

TEST CODE
110817



WGSE 2016

CLASS 08

Time :
120 Minutes

World Genius Search
Examination™ - 2016

Your WGSE Roll No

Student's Name

Student's Signature _____

INSTRUCTIONS TO THE CANDIDATE

1. **DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO.**
2. Fill and sign the Question Booklet. You can carry this booklet with you after you finish the test at the scheduled time.
3. Fill the information required in the answer sheet. Answer sheets with incomplete information may not be evaluated.
4. Do not seek clarification on any item in the test booklet from anyone including the test invigilator or the center supervisor. Use your best judgement.
5. This booklet consists of TWO PARTs as given below :
PART – 1:
SECTION-1: MATHEMATICS – 25 Questions, **SECTION-2: SCIENCE** – 25 Questions, **SECTION-3: ENGLISH** – 10 Questions, **SECTION-4: GENERAL KNOWLEDGE** – 10 Questions, **SECTION-5: LOGIC** – 10 Questions, and **SECTION-6: INFORMATION TECHNOLOGY** – 10 Questions.
PART – 2:
One subjective question from Mathematics or Science to be answered in a separate Answer Sheet
6. In case of any problem with your test booklet, inform the invigilator immediately. You will be provided with a replacement.
7. Use of standalone Calculator is allowed. Mobile phones are strictly prohibited.
8. Use **BLACK BALL POINT PEN** only for marking answers on the OMR sheet. Do not use gel pens or pencils.
9. **Each question carries 2 marks. Questions 1 to 90 will have one or more correct answers as per the directions given. Shading wrong bubbles make the answer wrong. There are no negative marks allotted to wrong answers.**
10. Use the margin in the **Question Booklet** for rough work. No other piece of paper is permitted to be used for rough work. Failure to follow instructions and examination norms will lead to disqualification.
11. Your **ADMIT CARD** should be returned to the invigilator with your answer sheet.

PLEASE WAIT FOR THE SIGNAL TO OPEN THE TEST BOOKLET

Open from this side —————>



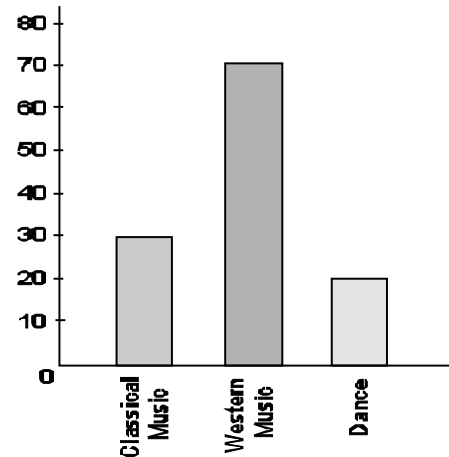
PART – I: MULTIPLE CHOICE QUESTIONS

MATHEMATICS

Questions from 1 to 20 will have only one right answer. Shade the correct bubble.

- Rearrange suitably and find the sum $\frac{5}{3} + \frac{11}{2} + \frac{-9}{4} + \frac{-8}{3} + \frac{-7}{2}$
 (a) $-\frac{5}{3}$ (b) $-\frac{5}{2}$ (c) $-\frac{5}{4}$ (d) $\frac{-3}{5}$
- Vidya would like to know by what number should $(-8)^{-1}$ be multiplied so that the product may be equal to 10^{-1} ?
 (a) $-\frac{5}{3}$ (b) $-\frac{5}{2}$ (c) $\frac{-4}{5}$ (d) $\frac{-3}{5}$
- For any two non-zero rational numbers a and b , $a^4 \div b^4$ is equal to
 (a) $(a \div b)^1$ (b) $(a \div b)^0$ (c) $(a \div b)^4$ (d) $(a \div b)^8$

Direction: Observe the graph given alongside and answer the questions 4 to 6. Vidya and Hypatia are attending a Music & Dance School Both of them are attending Classical Music, Western Music and Dance classes of the School. The graph indicates the number of students attending various classes in the school. 20 students who are attending Classical Music are attending Western Music and 15 students who are attending Classical Music are attending dance classes too.



- What can be the minimum number of students attending all the three classes?
 (a) 20 (b) 15 (c) 10 (d) 5
- What can be the maximum number of Western Music students attending Dance classes?
 (a) 20 (b) 15 (c) 10 (d) 5
- What can be the maximum number of Western Music students not attending Dance classes?
 (a) 20 (b) 15 (c) 10 (d) 50
- Multiply $-\frac{4}{3}xy^3$ by $\frac{6}{7}x^2y$ and verify your result for $x = 2$ and $y = 1$.
 (a) $-\frac{64}{3}$ (b) $-\frac{64}{7}$ (c) $-\frac{24}{7}$ (d) $\frac{-8}{3}$
- Quana gave a question to her class : What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$. Please locate the correct answer.
 (a) $14x - 10$ (b) $12x - 7$ (c) $14 - 10x$ (d) $14x - 3$

9. Hypatia came with a puzzle: A number consists of two digits whose sum is 8. If 18 is added to the number its digits are reversed. Find the number. Can you mark the right option?
 (a) 23 (b) 32 (c) 35 (d) 53
10. The population of a Hypatia's town Noida was 160000 three years ago. If it had increased by 3%, 2.5% and 5% in the last three years, find the present population of Noida.
 (a) 172366 (b) 177366 (c) 217366 (d) 232366
11. Wisden says the diagonals taken for his school playground; a rectangle ABCD intersect at point O. If $\angle BOC = 68^\circ$, can you find $\angle ODA$?
 (a) 124° (b) 98° (c) 72° (d) 56°
12. Vidya took a paper is in the form of a rectangle ABCD in which $AB = 20$ cm and $BC = 14$ cm. Wisden cut off a semi-circular portion with BC as diameter, from the paper. Please find the area of a remaining paper.
 (a) 283 cm^2 (b) 203 cm^2 (c) 186 cm^2 (d) 77 cm^2
13. The length, breadth and height of a cuboidal Wisden's underground water tank are 7 m, 6 m and 15 m respectively. 8400 litre of water is pumped out from the reservoir. Help Wisden to find the fall in the water level of the underground water tank.
 (a) 42 cm (b) 20 cm (c) 12 cm (d) 8.4 cm
14. Richa has card board hollow cylinder which she want to use for Republic day decorations at school. The lateral surface area of the same is 4224 cm^2 . It is cut along its height and formed a rectangular sheet of width 32 cm. Please find the perimeter of this rectangular sheet.
 (a) 132 cm (b) 224 cm (c) 328 cm (d) 402 cm
15. Creating puzzles and problems are a hobby for Wisden & Hypatia. They have created a new puzzle - Three different containers contain 496 litres, 403 litres and 713 litres of mixtures of milk and water. A biggest measuring vessel should be made that can exactly measure the mixtures of all the three containers. Using this measuring vessel, you should be able to measure the mixtures in minimum number times. What should be the size of such biggest measuring vessel?
 (a) 1 litre (b) 7 litres (c) 31 litres (d) 41 litres
16. Yet another one from Hypatia - By what least number 4320 is multiplied to obtain a number which is a perfect cube?
 (a) 20 (b) 30 (c) 40 (d) 50
17. Wisden continues. Here is the next one. If the numerator of a fraction be increased by 15% and its denominator be diminished by 8 %, the value of the fraction is $\frac{15}{16}$. Find the original fraction.
 (a) $\frac{5}{3}$ (b) $\frac{5}{2}$ (c) $\frac{4}{5}$ (d) $\frac{3}{4}$
18. Which of the following is not a perfect cube?
 (a) 64 (b) 216 (c) 242 (d) 1728
19. A shopkeeper, who got a shop below Vidya's home, purchased 150 identical pieces of calculators at the rate of Rs.250 each. He spent an amount of Rs. 2500 on

transport and packing. He fixed the labelled price of each calculator at Rs.320. However, he decided to give a discount of 5% on the labelled price. What is the percentage of profit earned by him ?

- (a) 14% (b) 15% (c) 16% (d) 20%

20. The ratio of the number of boys and girls in Vidya's school is 7 : 8. If the percentage increase in the number of boys and girls be 20% and 10% respectively, what will be the new ratio ?

- (a) 8 : 9 (b) 17 : 18 (c) 21 : 22 (d) 23:26

Questions from 21 to 25 will have more than one right answer. Shade all the correct bubbles.

21. Quana says she has three numbers in the ratio of 2 : 3 : 4. The sum of their cubes is 33957. Find the numbers.

- (a) 7 (b) 14 (c) 21 (d) 28

22. After solving Quana's question, Neeraja came out with this question. Given that the number $\overline{60ab57377}$ is divisible by 99, where a and b are digits, what are the values of a and b ?

- (a) 9 (b) 7 (c) 5 (d) 3

23. Solve the Cryptarithm: $\overline{ON} + \overline{ON} + \overline{ON} + \overline{ON} = \overline{GO}$ or, $4 \times \overline{ON} = \overline{GO}$

- (a) 9 (b) 2 (c) 5 (d) 3

24. A shopkeeper who got a shop below Vidya's home purchases two fans for Rs. 2160. By selling one fan at a profit of 15% and the other at a loss of 9% he neither gains nor losses anything. Find the cost price of each fan.

- (a) 720 (b) 810 (c) 1150 (d) 1350

25. Afreen has a very simple question – Which of the following statements are true about a parallelogram?

- (a) Opposite sides are equal (b) Opposite angles are equal
(c) Diagonals bisect each other (d) Diagonals are of equal length

SCIENCE

Questions from 26 to 45 will have only one right answer. Shade the correct bubble.

26. Which of the following description is true for describing 'fertiliser'?

- (a) Used in large quantity (b) Organic in nature
(c) Does not cause pollution (d) Produced in factories

27. Diseases like polio and chicken pox are caused by _____

- (a) Bacteria (b) Fungi (c) Virus (d) Worms

28. Rhizobium found in root nodules of leguminous roots is an

- (a) Atmospheric Carbon fixer (b) Atmospheric Oxygen fixer
(c) Atmospheric Nitrogen fixer (d) All of the above

29. Deliberately injecting weak microbes into a healthy body and producing antibodies to fight against strong microbes is called _____

- (a) Higher than 20,000 Hz
(c) Lower than 20,000 Hz
- (b) Higher than 10,000 Hz
(d) Lower than 10,000 Hz
42. Voice of man is heavy compared to a woman because
(a) Female vocal cord is longer
(c) Male vocal cord is longer
- (b) Male vocal cord is shorter
(d) The concept is not related
43. In LEDs, the longer lead (wire) is always connected to the _____ terminal
(a) Negative (b) neutral (c) positive (d) Any terminal
44. When electrodes are immersed in water and electricity passed, the bubbles formed on the negative terminal is actually _____ gas.
(a) Hydrogen (b) Carbon di oxide (c) Oxygen (d) Nitrogen
45. The power of an earthquake is expressed in terms of magnitude on a scale called
(a) Righter Scale (b) Quake scale (c) Richter Scale (d) Earth Scale

Questions from 46 to 50 will have more than one right answer. Shade all the correct bubbles.

46. If the angle of incidence of light falling on a plane mirror is 30 degree, what cannot be the angle of reflection?
(a) 90 degree (b) 60 degree (c) 30 degree (d) 0 degree
47. Rainbow is a natural phenomenon showing
(a) Reflection (b) Seven Colours (c) Dispersion (d) Five Colours
48. During a clear night sky, bright light streaks are often visible. They are called shooting stars. What are they? When we can see them?
(a) Comet (b) Night (c) Meteors (d) Day
49. Light Year is
(a) Measuring unit (b) Length of lightening
(c) Year which earth shall become lighter (d) Distance travelled by light in 1 year
50. Greenhouse gases includes
(a) Methane (b) Nitrous oxide (c) Fluorine (d) Carbon dioxide

ENGLISH

Choose the grammatically correct options.

Direction: (Q. 51 & 52) Each of the following sentences has been divided into four parts, (a), (b), (c) and (d) with an error. Locate where the error is.

51. (a) Children visiting the zoo (b) heartily enjoyed the scene (c) of the aquatic birds (d) swim in the lake
52. (a) Rama is certainly (b) more intelligent (c) and more prettier (d) than her elder sister

Direction: (Q. 53 & 54) In each of the following sentences there are two blank spaces. Below each sentence there are four pairs of words denoted by (a), (b), (c) and (d). Find out which pair of words can be used to fill up the blank spaces.

53. Noise _____ has assumed _____ proportions in recent years in India.
(a) Pollution, Alarming (b) Level, surreptitious

- (c) Control, Different (d) Problem, desirous
54. _____ decibel levels are known to produce _____ effect on physical as well as psychological well-being of the people.
- (a) Increasing, salutary (b) Few, satisfactory
(c) Balance, critical (d) Excessive, deleterious

Direction: (Q.55 & 57): Which of the phrases (a), (b), (c) and (d) given below each sentence should replace the phrase printed in bold type to make this sentence grammatically correct?

55. He is not **worthy his salt** if he fails at this juncture.
(a) worth his salt (b) for his salt
(c) valuable for his salt (d) in his salt
56. He is **hand and glove** with my cousin for this new factory project.
(a) hand on glove (b) hand against glove
(c) hand in glove (d) hand with glove
57. You should visit Germany when **had been to England**.
(a) had gone to England (b) go to England
(c) were going to England (d) should have gone to England
58. Rajeev failed in the examination because none of his answers were _____ to the questions asked.
(a) allusive (b) revealing (c) pertinent (d) referential
59. Dinesh asked, "Are you going to the party tomorrow, Rani?"
(a) Dinesh asked whether Rani was going to the party the next day
(b) Dinesh asked Rani whether you are going to the party the next day
(c) Dinesh asked Rani whether she was going to the party the next day
(d) Dinesh asked Rani are you going to the party tomorrow.
60. Find the correct spelt word.
(a) Adventitious (b) Adventitous (c) Adventitus (d) Adventituos

GENERAL KNOWLEDGE

Questions under this section will have only one right answer. Shade the correct bubble.

61. An iron atom has 26 protons, gold has how many protons?
(a) 79 (b) 81 (c) 42 (d) 101
62. Who wrote the book *A Brief History of Time*?
(a) Albert Einstein (b) C.V. Raman
(c) Stephen Hawking (d) APJ Abdul Kalam
63. How is the gas nitrous oxide better known as?
(a) Tear Gas (b) Water Gas (c) Laughing Gas (d) LPG
64. The Bhabha Atomic Research Centre is located at
(a) Kochi (b) Mumbai (c) Dhaka (d) New Delhi

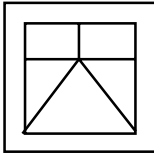
65. When was the atomic bomb dropped on Hiroshima?
 (a) 6 August 1945 (b) 9 August 1945
 (c) 7 August 1945 (d) 14 August 1945
66. How do bees pass messages to each other?
 (a) By dancing (b) By touching (c) By their scent (d) By their language
67. What are the smallest blood vessels seen only under the microscope?
 (a) Arteries (b) Veins (c) Capillaries (d) Cerebrum
68. The binary system of numbers uses which two numerical digits?
 (a) 0, 1 (b) 0, 9 (c) 8, 6 (d) 1, 2
69. Which is the most abundant rare gas in the atmosphere?
 (a) He (b) Ne (c) Ar (d) Xe
70. Which of the following phenomenon is considered responsible for Global Warming?
 (a) Greenhouse effect (b) Dry farming (c) Monsoon (d) Gravitational Waves

LOGIC

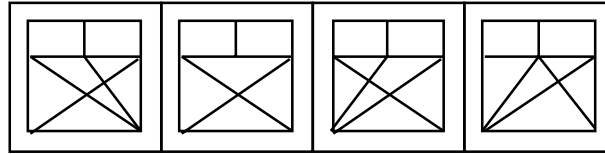
Questions under this section will have only one right answer. Shade the correct bubble.

In each of the following questions 71 & 72, given a fig. (X) followed by four alternative (a), (b), (c) and (d) such that fig. (X) is embedded in one of them. Trace out the alternative figure which contains fig. (X) as its part.

71.



(X)



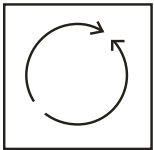
(a)

(b)

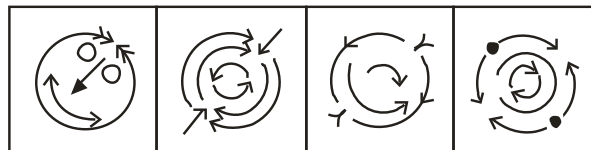
(c)

(d)

72.



(X)



(a)

(b)

(c)

(d)

In each of the following questions 73 & 74, various terms of a series are given with one term missing as shown by. Choose the missing term.

73. QPO, SRQ, UTS, WVU, (?)

(a) XVZ

(b) YXW

(c) ZYA

(d) VWX

74. 19, 2, 38, 3, 114, 4, (?)

(a) 228

(b) 352

(c) 256

(d) 456

75. Pointing to a person, Rohit said to Neha, "His mother is the only daughter of your father." How is Neha related to the person?

(a) Aunt

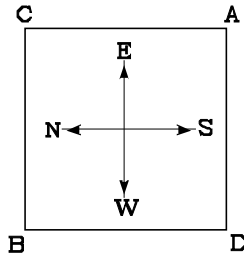
(b) Mother

(c) Daughter

(d) Wife

76. In a queue I am the last person while my friend is seventh from the front. If the person exactly between me and my friend is on the 23rd position from the front, what is my position in the queue?
- (a) 37 (b) 36 (c) 38 (d) 39

Questions 77 & 78 are based on the diagram given below showing four persons stationed at the four corners of a square piece of plot as shown.



77. A starts crossing the plot diagonally. After walking half the distance, he turns right, walks some distance and turns left. Which direction is A facing now?
- (a) North-east (b) North (c) North-west (d) South-east
78. From the original position given in the above figure, A and B move one arm length clockwise and then cross over to the corner diagonally opposite; C and D move one arm length anti-clockwise and cross over the corner diagonally opposite. The original configuration ADBC has now changed to :
- (a) CBDA (b) DACB (c) BDAC (d) ACBD
79. If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH?
- (a) 246173 (b) 214673 (c) 214763 (d) 216473
80. Find the odd one out.
- (a) Grams (b) Litres (c) Tonnes (d) Quintals

INFORMATION TECHNOLOGY

Questions under this section will have only one right answer. Shade the correct bubble.

81. To what temporary area can you store text and other data, and later paste them to another location?
- (a) The clipboard (b) ROM (c) CD-ROM (d) The hard disk
82. Which command brings you to the first slide in your presentation?
- (a) Next slide button (b) Page up (c) Ctrl + home (d) Ctrl + end
83. Which of the following should you use if you want all the slides in the presentation to have the same look?
- (a) The slid layout option (b) The add a slide option
(c) Outline view (d) A presentation design template
84. If the displayed system time and date is wrong, how can you reset it?
- (a) By writing code (b) Using Calendar (c) Using the file (d) Using Control Panel
85. You wished to justify text over the height of paper, which option will you choose

- (a) Page Setup from File menu
(b) Paragraph from Format menu
(c) From formatting toolbar
(d) Font from Format menu
86. How can you break the current column and start a new column immediately?
(a) Press Ctrl + Shift + Enter
(b) Press Alt + Enter
(c) Press Ctrl + Enter
(d) Press Alt + Shift + Enter
87. Which of the following is a wrong direction to guard against a 'Phishing' attack?
(a) Log on to a site by typing the proper URL in the address bar
(b) Ensure that the URL of the login page starts with http:// and not https://
(c) Give user id and password only at authenticated login page
(d) Look for the lock sign/icon and verisign certificate
88. What is the difference between a CD-ROM and a CD-RW?
(a) Just two different terms used by different manufacturers
(b) A CD-ROM can be written to and a CD-RW cannot
(c) A CD-RW can be written to but a CD-ROM can only be read from
(d) A CD-ROM holds more Information than a CD-RW
89. How can you print three copies of a workbook?
(a) Select File>Properties form the menu and type 3 in the Copies to print text box.
(b) Select File >Print from the menu and type 3 in the Number of copies text box.
(c) Click the Print button on the standard toolbar to print the document then take it to Kinko's and have 2 more copies made
(d) Press Ctrl+P+3
90. Debugging is:
(a) Creating program code
(b) Finding and correcting errors in the program code
(c) Identifying the task to be computerized
(d) Creating the algorithm

PART – II – SUBJECTIVE QUESTION

Note: All the candidates should answer the following subjective question on the separate Answer Sheet provided for it. The Answer for the Subjective Question will be evaluated when the candidate scores 90 percentile or above in Part – I (90 MCQs) to add bonus points to his / her score. Use the separate PART – II Answer Sheet to answer the following question.

91. Frame a question using ALL the four given parameters. Please solve the question you have framed with its detailed answer.

DMRC Principal Adviser E. Sreedharan is the Metro Man. He is engaged in Kochi Metro too. Under his guidance, Kochi Metro has developed vacant land below the bridge using interlocking tiles as you see in picture alongside.



Frame your question connecting this situation and interlocking tiles.

The Parameters for framing the question are:

1. Interlocking Tiles
2. Kinetic Friction
3. Downpour (heavy rain)
4. Pothole on Road

Important: Please make sure that you apply all the given parameters in a single Question and answer.

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HOT POT – Do it at home! Hybrid Open Test – Power of Thought

Wisden and Hypatia were travelling in a school bus on their way back home after World Genius Search Examination – 2016. They were happy to see drizzling outside. There was no rain for the last two months. The bus driver was driving the bus slowly. Suddenly they saw a car which was overtaking the school bus skidded and hit the lamp post on the middle of the road. Luckily the car driver escaped without any injury. Their school bus was stopped there for some time.

When they continue to travel, Wisden told Hypatia that the accident took place due to rolling friction. Oil used to drip from many vehicles on the road. It is absorbed by the soil or spread on the road. During summer, oil is likely to get accumulated and absorbed by the surface of road. When there is light rain, some of these oil molecules come up as water oozes through the surface of road. It will be like a layer of oil molecules at the bottom, water molecules on that layer and again oil molecules above water. Under this situation, the vehicles on the road are moving on three layers of rollers and they are subjected to rolling friction. Wisden said many drivers are not aware that speed of vehicles in such a situation leads to accidents. He added that this happens when it rains after a break or during the first rain of monsoon. If it is continuously raining the absorbed oil is getting washed off and the vehicles will be subjected to just one layer of rolling friction – i.e., water molecules!

Can you find out such daily life situations connected with chemistry and prepare a good question and its answer?

Mail us your question with answer to worldgeniuscouncil@gmail.com Please mention your WGC ID (roll number) in the subject line. Right answers will be appreciated.

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