

# Talent Search Exam. 2015

TEST  
CODE

**8000**

for VIII

BOOKLET

**A**

Duration : 3 Hours

Max. Marks : 300

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

## INSTRUCTIONS

### A. General :

1. This booklet is your question paper containing **100 questions**. The booklet has **8 pages**.
2. The question paper contains blank space on back for your rough work. No additional sheets will be provided for rough work.
3. It is mandatory to use **Blue or Black Ball Point Pen** to darken to appropriate circle in the answer sheet.
4. Blank papers, clipboards, log tables, slide rules, calculators, cellular phones, pagers and electronic gadgets in any form are not allowed to be carried inside the examination hall.
5. Fill in the boxes provided below on this page and also write your Name and Roll Number in the space provided.
6. 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 :

7. On **Side-1** of Answer Sheet write your name, Enrollment Number and Name of the centre in the respective boxes. **Do not write anything on Side-2.**
8. Put your signature space provided on the Answer Sheet affirming that you have verified this.
9. All question carry **+3 Marks** for Right Answer and **-1** for Wrong Answer.

## PROCEDURE OF FILLING UP THE ANSWERS IN ANSWER SHEET

### Wrong Filling

- A B C D Tick mark
- B C D Cross mark
- B C D Half filled or semi dark
- A B C D Light filled

### Right Filling

- B C D Fully darken with Pen
- B C D Fully darken with Pen
- B C D Fully darken with Pen
- B C D Fully darken with Pen

Name of the candidate (In Capital Letters)

Enrollment Number

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

.....

(Signature of the candidate)

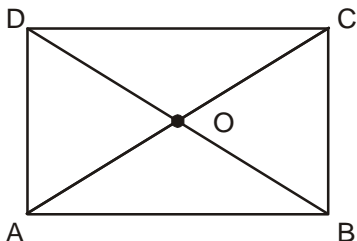
I have verified all the information filled in by the candidate.

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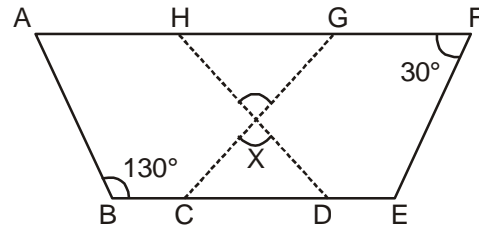
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## PART-I (MATHEMATICS)

- If  $a$  and  $b$  are consecutive natural numbers then find number of Natural numbers lie exactly between  $a^2$  and  $b^2$ .  
 (a)  $a - b + 1$  (b)  $a + b - 1$   
 (c)  $a + b + 1$  (d) none
- Which of the following numbers can be a perfect square of a Natural Number?  
 (a) 5242 (b) 7744  
 (c) 3388 (d) 9203
- Three Numbers  $a, b, c$  are in ratio  $a : b : c = 1 : 2 : 3$  such that sum of their cubes equal to 4500. find the value of  $2b - a$ .  
 (a)  $a$  (b)  $b$   
 (c)  $c$  (d) none
- A die is tossed 3 times. Number of possible outcomes :  
 (a) 36 (b) 212  
 (c) 128 (d) 216
- A  $117\frac{1}{3}m$  rope is cut into equal pieces measuring  $7\frac{1}{3}m$  each. How many such small pieces are there?  
 (a) 14 (b) 16.7  
 (c) 18 (d) None
- Arpita's present age is thrice of shilpa. If shilpa's age three years ago was  $x$ . Then age of arpita 9 years ago was  
 (a)  $3(x - 3)$  (b)  $3x + 9$   
 (c)  $3x$  (d)  $3x - 9$
- ABCD is a Rectangle. Its diagonals meet at O. If  $DO = 5x + 1$  and  $AO = 2x + 19$  length of diagonals are?



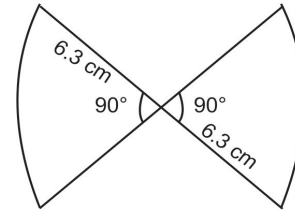
- (a) 62 (b) 18  
 (c) 31 (d) 24
- If a quadrilateral is formed with all acute angles then it can be a  
 (a) Rhombus (b) Parallelogram  
 (c) Trapezium (d) Not Possible
- In following figure of a ship, ABDH and CEFH are two parallelogram. Find value of  $x$



- (a)  $160^\circ$  (b)  $80^\circ$   
 (c)  $100^\circ$  (d)  $20^\circ$
- A polyhedron has 20 faces and 12 vertices. Find number of edges of the polyhedron.  
 (a) 60 (b) 75  
 (c) 90 (d) 45
- A Hexagonal prism has a faces and b edges. then  
 (a)  $a + b = 26$  (b)  $a + b = 28$   
 (c)  $b - a = 8$  (d) none
- The ratio of the volume of a cube to that of a sphere which will fit inside the cube is  
 (a)  $9 : \pi$  (b)  $2 : \pi$   
 (c)  $3 : \pi$  (d)  $6 : \pi$
- If  $(a-1)(a+1)(a^2+1)(a^4+1) = a^\lambda - 1^\lambda$ , then  $\lambda =$   
 (a) 2 (b) 4  
 (c) 8 (d) 10
- Sum of  $(x + 3)$  observations is  $x^4 - 81$ . Find mean of all observations.  
 (a)  $x^3 - 3x^2 + 9x - 27$  (b)  $x^3 + 3x^2 + 9x - 27$   
 (c)  $x^3 - 3x^2 - 9x + 27$  (d) None
- Area of Rectangle is  $2x^2 + 21xy + 27y^2$  with one side equals to  $(x + 9y)$ . Find other side.  
 (a)  $(3x + 2y)$  (b)  $x + 3y$   
 (c)  $2x + 3y$  (d)  $x + y$

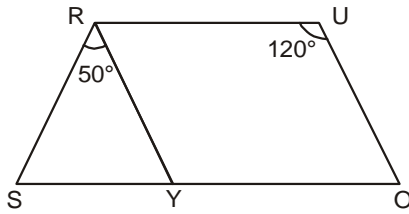
16. Which of following is equal to  $\left(\frac{-5}{7}\right)^{-99}$
- (a)  $\left(\frac{5}{7}\right)^{-99}$  (b)  $-\left(\frac{5}{7}\right)^{+99}$
- (c)  $\left(\frac{7}{5}\right)^{-99}$  (d)  $\left(\frac{-7}{5}\right)^{99}$
17.  $(7^{-1} - 9^{-1})^{-1} - (3^{-1} - 5^{-1})^{-1}$
- (a) 24 (b) 56
- (c) 15 (d) 63
18.  $a = -1, b = 2$  then  $a^b, b^a$
- (a)  $(a^2)^b$  (b)  $(b^2)^a$
- (c)  $(b)^{a^2}$  (d) none
19. A vendor buys banana at 3 for a rupee and sells at 4 for a rupee. Find his profit or loss percentage.
- (a) 25% profit (b) 20% loss
- (c) 25% loss (d) 20% profit
20. Let abc be three digit number then  $abc + bca + cab$  is not divisible by
- (a)  $a + b + c$  (b) 3
- (c) 37 (d) 9
21. The cost price of an article is Rs. 600, which is 25% below the marked price. If the article is sold at a discount of 15%. Find the marked price.
- (a) 600 (b) 750
- (c) 800 (d) 1000
22. A point which lies on both the axis is
- (a) (0, 0) (b) (0, 1)
- (c) (1, 0) (d) (1, 1)
23. What will happen to volume of a cube (V) if its edge is reduced to one fourth.
- (a)  $V/4$  (b)  $4V$
- (c)  $\frac{V}{64}$  (d)  $\frac{V}{16}$
24. Find a single discount equivalent to two successive discounts of 25% and 8%
- (a) 33% (b) 31%
- (c) 17% (d) none

25. Find perimeter of given figure



- (a) 28.6 cm (b) 30.8 cm
- (c) 45.0 cm (d) 63.1 cm
26. In a 3 digit number, the ten's digit is thrice the unit digit and hundred's digit is twice the unit's digit. If sum of all 3 digits is 12. Find the Number
- (a) 624 (b) 231
- (c) 462 (d) 246
27. If Area of face of a cube is  $10\text{cm}^2$ . Then the total surface area of the cube is
- (a)  $60\text{cm}^2$  (b)  $40\text{cm}^2$
- (c)  $100\text{cm}^2$  (d) None
28. Sobi types 108 words in 6 minutes. How many words would she type in half an hour.
- (a) 1080 (b) 450
- (c) 360 (d) 540
29. The smallest Number by which 162 should be multiplied to make it a perfect square.
- (a) 4 (b) 3
- (c) 2 (d) 1
30. Jyotsana bought a product for Rs. 3155 including 4.5 % sales tax. Find the price before tax was added
- (a) 3019.14 (b) 3150.50
- (c) 3090.23 (d) none
31. Find value of  $\frac{x^p}{x^p + x^q} + \frac{1}{x^{p-q} + 1}$
- (a) 0 (b) 1
- (c)  $x^p - x^q$  (d)  $x^p + x^q$
32. Find value of  $\left(\frac{x^p}{x^q}\right)^{p+q} \times \left(\frac{x^q}{x^r}\right)^{q+r} \times \left(\frac{x^r}{x^p}\right)^{r+p}$
- (a) 1 (b) -1
- (c)  $\frac{1}{x^p + q + r}$  (d)  $x^{(p+q+r)^2}$

33. In the given parallelogram YOUR,  $\angle RUO = 120^\circ$  and OY is extended to points S such that  $\angle SRY = 50^\circ$  find  $\angle YSR$



- (a)  $50^\circ$  (b)  $70^\circ$   
(c)  $170^\circ$  (d) None

34. Ratio between interior angle and exterior angle of Regular polygon is 1 : 5. Find number of sides of polygon.

- (a) 4 (b) 3  
(c) 5 (d) 6

35. Find a number whose fifth part increased by 30 is equal to its fourth part decreased by 30.

- (a) 800 (b) 1200  
(c) 900 (d) 1500

## PART-II (SCIENCE)

36. Sun is continuously releasing energy due to  
(A) nuclear fusion (B) radiation  
(C) nuclear fission (D) None of these.

37. Light Year means the  
(A) distance light travels in a year  
(B) intensity of light  
(C) bright light  
(D) time which light takes to travel in a year.

38. The power of a lens is expressed in  
(A) metre (b) dioptre  
(C) watt (D) number.

39. Which of the following colours is best deviated by a prism ?  
(A) Violet (B) Red  
(C) Blue (D) Indigo.

40. If there was no atmosphere, what would be the colour of sky ?  
(A) White (B) Black  
(C) Blue (D) Red.

41. Telescope is used for  
(A) measuring minute details.  
(B) observing distant objects  
(C) observing small objects  
(D) None of these.

42. A well-cut diamond appears bright because  
(A) it is radio-active  
(B) it emits light.  
(C) of total internal reflection  
(D) of high density.

43. Magnetic effect of current was discovered by  
(A) Fleming. (B) Ampere  
(C) Oersted. (D) Faraday.

44. Which of the following describes the path of Hailey's comet ?

- (A) Circle (B) Parabola  
(C) Hyperbola (D) Ellipse.

45. Why do wet clothes dry more quickly on a warm day ?

- (A) Hot air carries less moisture  
(B) Hot air can absorb moisture from the air rather quickly  
(C) High temperature of the air helps faster evaporation  
(D) All of these.

46. An electromagnet is a

- (A) soft iron core.  
(B) steel core.  
(C) a soft iron core with current passing round it.  
(D) a steel core with current passing round it.

47. The value of Absolute Zero on Fahrenheit Scale is

- (A)  $273^\circ\text{F}$ . (B)  $-459.67^\circ\text{F}$   
(C)  $0^\circ\text{F}$ . (D)  $182.7^\circ\text{F}$ .

48. Which one has the maximum specific heat ?

- (A) Mercury (B) Water  
(C) Alcohol (D) Ice.

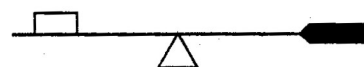
49. Light year is the unit of

- (A) Speed. (B) Time.  
(C) Distance (D) Weight.

50. The light with the longest wavelength in the visible spectrum is

- (A) Yellow. (B) Red.  
(C) Green. (D) Blue.

51. Which type of order of lever is it ?



- (A) 1st (B) 2nd  
(C) 3rd (D) None of these.
52. The value of 'g' on the equator is  
(A) maximum. (B) least.  
(C) zero. (D) None of these.
53. The Kharif crops are harvested in :  
(a) March (b) September  
(c) October (d) March
54. Match the microorganisms given in the column 'A' to the group to which they belong unit column 'B'
- | Column A          | Column B      |
|-------------------|---------------|
| (a) Lactobacillus | (i) Algae     |
| (b) Aspergillus   | (ii) Protozoa |
| (c) Spirogyra     | (iii) Fungi   |
| (d) Paramecium    | (iv) Bacteria |
- Choose write option
- (a) A : iv, B : iii, C : i, D : ii  
(b) A : ii, B : i, C : iv, D : iii  
(c) A : iii, B : iv, C : i, D : ii  
(d) A : iv, B : iii, C : i, D : ii
55. Which of the following reproduces only inside a host cell :  
(a) Bacteria (b) Virus  
(c) Amoeba (d) Fungus
56. Which of the following is a nitrogen-fixing bacterium :  
(a) Lactobacillus (b) Yeast  
(c) Rhizobium (d) Acetobacter
57. The plant found in particular area are termed as :  
(a) Species (b) Flora  
(c) Forest (d) fauna
58. Restoring of the destroyed forests by planting new trees is known as :  
(a) Housekeeping (b) Ecosystem  
(c) Afforestation (d) Deforestation
59. The function of chloroplast is to :  
(a) Store food (b) Prepare food  
(c) Transport food (d) Breakdown food
60. Identify the organelle which is found in a plant cell but not in an animal cell :  
(a) Cell membrane (b) Mitochondria  
(c) Ribosome (d) Chloroplast
61. The fusion of male and female gamete is called :  
(a) Implanatation (b) Gastation  
(c) Fertilization (d) Menstruation
62. Hormone responsible for development of secondary sexual characters in males :  
(a) Oestrogen (b) Progesteron  
(c) Testosteron (d) Adrenaline
63. Metamorphosis is the process of transformation of  
(a) Larva into adult  
(b) eggs to larva  
(c) new individuals from buds  
(d) None of these
64. Which of the following is not a renewable source of energy ?  
(a) Sunlight (b) Water  
(c) Wind (d) Coal
65. Which of the following is a greenhouse gas ?  
(a) Nitrogen (b) Oxygen  
(c) Carbondioxide (d) Argon
66. Which of the following is a disease caused due to air pollution?  
(a) Cholera (b) Bronchitis  
(c) Typhoid (d) Jaundice
67. Ova and sperm are  
(a) Gametes (b) Organs  
(c) Tissue (d) None of these
68. Amoeba reproduces by :  
(a) Sexual reproduction  
(b) Vegetative reproduction  
(c) Budding  
(d) Binary fission
69. The Liver, sweat glands and salivary glands are  
(a) Endocrine glands (b) Exocrine glands  
(c) Endocrine ducts (d) Exocrine ducts
70. Metal and Non metal form \_\_\_\_\_  
(a) ionic bond (b) Hydrogen bond  
(c) Covalent bond (d) All of these
71.  $Mg + H_2O$  &  $Mg + H_2O$  form  
(water) (steam)  
(a) Mgo and  $Mg(OH)_2$   
(b)  $Mg(OH)_2$  and  $MgO$   
(c)  $MgO_2$  and  $Mg(OH)_2$   
(d)  $Mg(OH)_2$  and  $Mg(OH)_2$

72. Flame produce in enough oxygen is of \_\_\_\_\_ colour.  
 (a) Yellow (b) Blue  
 (c) Orange (d) Red
73. Meaning of word 'Petroleum'  
 (a) rock's oil (b) animal's oil  
 (c) Plant's oil (d) Fire
74. Which of the following is a synthetic fibre?  
 (a) Terrywool (b) Terycot  
 (c) Terylene (d) All of them
75. Lycra is a synthetic fibre which is also known as  
 (a) nylon (b) acrylic  
 (c) spandex (d) rayon
76. Ropes are made of nylon fibres because they  
 (a) are elastic  
 (b) have good tensile strength  
 (c) easy to wash  
 (d) all are correct
77. Which of the following is not malleable and ductile?  
 (a) Silver (b) Copper  
 (c) Sodium (d) Iron
78. Which of the following is used in the preparation of bulletproof alloy steel?  
 (a) Zirconium (b) Iron  
 (c) Silver (d) Zinc
79. Which of the following is corrosion-resistant?  
 (a) Gold (b) Iron  
 (c) Copper (d) Aluminium
80. Wool is \_\_\_\_\_?  
 (a) Biodegradable  
 (b) Non-Biodegradable  
 (c) both (d) None of these
81. Which of the following is a fossil fuel?  
 (a) Kerosene (b) Diesel  
 (c) Coal (d) All of them
82. Which of the following is the best quality coal?  
 (a) Peat (b) Anthracite  
 (c) Bituminous (d) Lignite
83. Metal always \_\_\_\_\_ electron  
 (a) lose (b) gain  
 (c) share (d) All of these
84. 'Lone Pair' is  
 (a) Pair of electron (b) Pair of proton  
 (c) Pair of covalent bond  
 (d) Pair of ionic bond
85. Temperature range of diesel is  
 (a) 170°C - 180°C (b) 250°C - 350°C  
 (c) above 400°C (d) 30°C - 80°C

### PART-III (REASONING)

86. If a standard-sized cigarette can be rolled out of 6 standard-sized cigarette butts (filters). How many cigarettes will a person be able to smoke if he has 200 cigarettes.  
 (a) 200 (b) 239  
 (c) 233 (d) 238
87. Suppose a clock strikes as many no. of gongs as is the time for eg. - 1 gong at 1 O'clock, 2 gongs at 2 O'clock and so on. If this same clock takes 7 seconds to strike 7 O'clock. How long will the clock take to strike 10 O'clock?  
 (a)  $\frac{21}{2}$  seconds (b) 10 seconds  
 (c) 7 seconds (d)  $\frac{35}{3}$  seconds
88. A woman drives her husband every morning to Howrah station and picks him up from the station and takes him home. She picks him up at 5 p.m. one day the man was let off at work an hour earlier and he arrived at the station at 4 p.m. He started walking home and met his wife enroute to the station and got into the car. They arrived 10 min. earlier. How long did the man walk before he was picked up by his wife?  
 (a) 55 min. (b) 50 min.  
 (c) 65 min. (d) 60 min.
89. Rohit said to Mayank that he was ten years old two days back and next year he will be thirteen. How old is Rohit?  
 (a) 10 (b) 11  
 (c) 12 (d) 13
90. A cement block balances evenly on the scales with three quarters of a kg. and three quarters of a block. What is the weight of the whole block.  
 (a) 1 kg. (b) 2 kg.  
 (c) 2.5 kg. (d) 3 kg.

91. While in San Francisco some time back, I hired a car to drive over the Golden Gate bridge. I started in the afternoon when there was no traffic rush. So I could drive at a speed of 40 miles an hour. While returning, however, I got caught in the traffic rush and I could only manage to drive at a speed of 25 miles an hour.

What was my average speed for the round trip?

- (a)  $\frac{65}{2}$  (b) 65  
(c)  $\frac{205}{13}$  (d)  $\frac{400}{13}$

92. One morning I was on my way to the market and met a man who had 4 wives. Each of the wives had 4 bags, containing 4 dogs and each dog had 4 puppies.

Talking all things into consideration, how many were going to the market?

- (a)  $2^8$  (b)  $2^4$   
(c)  $2^2$  (d)  $2^0$

93. Mammu wears socks of two different colours-white and brown. She keeps them all in the same drawer in a state of complete disorder.

She has altogether 20 white socks and 20 brown socks in the drawer. Supposing she has to take out the socks in the dark, how many must she take out to be sure that she has a matching pair?

- (a)  $2^4 + 4$  (b)  $2^4 + 5$   
(c)  $2^0 + 1$  (d)  $2^1 + 1$

94. Here is an ancient problem from Bhaskaracharya's Lilavati :

A beautiful maiden, with beaming eyes, asks me which is the number that, multiplied by 3, then increased by three-fourths of the product, divided by 7, diminished by one-third of the quotient, multiplied by itself, diminished by 52, the square root found, addition of 8, division by 10 gives the number 2?

Well, it sounds complicated, doesn't it? No, not if how to go about it.

- (a) 28 (b) 32  
(c) 34 (d) 26

95. Two trains, a passenger train and a goods train, are running in the same direction on parallel railway tracks. The passenger train takes three times as long to pass the goods train-even when they are going in the opposite directions.

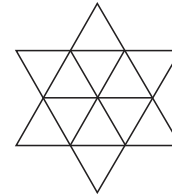
If the trains run at uniform speeds, how many times faster than the goods train is the passenger train moving?

- (a) Half (b) Twice  
(c) Thrice (d) One and a half

96. If 5 tyres were used on a car which has travelled 20,000 miles, how many miles did each tyre sustain, if all the tyres were used equally in sustaining this mileage?

- (a) 16,000 (b) 4,000  
(c) 20,000 (d) 8,000

97. How many triangles, of any size, are there in this star.



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

98. In a school there were 100 lockers. One day the principal asked 100 boys to come to the locker-room. Initially all the lockers were closed. He told the 1<sup>st</sup> boy to open all the lockers. He told the 2<sup>nd</sup> boy to work on every 2<sup>nd</sup> locker and said that if the locker is closed, open it and if the locker is open, close it. He called 3<sup>rd</sup> boy and told him the same thing as 2<sup>nd</sup> boy except to work on every 3<sup>rd</sup> locker. He called 4<sup>th</sup> boy and told him to work on every 4<sup>th</sup> locker and so on. At the end, how many lockers will remain closed.

- (a) 9 (b) 10  
(c) 90 (d) 91

99. A man bought two machines for his factory. After some time he decided to sell them each for 600 Rs. Making a loss of 20% on one of them and a profit of 20% on the other. How did the transaction affected him?

- (a) + 50 Rs. (b) -50 Rs.  
(c) 0 Rs. (d) Can't Say

100. Fifty minutes ago if it was four times as many minutes past three O'clock, how many minutes is it to six O'clock?

- (a) 26 min. (b) 34 min.  
(c) 44 min. (d) 50 min.