

TEST CODE  
110917



WGSE 2016

CLASS 09 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.

1. Wisden asked Tony to simplify 
$$\frac{\left(1 + \frac{1}{100}\right)\left(1 + \frac{1}{100}\right) - \left(1 - \frac{1}{100}\right)\left(1 - \frac{1}{100}\right)}{\left(1 + \frac{1}{100}\right) + \left(1 - \frac{1}{100}\right)}$$
.

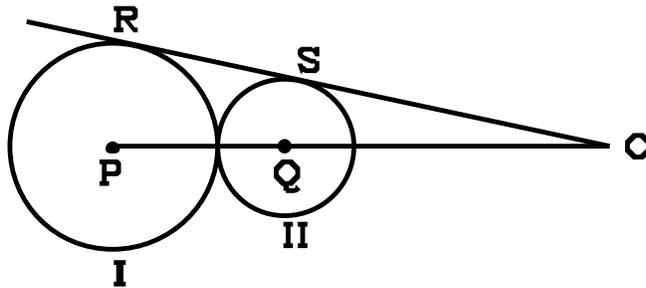
Which of the following is the simplified value?

- (a) 100                      (b)  $\frac{200}{101}$                       (c) 200                      (d)  $\frac{202}{100}$
2. Wisden's uncle got married 8 years ago. His present age is  $\frac{6}{5}$  times his age at the time of his marriage. Wisden's Aunt was 10 years younger to Wisden's Uncle at the time of Uncle's marriage. What is the age of Wisden's Uncle?  
 (a) 32 years                      (b) 36 years                      (c) 48 years                      (d) 40 years
3. Hypatia got higher Global Intellectual Index (GII) when she framed this subjective question under the WGSE Part 2 : Two identical circles intersect so that their centres and the points at which they intersect form a square of side 1 cm. What is the area (in sq. cms) of the portion that is common to both the circles? Please answer her question.  
 (a)  $\frac{\pi}{4}$                       (b)  $\frac{\pi}{2} - 1$                       (c)  $\frac{\pi}{5}$                       (d)  $\sqrt{2} - 1$
4. A cell phone service provider engages male and female operators for answering 1000 calls per day. A male operator can handle 40 calls per day whereas a female operator can handle 50 calls per day. The male and the female operators get a fixed wage of Rs.250 and Rs.300 respectively, on daily basis. In addition, a male operator gets Rs.15 per call he answers and a female operator gets Rs.10 per call she answers. To minimize the total cost, how many male operators should the service provider employ assuming that he has to employ more than 7 of the 12 female operators available for the job?  
 (a) 15                      (b) 14                      (c) 12                      (d) 10
5. A jogging park has two identical circular tracks touching each other, and a rectangular track enclosing the two circles. The edges of the rectangles are tangential to the circles. Wisden and Sachin start jogging simultaneously from the point where one of the circular tracks touches the smaller side of the rectangular track. Wisden jogs along the rectangular track, while Sachin jogs along the two circular tracks which is in the shape of digit '8'. How fast Sachin should run than Wisden, to ensure that they take the same time to return to their starting point? Express in percentage.  
 (a) 3.88%                      (b) 4.22%                      (c) 4.44%                      (d) 4.72%

6. The shopkeeper below Vidya's flat sold 254 eggs on Monday and twice of that on Tuesday. 150 eggs are left with him. If he wanted to sell all the eggs that he had, equally in 2 days, how many eggs he should sell on each day?  
 (a) 912 eggs                      (b) 762 eggs                      (c) 456 eggs                      (d) 254 eggs
7. An empty container was completely filled with water poured from 3 equal jugs. If 5 such jugs contained 400 ml of water, how much water was required to fill the container?  
 (a) 360 ml                      (b) 240 ml                      (c) 300 ml                      (d) 2000 ml

**Direction: (Q. 8 to 10), Answer the questions on the basis of the information given below:**

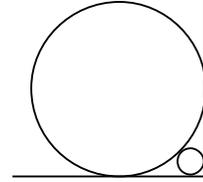
Wisden drew two circles with centres P and Q respectively. The two circles touch each other and have a common tangent that touches them at points R and S respectively. This common tangent meets the line joining P and Q at O. the diameters of I and II are in the ratio 4 : 3. It is also known that the length of PO is 28 cm.



8. What is the ratio of the length of PQ to that of QO?  
 (a) 1 : 4                      (b) 1 : 3                      (c) 3 : 8                      (d) 3 : 4
9. What is the radius of the circle II?  
 (a) 2 cm                      (b) 3 cm                      (c) 4 cm                      (d) 5 cm
10. What is the length of segment SO?  
 (a)  $8\sqrt{3}$  cm                      (b)  $10\sqrt{3}$  cm                      (c)  $12\sqrt{3}$  cm                      (d)  $14\sqrt{3}$  cm
11. On some days, Hypatia could not travel using her car after the traffic restrictions were announced at Delhi. Hypatia and her father were waiting at a bus stop in the evening. There is a lamp post behind them. The lamp post, her father and Hypatia are standing on the same straight line. Her father observes that the shadows of his head and Hypatia's head are incident at the same point on the ground. The heights of the lamp post, her father and Hypatia are 6 metres, 1.8 metres and 0.9 metres respectively. Her father is standing 2.1 metres away from the post. Can you tell us the distance (in metres) between Hypatia and her father?  
 (a) 0.9                      (b) 0.75                      (c) 0.6                      (d) 0.45
12. Wisden is playing with circles. He placed a circle with radius 2 units against a

right angled corner of walls. Another smaller circle is also placed as shown in the adjoining figure. What is the radius of the smaller circle?

- (a)  $3 - 2\sqrt{2}$  (b)  $4 - 2\sqrt{2}$   
 (c)  $7 - 4\sqrt{2}$  (d)  $6 - 4\sqrt{2}$

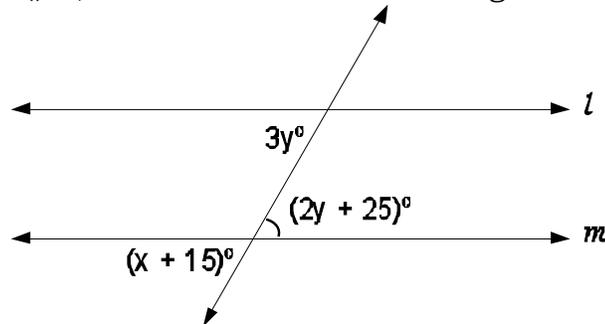


13. If  $x = 2$  and  $y = 4$ , then what is the value of  $\left(\frac{x}{y}\right)^{x-y} + \left(\frac{y}{x}\right)^{y-x}$ ?  
 (a) 4 (b) 8 (c) 12 (d) 2

14.  $(x - 1)$  is a factor of polynomial  $f(x)$  but not of  $g(x)$ . Then  $(x - 1)$  must be a factor of one among the following options. Which is that?

- (a)  $f(x) - g(x)$  (b)  $-f(x) + g(x)$   
 (c)  $f(x) - g(x)$  (d)  $\{f(x) + g(x)\}g(x)$

15. In the figure below, if  $l \parallel m$ , what is the value of  $x$  in degrees?



- (a) 60 (b) 50 (c) 45 (d) 30

16. Hypatia deserves a pat. Here she comes with yet another naughty question. A square and an equilateral triangle have equal perimeters. If the diagonal of the square is  $12\sqrt{2}$  cm, can you find out area of the triangle? Choose right option.

- (a)  $24\sqrt{2}$  cm<sup>2</sup> (b)  $24\sqrt{3}$  cm<sup>2</sup> (c)  $48\sqrt{3}$  cm<sup>2</sup> (d)  $64\sqrt{3}$  cm<sup>2</sup>

17. Wisden comes with yet another question to counter Hypatia - If one angle of a parallelogram is  $24^\circ$  less than twice the smallest angle; he want to know the measure of the largest angle of the parallelogram. Give the correct answer to him.

- (a)  $176^\circ$  (b)  $68^\circ$  (c)  $112^\circ$  (d)  $102^\circ$

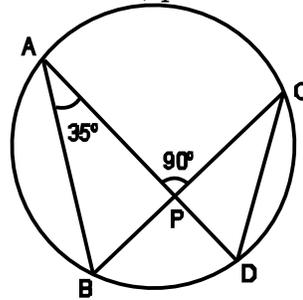
18. The class is bombarded with questions! Now it is Vidya's turn. Here is her question - A triangle and a parallelogram are on the same base and between same parallels. What is ratio of the areas of triangle and parallelogram ?

- (a) 1 : 1 (b) 1 : 2 (c) 2 : 1 (d) 1 : 3

19. A chord of length 14 cm is at a distance of 6 cm from the centre of a circle. What will be the length of another chord at a distance of 2 cm from the centre of the circle?

- (a) 5 cm (b) 14 cm (c) 16 cm (d) 18 cm

20. Here is the Question prepared by Afreen: Chords AD and BC intersect each other at right angles at a point P. If  $\angle DAB = 35^\circ$ , please tell me the measure of  $\angle ADC$ .



- (a)  $35^\circ$       (b)  $45^\circ$       (c)  $55^\circ$       (d)  $65^\circ$

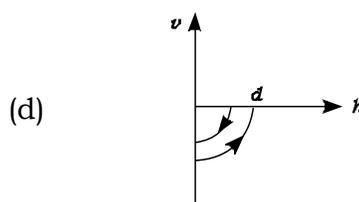
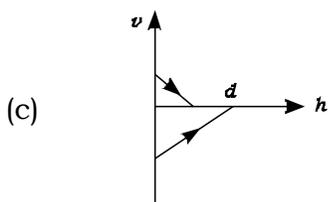
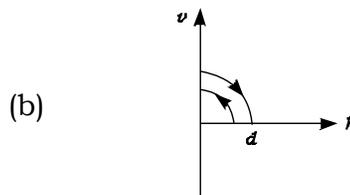
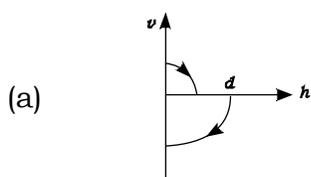
**Questions from 21 to 25 will have more than one right answer. Shade all the correct bubbles.**

21. A chemical plant has four tanks A, B, C & D; each containing 100 litres of a chemical. The chemical is being pumped from one tank to another as follows :
- From A to B @ 20 litres/minute
  - From C to A @ 90 litres/minute
  - From A to D @ 10 litres/minute
  - From C to D @ 50 litres/minute
  - From B to C @ 100 litres/minute
  - From D to B @ 110 litres/minute
- Which tank get emptied first, and how long does it take (in minutes) to get empty after pumping starts?
- (a) A      (b) D      (c) 25      (d) 20
22. The overhead water tank of Vidya's house is a cuboid of volume of  $3x^2 - 27$ . What are its possible dimensions?
- (a) 3      (b)  $x - 3$       (c)  $27x$       (d)  $x + 3$
23. If  $\frac{5-\sqrt{3}}{2+\sqrt{3}} = x + y\sqrt{3}$ . What are the values of x and y?
- (a) 13      (b) -13      (c) -7      (d) 7
24. An exterior angle of a triangle is  $108^\circ$  and its interior opposite angles are in the ratio 4 : 5. What are the angles of that triangle?
- (a)  $48^\circ$       (b)  $60^\circ$       (c)  $72^\circ$       (d)  $42^\circ$
25. After a spree of experiments, Hypatia is holding a sphere and a cube of the same height. She would like to know the ratio of their volumes. Pick up the correct values!
- (a) 3      (b) 11      (c) 4      (d) 21

## SCIENCE

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

26. Amoeba acquires its food through a process. What is it called?  
 (a) Exocytosis (b) Endocytosis  
 (c) Plasmolysis (d) Both Exocytosis and endocytosis
27. Vidya has prepared 0.01% (by mass) solution of sodium chloride in water. Which of the following correctly represents the composition of the solution?  
 (a) 1.00 g of NaCl + 100 g of water (b) 0.11 g NaCl + 100 g of water  
 (c) 0.01 g of NaCl + 99.99 g of water (d) 0.10 g of NaCl + 99.90 g of water
28. Vidya went for a circus show with Wisden and Hypatia. She saw a man jumping from a height of 10 m and is caught by a net spread below him. The net sags down by 2 m. Can you find the magnitude of force exerted by the net on the man to stop him? (Mass of the man is 60 kg, and acceleration during free fall is 10 m/s<sup>2</sup>)  
 (a) 2000 (b) 3000 (c) 4000 (d) 5000
29. Vidya put a stone fall from the top of a tower 100 m high. At the same time Hypatia projected another stone vertically upwards from the ground with a velocity of 25 m/s. Can you find where the two stones will meet?  
 (a) 21.6 meters from the top (b) 100 meters from the top  
 (c) 21.6 meters from the ground (d) 78.4 meters from the ground
30. A particle moving in a straight line covers half the distance with speed of 3 m/s. The other half of the distance is covered in two equal time intervals with speed of 4.5 m/s and 7.5 m/s respectively. What is the average speed of the particle during this motion?  
 (a) 4.0 m/s (b) 5.0 m/s (c) 5.5 m/s (d) 4.8 m/s
31. A ball is dropped vertically from a height  $d$  above the ground. It hits the ground and bounces up vertically to a height  $d/2$ . Neglecting subsequent motion and air resistance, its velocity  $v$  varies with the height  $h$  above the ground. Which of the following represent the ball?



32. What is the primary reason for tidal waves in the sea?
- (a) The gravitational effect of the moon on the earth
  - (b) The gravitational effect of the sun on the earth
  - (c) The gravitational effect of venus on the earth
  - (d) The atmospheric effect of the earth itself
33. Wisden want you to tell him at what height does the kinetic energy reduce to half of the initial value if we throw a body upwards with velocity of  $4 \text{ m/s}$  ( Taking  $g = 10 \text{ ms}^{-1}$ )?
- (a) 4 m
  - (b) 2 m
  - (c) 1 m
  - (d) 0.4 m
34. A body of mass 1 kg is thrown upwards with a velocity  $20 \text{ m/s}$ . It momentarily comes to rest after attaining a height of 18 m. How much energy is lost due to air friction ( $g = 10 \text{ m/s}^2$ )?
- (a) 20 J
  - (b) 30 J
  - (c) 40 J
  - (d) 10 J
35. Quana knew that nails should never be hammered into a tree. The bicycle repairing shopkeeper inserted a nail in the trunk of a tree to hang his board. It was at a height of 1 metre from the ground level. Where you can see this nail after 3 years ?
- (a) The nail will move downwards
  - (b) The nail will move upwards
  - (c) The nail will remain at the same position
  - (d) The nail will move sideways
36. Quana would like to know which muscular tissue continuously functions without fatigue throughout her life.
- (a) Skeletal muscle
  - (b) Cardiac muscle
  - (c) Smooth muscle
  - (d) Voluntary muscle
37. A satellite of the earth is revolving in a circular orbit with a uniform speed  $v$ . If the gravitational force suddenly disappears, the satellite will
- (a) Continue to move with velocity  $v$  along the original orbit
  - (b) Move with a velocity  $v$ , tangentially to the original orbit
  - (c) Fall down with increasing velocity
  - (d) Ultimately come to rest somewhere on the original orbit
38. Neeraja says silver nitrate is a useful compound. It is a solution is used to study one of the following. What is that?
- (a) Endoplasmic reticulum
  - (b) Golgi apparatus
  - (c) Nucleus
  - (c) Mitochondria
39. Hypatia was explaining about acceleration due to gravity. She said everything on earth experience acceleration due to gravity. Please tell us which of the following is correct about acceleration due to gravity?
- (a) It is the same on equator and poles
  - (b) It is least on poles
  - (c) It is least on equator
  - (d) It increases from pole to equator
40. Richa was talking to Afreen about gold. She explained that Karat is a unit of purity for gold alloys. She said that a gold sample contains 90% of gold and the

rest is copper. Please tell her how many atoms of gold are present in one gram of this sample of gold?

- (a)  $4.78 \times 10^{27}$       (b)  $3.92 \times 10^{24}$       (c)  $2.95 \times 10^{24}$       (d)  $2.77 \times 10^{21}$

41. After a successful experiment, Wisden told Quana – “When 3.00 g of carbon is burnt in 8.00 g oxygen, 11.00 g of carbon dioxide is produced.” Then he asked a tricky question to her. “What mass of carbon dioxide will be formed when 3.00 g of carbon is burnt in 50.00 g of oxygen?” Help her.

- (a) 53      (b) 11      (c) 50      (d) 61

42. Shankari weighs 30 kg. Suppose her entire body is made up of electrons. How many electrons are there in her body?

- (a)  $3.3 \times 10^{31}$       (b)  $4.7 \times 10^{31}$       (c)  $6.3 \times 10^{-31}$       (d)  $9.1 \times 10^{31}$

43. Hypatia was solving many numericals of Atoms and Molecules. Can you help her to find the answer for this question? – Find the volume of oxygen gas (at NTP) obtained by decomposing 12.26 g of  $\text{KClO}_3$ .

- (a) 1.23 L      (b) 3.36 L      (c) 5.56 L      (d) 7.2 L

44. Vidya has a sample of ethyl ethanoate ( $\text{CH}_3\text{COOC}_2\text{H}_5$ ) in her lab. In this chemical, both oxygen atoms have the same number of electrons but different number of neutrons. Which of the following can be the reason for it?

- (a) One of the oxygen atoms has gained electrons  
 (b) One of the oxygen atoms has gained two neutrons  
 (c) The two oxygen atoms are isotopes  
 (d) The two oxygen atoms are isobars

45. A tuning fork makes 256 vibrations per second in air. When the velocity of sound is 330 m/s, then wavelength of the tone emitted is

- (a) 0.56 m      (b) 0.89 m      (c) 1.11 m      (d) 1.29 m

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

46. The teacher asked Neeraja and Richa to calculate the molecular mass of both  $\text{C}_6\text{H}_{12}\text{O}_6$  and  $\text{CHCl}_3$ . Their answers were right. What are the correct answers?

- (a) 180 u      (b) 128 u      (c) 119.5 u      (d) 73 u

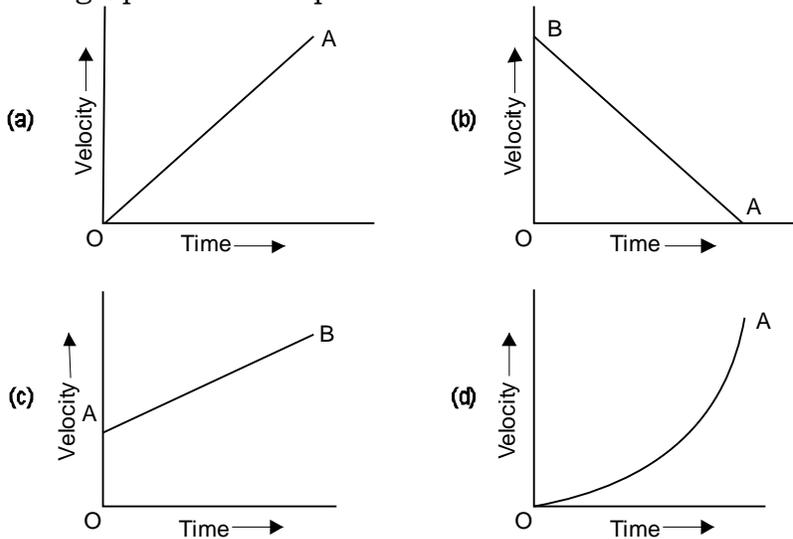
47. Which of the following you can find in Bone matrix, abundantly?

- (a) fluoride      (b) calcium      (c) potassium      (d) phosphorus

48. Starting from rest, Quana paddles her bicycle to attain a velocity of  $6 \text{ ms}^{-1}$  in 30 s. Then she applies brakes so that the velocity of the bicycle comes down to  $4 \text{ ms}^{-1}$  in the next 5s. Calculate the acceleration of her bicycle in both the cases.

- (a)  $-0.4 \text{ ms}^{-2}$       (b)  $0.2 \text{ ms}^{-2}$       (c)  $-0.2 \text{ ms}^{-2}$       (d)  $6 \text{ ms}^{-2}$

49. Wisden shows the following four graphs to his friends and asks them to identify the graphs that represent uniform acceleration. Can you identify them?



50. During last week, for the first time, scientists have detected gravitational waves, ripples in space time; hypothesized by Albert Einstein a century ago. Vidya was talking about this to Wisden. Suddenly she turned and asked a physics question to Veena – “The wavelength of vibrations produced on the surface of water is 2 cm. If the wave velocity is 16 m/s, tell me its frequency and time period.” Locate your answers.

- (a) 800 Hz                      (b) 400 Hz                      (c) 0.00125 s                      (d) 0.0025 s

## ENGLISH

**Choose the grammatically correct options.**

51. When I am alone, I hear the footsteps of my friend in my imagination.

- (a) The footsteps of my friend heard by me, when I am alone.  
 (b) The footsteps of my friend is heard by me when I am alone.  
 (c) The footsteps of my friend are heard by me when I am alone.  
 (d) The footsteps of my friend was heard by me when I am alone.

52. One woman said to me, "You should consult a doctor. Do not delay."

- (a) One woman said me that I should be consult a doctor. Did not delay  
 (b) One woman told me that I should consulted a doctor. Did not delay.  
 (c) One woman suggested me that I should consult a doctor. Did not delay.  
 (d) One woman requested me that I should been consult a doctor. Do not delay.

**In the questions below (53 & 54), each passage consist of six sentences. The first and sixth sentences are given in the beginning and end. The middle four sentences in each have been removed and jumbled up. These are labeled as P, Q, R and S. Find out the proper order for the four sentences.**

53. S<sub>1</sub>: Kolkata, unlike other cities kept its trams.

P : As a result there horrendous congestion.

Q : It was going to be the first in South Asia.

R : They run down the centre of the road

S : To ease in the city decided to build an underground railway line.

S<sub>6</sub>: The foundation stone was laid in 1972.

The Proper sequence should be:

- (a) PRSQ                      (b) PSQR                      (c) SQRP                      (d) RPSQ

54. S<sub>1</sub>: All the land was covered by the ocean.

P : The leading god fought the monster, killed it and chopped its body in to two halves.

Q : A terrible monster prevented the gods from separating the land from the water.

R : The god made the sky out of the upper part of the body and ornamented it with stars.

S : The god created the earth from the lower part, grew plants on it and populated it with animals.

S<sub>6</sub>: The god moulded the first people out of clay according to his own image and mind.

- (a) PQRS                      (b) PQSR                      (c) QPSR                      (d) QPRS

**A part of the given sentence is underlined. Beneath each sentence, four different ways of phrasing the underlined part are indicated. Choose the best alternative.**

55. Except for you and I, everyone brought a present to the party.

- (a) With the exception of you and I, everyone brought  
 (b) Except for you and I, everyone had brought  
 (c) Except for you and me, everyone brought  
 (d) Except for you and me, everyone had brought

56. Although I calculate that he will be here any minute, I cannot wait much longer for him.

- (a) Although I reckon that he will be here  
 (b) Although I think that he will be here  
 (c) Because I am confidant that he will be here  
 (d) Because I calculate that he will be here

**Fill the blank space with the most appropriate option.**

57. It is earth's gravity which ..... people their weight.

- (a) gives                      (b) give                      (c) giving                      (d) given

58. The country is ushering ..... a new era.

- (a) into                      (b) in                      (c) of                      (d) over

**Select the word that is opposite in meaning to the word given**

59. SCRIMP

- (a) Lavish                      (b) Parsimonious      (c) Meticulous              (d) Polite

60. AMALGAMATE

- (a) Merge                      (b) Consecrate              (c) Impoverish              (d) Spilt

**GENERAL KNOWLEDGE**

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

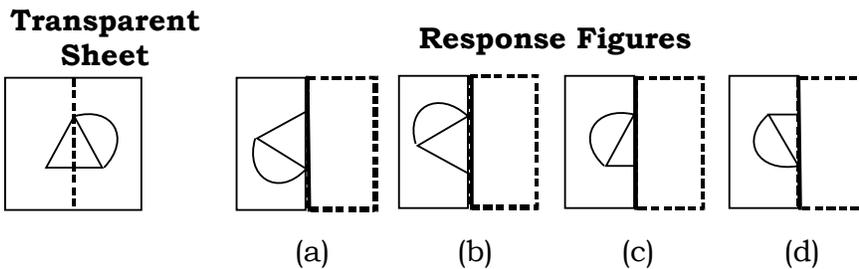
61. Which is the first atomic plant established in India?  
 (a) Kaiga                      (b) Kakrapar              (c) Kalpakkam              (d) Tarapur
62. Which instrument determines specific gravity of liquids?  
 (a) Gravimeter              (b) Hydrometer              (c) Hygrometer              (d) Hypsometer
63. The oil in the wick of an oil lamp rises up due to the phenomenon of :  
 (a) Difference in pressure                      (b) Gravitational pull  
 (c) Capillary action                              (d) Oil being lighter
64. The current Reserve Bank of India Governor is a highly respected economist who has done his graduation in Engineering from IIT Delhi. He seems to be developing new theorems in economics using his scientific background. This confirms economics is a branch of science. Who is he?  
 (a) Cyrus Mistry                                      (b) Raghuram Rajan  
 (c) K. Radhakrishnan                              (d) Aravind Kejriwal
65. Which state has become the India's first fully organic state?  
 (a) Tripura                      (b) Sikkim                      (c) Himachal Pradesh              (d) Haryana
66. L.P.G. is a hydrocarbon consisting of a mixture of :  
 (a) Methane and Butane                              (b) Propane and Butane  
 (c) Ethane and Propane                              (d) Ethane and Butane
67. The water in your area is hard. It means - it has high concentration of two metal ions. Which ions are they?  
 (a) Sodium and Calcium                              (b) Potassium and Magnesium  
 (c) Calcium and Magnesium                              (d) Sodium and Beryllium
68. A ballistic missile is a missile that follows a projectile flight path with the objective of delivering one or more warheads to a predetermined target. With the successful test firing of Agni-5 ballistic missiles, Beijing is now within India's range. Do you know what the range of Agni 5 missile is?  
 (a) 2000 km                      (b) 3000 km                      (c) 4000 km                      (d) 5000 km

69. Where did the concept of carbon credit originated?  
 (a) Kyoto Protocol (b) Earth Summit, Rio de Janeiro  
 (c) Montreal Protocol (d) G-8 Summit, Heiligendamm
70. Which of the following is not an allotrope of Carbon?  
 (a) Diamond (b) Graphite (c) Fullerenes (d) Glass

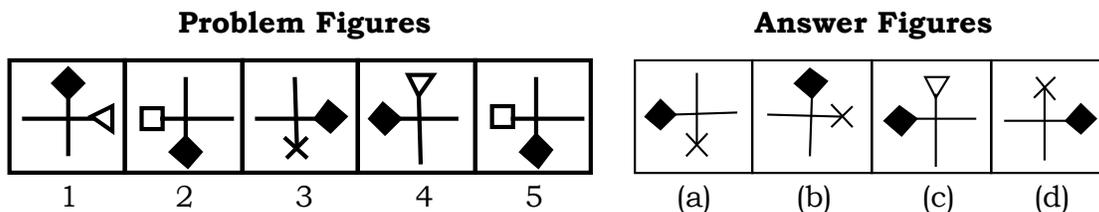
**LOGIC**

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

71. A square transparent sheet with a pattern is given. Choose the right option from the response figure as to how the pattern would appear when the transparent sheet is folded at the dotted line.



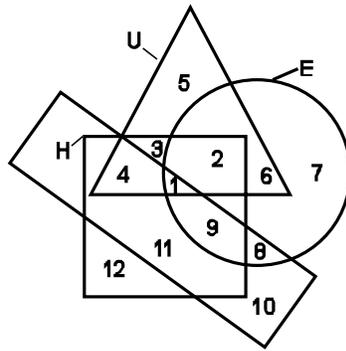
72. There are five figures marked 1, 2, 3, 4 and 5 called the Problem Figures followed by four other figures marked a, b, c and d called the Answer Figures. Select a figure from the Answer Figures which will continue the same series as established by the five Problem Figures.



73. Tony travelled 4 km straight towards south. He turned left and travelled 6 km straight, then turned right and travelled 4 km straight. How far is he from the starting point?  
 (a) 8 km (b) 10 km (c) 12 km (d) 18 km

**Direction: (Q. 74 to 76) In the given diagram, the circle stands for the 'educated', square for the 'hardworking', triangle for the 'urban' and the rectangle for the 'honest' people. Different regions in the diagram are numbered**

from 1 to 12. Study the diagram carefully and choose the correct answer for the following questions.



74. People who are educated and hardworking and honest but not urban are represented by  
 (a) 8 (b) 1 (c) 2 (d) 9
75. Hardworking people, who are uneducated, dishonest and are urban, are represented by  
 (a) 2 (b) 4 (c) 9 (d) 3
76. Hardworking, non-urban people who are neither educated nor honest are indicated by  
 (a) 10 (b) 12 (c) 11 (d) 9

**Read the following paragraph and answer the questions below it.**

Rama and Mohan are married couple having two daughters named Smita and Devika. Devika is married to a man who is the son of Madhu and Jeewan. Romila is the daughter of Aman. Krishna who is Aman's sister is married to Sunil and has two sons Anuj and Ankur. Ankur is the grandson of Madhu and Jeewan.

77. How is Krishna related to Devika?  
 (a) Sister-in-law (b) Sister (c) Aunt (d) Niece
78. What is the relationship between Anuj and Romila?  
 (a) Uncle & Niece (b) Father & Daughter (c) Husband & Wife (d) Cousins
79. Which of the following is true?  
 (a) Anuj is the son of Smita (b) Romila is the cousin of Krishna  
 (c) Madhu is Sunil's mother-in-law (d) Jeewan is Devika's maternal uncle
80. Rama remembers that she met her brother on Saturday, which was after the 20<sup>th</sup> day of a particular month. If the 1<sup>st</sup> day of that month was Tuesday, then on which date did Rama meet her brother?  
 (a) 24<sup>th</sup> (b) 23<sup>rd</sup> (c) 25<sup>th</sup> (d) 26<sup>th</sup>



## 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 and its detailed answer in such a way that all the four parameters given below are compulsorily required to solve it. Please give the detailed answer below the framed question.

The Parameters are:

1. Gravitational Force
2. Momentum
3.  $S = ut + \frac{1}{2} at^2$
4. Kinetic & Potential Energy

**END OF DOCUMENT**

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

Wisden and Hypatia are very enthusiastic. Scientific experiments are a hobby for them. With their teacher's supervision, they have dissolved a compressed spring in concentrated sulphuric acid. Discuss what will happen to the potential energy stored in the spring?

Mail us your answers to [worldgeniuscouncil@gmail.com](mailto:worldgeniuscouncil@gmail.com) Please mention your WGC ID (roll number) in the subject line. Right answers will be appreciated.

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