogram,  $\triangle ADN$  and  $\triangle ABC$  are isosceles triangles, then find  $\angle BAC$ .



- (a)  $112^\circ$  (b)  $140^\circ$   
 (c)  $48^\circ$  (d)  $32^\circ$
38. The diagonals of rectangle ABCD intersect each other at O. If  $\angle BOC = 56^\circ$ , then the value of  $\angle OAD$  will be



- (a)  $120^\circ$  (b)  $62^\circ$   
 (c)  $90^\circ$  (d)  $44^\circ$
39. ABCD is a square of area of 4 square units which is divided into 4 non-overlapping triangles as shown in figure, then sum of perimeters of the triangles so formed is



- (a)  $8(2 + \sqrt{2})$  units (b)  $8(1 + \sqrt{2})$  units  
 (c)  $4(1 + \sqrt{2})$  units (d)  $4(2 + \sqrt{2})$  units
40. A man's monthly salary is Rs. 2400 and his monthly expenses on travel are Rs. 250. The central angle of the sector representing travel expenses in the pie chart would be

- (a)  $30^\circ$  (b)  $37\frac{1}{2}^\circ$   
 (c)  $45^\circ$  (d)  $60^\circ$
41. The range of  $x$ , 32, 41, 62, 64 and 71 is 45. Which of the following can be the value of  $x$ ?
- (a) 32 (b) 47  
 (c) 48 (d) 26

42. If  $a$ ,  $b$ ,  $c$ ,  $d$  and  $e$  are five consecutive natural numbers ( $a < b < c < d < e$ ) and a number is drawn at random, then find the probability that the number should be less than  $c$ .
- (a)  $\frac{2}{5}$  (b)  $\frac{3}{5}$   
 (c)  $\frac{1}{5}$  (d) cannot be determined

43. What must be subtracted from 16161 to get a perfect square? Also, find the square root of this perfect square.
- (a) 32, 127 (b) 35, 127  
 (c) 32, 128 (d) 35, 130

44. 4096 soldiers are arranged in an auditorium in such a manner that there are as many soldiers in a row as there are rows in the auditorium. How many rows are there in the auditorium?
- (a) 94 (b) 58  
 (c) 44 (d) 64

45. Find the value of  $\sqrt{0.09} + \sqrt{0.81} + \sqrt{7.29} + \sqrt{98.01}$ .
- (a) 13.7 (b) 13.8  
 (c) 13.6 (d) 13.1

46. A man plants his orchard with 5625 trees and arranges them so that there are as many rows as there are trees in each row. How many rows are there?
- (a) 55 (b) 65  
 (c) 75 (d) 85

47. By what least number 3600 must be divided to make it a perfect cube?
- (a) 9 (b) 50  
 (c) 300 (d) 450

48. If a number has digit 2 at unit place, then its cube has digit \_\_\_\_ at its unit place.
- (a) 1 (b) 2  
 (c) 8 (d) 4

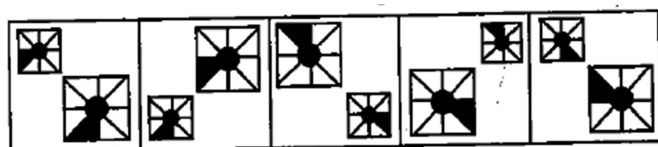
49.  $\sqrt[3]{1 - \frac{127}{343}}$  is equal to

- (a)  $\frac{5}{9}$  (b)  $1 - \frac{1}{7}$   
 (c)  $\frac{4}{7}$  (d)  $1 - \frac{2}{7}$

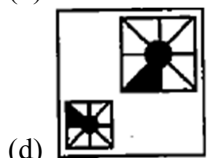
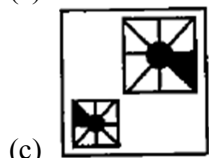
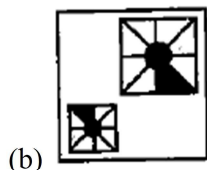
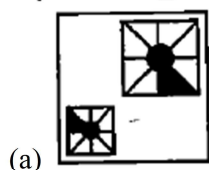
50. If  $3^9 + 3^{12} + 3^{15} + 3^n$  is a perfect cube,  $n \in N$ , then the value of  $n$  is
- (a) 18 (b) 17  
 (c) 14 (d) 16

Direction (Q.No. 51) Select a figure from amongst the options which will continue the series established by the five problem figures.

51. Problem Figures



1 2 3 4 5



Direction (Q.No. 52) In the following question, identify the rule of the pattern and find the missing term which will replace the question mark.

52.

11	6	8
17	12	?
25	34	19
19	28	11

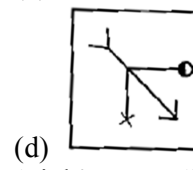
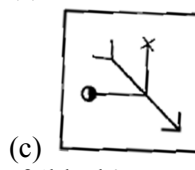
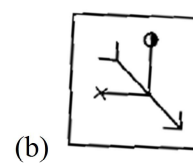
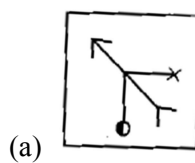
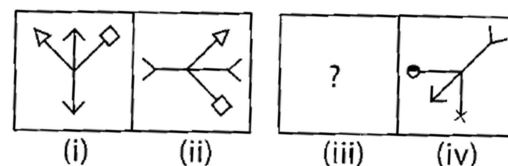
- (a) 9 (b) 13  
(c) 15 (d) 16

53. Find the missing number, if a certain rule is followed either row-wise or column-wise.

3	2	5
4	5	7
1	3	2
26	38	?

- (a) 80 (b) 78  
(c) 70 (d) 68

54. There is a certain relationship between figures (i) and (ii). Establish the similar relationship between figures (iii) and (iv) by selecting a suitable figure from the options which would replace the (?) in fig. (iii).



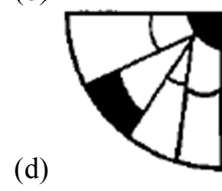
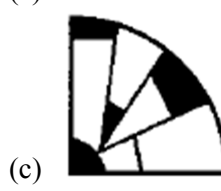
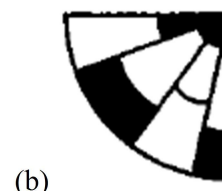
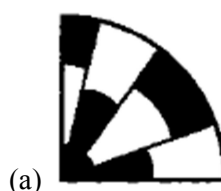
55. If 'black' means 'pink', 'pink' means 'blue', 'blue' means 'white', 'white' means 'green', 'green' means 'red' and 'red' means 'brown', then what is the colour of clear sky?

- (a) brown (b) pink  
(c) blue (d) red

56. Going 50 m to the South of her house, Kavita turns left and goes 20 m then turning to the North, She goes 30 m and then starts walking to her house. In which direction is she walking now?

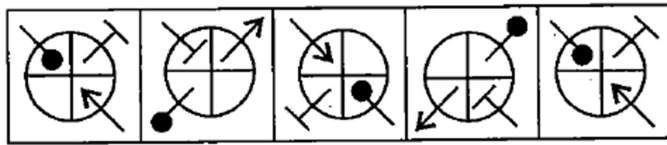
- (a) North-West (b) North  
(c) South-East (d) East

57. Select a figure from the options which will complete the pattern in the given figure.



Direction (Q.No. 58) Select a figure from amongst the options which will continue the series established by the five problem figures.

58. Problem figures



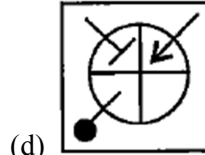
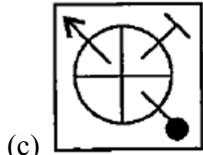
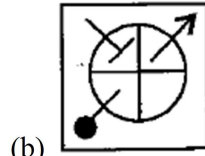
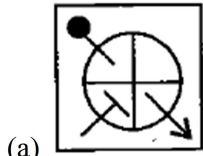
1

2

3

4

5



59. Find the next term in the given series.

PMT, OOS, NQR, MSQ, ?

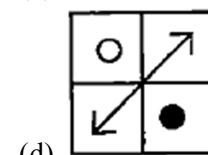
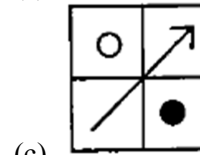
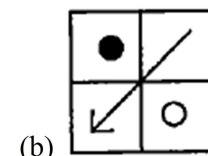
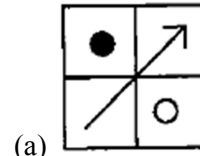
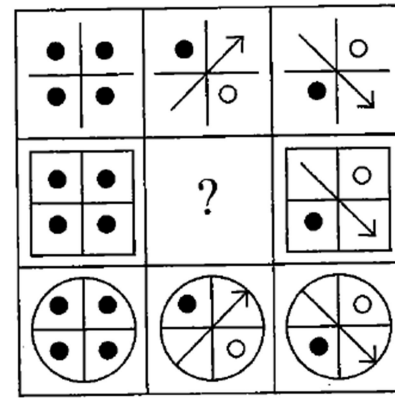
(a) NTR

(b) MTP

(c) LUP

(d) LTM

60. Select a figure from the options which completes the given figure matrix.



**For Rough Work**

**For Rough Work**

**For Rough Work**