



# Nirmal Vidya

I I T A C A D E M Y

## ADMISSION TEST

### IX CLASS

(VIII to IX Moving)

### IQ & PCBM

Time: 1.30 Min.

Maximum Marks: 145

#### INSTRUCTIONS

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

1. There are 55 questions in this paper.
2. Each question has only ONE, correct answer. In case you wish to change an answer, erase the old answer and mark your fresh choice.
3. For each correct answer in IQ 2 marks and PCBM 3 marks will be awarded. For each wrong answer 1 mark will be deducted.
4. Question No. 1 to 20 of IQ, 21 to 28 of Physics, 29 to 36 of Chemistry and 37 to 44 of Biology, and 45 to 55 of Mathematics.
5. Use of calculator is not permitted.
6. Use of Logarithmic table is not permitted.
7. Darken the bubble by pencil only.
8. Write your Roll number, Name at the specified space on the OMR Sheet.
9. All the notations used in this paper are standard.

#### NIRMAL VIDYA IIT/PMT ACADEMY

##### GURGAON

Gurgaon : :- NM-12 , 2<sup>nd</sup> Floor, Sector-14, Gurgaon, Haryana. Phone: 09650318389

Gurgaon : :- Near DPS, Sector-45, Gurgaon, Haryana. Phone: 09650318389

##### NCR

Manesar : National Security Guard , Primary School, Manesar, Haryana. Phone: 09650318389

#### TO BE FILL IN CAPITAL LETTERS

NAME OF THE STUDENT: \_\_\_\_\_

FATHER NAME : \_\_\_\_\_

Address: \_\_\_\_\_

SCHOOL NAME : \_\_\_\_\_

ROLL NO : \_\_\_\_\_

TEST DATE: \_\_\_\_\_

visit us at: [www.nirmalvidya.in](http://www.nirmalvidya.in)  
e-mail: [sksitjee@gmail.com](mailto:sksitjee@gmail.com)

# IQ

**Direction (Question No. 1 – 2):**

Choose the odd numeral pair/group in each of the following questions.

- (A) 80 – 9 (B) 64 – 8  
(C) 36 – 6 (D) 49 – 7
- (A) 8 – 27 (B) 125 – 216  
(C) 343 – 512 (D) 1009 – 1331

**Direction (Question No. 3 – 6):**

In each of the following questions various terms of a letter series are given with one term missing as shown by (?). Choose the missing term out of the given alternatives.

- OTE, PUF, QVG, RWH, ?  
(A) SYJ (B) TXI  
(C) SXJ (D) SXI
- BEH, KNQ, TWZ, ?  
(A) IJL (B) CFI  
(C) BDF (D) ADG
- dfe, jih, mln, ? ,vut, yxz  
(A) oqp (B) psr  
(C) prq (D) rsp
- shg, rif, qje, pkd, ?  
(A) ole (B) olc  
(C) nmc (D) nlb

**Direction (Question No. 7 – 8):**

**In each of the following questions, there is some relationship between the two terms to the left of :: and the same relationship holds between the two terms to its right. Also, in each question, one term either to the right of :: or to the left of it is missing. This term is given as one of the alternatives given below each question. Find out this term.**

- EGIK : FILO :: FHJL : ?  
(A) GJMP (B) GMJP  
(C) JGMP (D) JGPM
- LORU : NQTW :: PSVY : ?  
(A) SVYZ (B) QTWZ  
(C) ORUX (D) RUXA

**Direction (Question No. 9 – 12):**

**There is a certain relation between two given words on one side of :: and one word is given on another side of :: while another word is to be found from the given alternatives, having the same relation with this word as the given pair has. Select the best alternative.**

9. Clock : Time :: Thermometer : ?  
(A) heat (B) radiation  
(C) energy (D) temperature
10. Paw : Cat :: Hoof : ?  
(A) horse (B) lion  
(C) lamb (D) elephant
11. Import : Export :: Expenditure : ?  
(A) deficit (B) revenue  
(C) debt (D) tax
12. Court : Justice :: School : ?  
(A) teacher (B) student  
(C) ignorance (D) education

**Direction (Question No 13 – 16):**

**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 fill in the blank spaces.**

13. 3, 9, 27, 81, (. . .)  
(A) 324 (B) 243  
(C) 210 (D) 162
14. 4, 10, (. . .), 82, 244, 730  
(A) 24 (B) 28  
(C) 77 (D) 21
15. 17, 19, 23, 29, (. . .), 47  
(A) 37 (B) 33  
(C) 35 (D) 36
16. 5, 6, 7, 8, 10, 11, 14, (. . .)  
(A) 15 (B) 16  
(C) 17 (D) 18

**Directions: (Question No. 17 – 19)**

**In each of the following questions, numbers are given. Out of these, three are alike in a certain way but the rest one is different. Choose the one which is different from the rest three.**

17. (A) 325 (B) 236  
(C) 178 (D) 639
18. (A) 3740 (B) 4635  
(C) 5869 (D) 7946
19. (A) 263 (B) 111

(C) 362

(D) 383

**Direction (Question No. 20):**

**In each of the following questions, there is some relationship between the two terms to the left of :: and the same relationship holds between the two terms to its right. Also, in each question, one term either to the right of :: or to the left of it is missing. This term is given as one of the alternatives given below each question. Find out this term.**

20. If  $>$  denotes  $+$ ,  $<$  denotes  $-$ ,  $\div$  denotes  $\div$ ,  $\wedge$  denotes  $\times$ ,  $-$  denotes  $=$ ,  $\times$  denotes  $>$  and  $=$  denotes  $<$ , choose the correct statement in each of the following questions :
- (A)  $13 > 7 < 6 + 2 = 3 \wedge 4$  (B)  $9 > 5 > 4 - 18 + 9 > 16$   
(C)  $9 < 3 < 2 > 1 \times 8 \wedge 2$  (D)  $28 + 4 \wedge 2 = 6 \wedge 4 + 2$

## PHYSICS

21. Parsec is the unit of  
(A) time (B) distance (C) frequency (D) angular acceleration
22. Speedometer measures  
(A) speed (B) average speed  
(C) instantaneous speed (D) instantaneous velocity
23. A book of weight 10 N is placed on a table. The force exerted by the surface of the table on the book will be  
(A) zero (B) 10 N (C) 100 N (D) 20 N
24. A cricket player lowers his hands while catching a ball. Which of the following reasons is correct?  
(A) they used to decrease the speed of the ball  
(B) they actually increases time for the change in momentum of the ball  
(C) this way is convenient (D) there is no such reason.
25. A body is not accelerated. It means,  
(A) of course the body is at rest  
(B) no balanced force is acting on the body  
(C) the body is either at rest or moving with constant velocity  
(D) uniform motion.
26. In the adjacent figure the force acting on 1 kg due to 2 kg is  
(A) 6 N (B) 5 N  
(C) 4 N (D) 2 N.



27. Aluminium has a density of 2.7 g/cc. The mass of 15 cc of aluminium is  
(A) 45 g (B) 40.5 g (C) 80 g (D) 100 g

28. The height of mercury which exerts the same pressure as 20 cm of water column, is  
(A) 1.47 cm (B) 14.8 cm (C) 148 cm (D) none of these

## CHEMISTRY

29. Find the incorrect match  
(A) LPG – fuel for home & industry (B) Kerosene – Fuel for lamps & stoves  
(C) Bitumen – Lubrication (D) Paraffin wax – Vaseline, candle
30. The formula of ethyne is  
(A)  $C_2H_6$  (B)  $C_6H_6$  (C)  $C_2H_2$  (D)  $C_2H_4$
31. The allotrope of carbon used in nuclear reactor is  
(A) Graphite (B) diamond (C) sugar charcoal (D) Coke
32. Find the correct statement  
(A) Water is used to extinguish electric fire  
(B) Water is suitable fire extinguisher for oil & petrol fire  
(C) Alcohol & LPG are inflammable substances  
(D) The lowest temperature at which a substance catches fire is called threshold temperature
33. The property of metals to be hammered into their sheets is called  
(A) Malleability (B) Ductility (C) Tensile strength (D) Sonorous nature
34. Rusting of iron is an example of  
(A) Reduction (B) Oxidation (C) Ionisation (D) All of the above
35. A non-metal which is a good conductor of heat and electricity, is  
(A) Phosphorus (B) Silicon (C) Graphite (D) Sulphur
36. Types of combustion are:  
(A) Rapid (B) Spontaneous, rapid and explosive  
(C) Explosive (D) Spontaneous

## BIOLOGY

37. Leaving the field fallow in between two crops would  
(A) Decrease fertility of field (B) Increase water in soil  
(C) Restore fertility in soil (D) Pollute the soil.
38. 2-4 D is a commonly used  
(A) Fertiliser (B) Manure (C) Insecticide (D) Weedicide

39. Find the odd one out w.r.t causal organism.  
 (A) Polio, common cold, hepatitis. (B) Polio, bird flu, anthrax  
 (C) Cholera, Typhoid, Tuberculosis (D) Bird flu, Polio, AIDS.
40. Which of the following help to conserve traditional life of tribals along with conservation of wild life of a specific area  
 (A) National Park and wildlife sanctuaries  
 (B) Biological gardens  
 (C) Biosphere reserves (D) Herbarium
41. Which of the following is not a eukaryotic cell  
 (A) Bacteria (B) Blue green algae  
 (C) Hen's egg (D) Both (A) and (B)
42. Plastids found in cells are related to  
 (A) Reproduction (B) Binary fission (C) Photosynthesis (D) Respiration
43. Asexual reproduction in *Hydra* is mostly by  
 (A) Budding (B) Fission (C) Polyps (D) Spores
44. The testosterone (in males) and oestrogen (in females) are hormones released during adolescence under stimulation from  
 (A) Pituitary (B) Thyroid (C) Adrenal (D) Parathyroid

## MATHEMATICS

45. The smallest number of which 12348 must be divided to obtain a perfect square, is  
 (A) 3 (B) 4 (C) 5 (D) 7
46. If  $\left(x + \frac{1}{x}\right) = 3$  then the value of  $\left(x^2 + \frac{1}{x^2}\right)$  is  
 (A) 5 (B) 7 (C) 9 (D) 11
47. Factorise:  $pq^2 + q(p - 1) - 1$   
 (A)  $(pq + 1)(q - 1)$  (B)  $p(q + 1)(q - 1)$   
 (C)  $q(p - 1)(p + 1)$  (D)  $(pq - 1)(q + 1)$
48. A shopkeeper sold two watches for Rs 1485 each. On one he gains 10% and on the other he loses 10%; Find his gain or loss per cent in the whole transaction.  
 (A) neither gain nor loss (B) 1% gain  
 (C) 1% loss (D) 5% loss

49. If 5 men or 9 women can do a piece of work in 19 days then in how many days will 3 men and 6 women do the same work?  
 (A) 12 (B) 15 (C) 18 (D) 21
50. A pipe can fill a tank in 16 hours. Due to a leak in the bottom, it is filled in 24 hours. If the tank is full, how much time will the leak take to empty it?  
 (A) 36 hours (B) 42 hours (C) 45 hours (D) 48 hours
51. A can do a job in 16 days and B can do the same job in 12 days. With the help of C, they did the job in 4 days only. Then, C alone can do the job in  
 (A)  $9\frac{1}{2}$  days (B)  $9\frac{2}{5}$  days (C)  $9\frac{3}{5}$  days (D) 10 days
52. If one angle of a parallelogram is  $24^\circ$  less than twice the smallest angle then the largest angle of the parallelogram is  
 (A)  $68^\circ$  (B)  $102^\circ$  (C)  $112^\circ$  (D)  $176^\circ$
53. The ratio of the total surface area to the lateral surface area of a cylinder whose radius is 20 cm and height 60 cm, is  
 (A) 2 : 1 (B) 3 : 2 (C) 4 : 3 (D) 5 : 3
54. Two cubes have their volumes in the ratio 1 : 27. The ratio of their surface areas is  
 (A) 1 : 3 (B) 1 : 9 (C) 1 : 27 (D) none of these
55. If 35% of the people residing in a locality are Sikhs then the central angle of the sector representing the Sikh community in the pie chart would be  
 (A)  $108^\circ$  (B)  $115^\circ$  (C)  $126^\circ$  (D)  $135^\circ$

