Genesis Educates

WE MAKE CHAMPIONS

GIMs – Genesis Ignited Minds Scholarship Test
8th Moving 9th (ICSE)

Time: 2 Hours 30 Minutes. **M.M.: 200**

General Instructions for the Paper

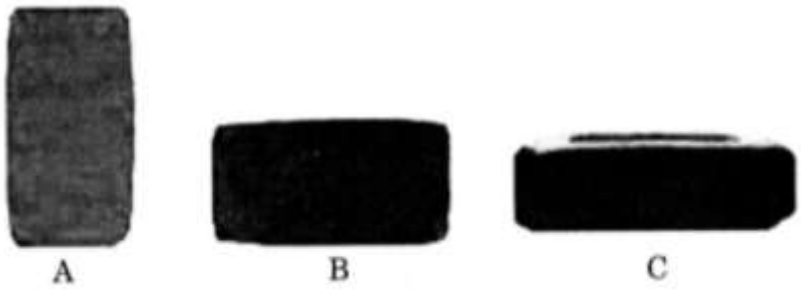
- **Answers have to be marked on the OMR sheet provided.**
- **Blank Papers, Cell phones & Calculators are not allowed inside the hall.**
- **Marking Scheme:-**
  Objective Section (Section A to E)
  Each Objective question from Section A to E carries +2 marks
  No Negative marking for wrong answers.
  Subjective Section (Section A to D)
  Each subjective question from section A to D carries 5 marks.
  Section F – Mental Ability
  Each question in Section F carries 3 marks

Genesis Branches

SCO -294, Sector-20, Panchkula
SCO -13, Sector-15, Panchkula
SCO – 17, VIP Road, Zirakpur (Near Nand Sweets)
Helpline No: 9041056405 & 7696016405

SECTION A [PHYSICS]

1. A brick is kept in three different ways on a table as shown in given figure. The pressure exerted by the brick on the table will be



(a) Maximum in position A (b) Maximum in position C
(c) Maximum in position B (d) Equal in all cases

2. A thunder clap is heard 5.5 second after the lightening flash. The distance of the flash is :
(Velocity of sound in air = 330 m/s)
(a) 1780 m (b) 300 m (c) 1815 m (d) 3560m

3. A body falling from a height of 10m rebounds from a hard floor. It loses 20% of energy in the impact. What is the height to which it would rise after the impact?
(a) 5m (b) 7m (c) 6m (d) 8m

4. Boiling takes place from
(a) The surface of the liquid (b) Throughout the liquid
(c) Mid-portion of liquid (d) None of the above

5. A convex mirror is used to form an image of real object, then tick the wrong statement:
(a) The image lies between the pole and focus
(b) The image is diminished in size
(c) The image is erect
(d) The image is real

6. **Assertion (A)**: The molecules in a liquid can move within the boundary of the vessel.
Reason (R): A liquid has a definite volume and a definite shape.
(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true and R is not the correct explanation of A
(c) Assertion is true but reason is false
(d) Assertion is false but reason is true

7. A ray of light passing through the centre of curvature of a spherical mirror, after reflection:
(a) passes through the focus (b) passes through the pole

(c) becomes parallel to the principal axis (d) retraces its own path

8. A regular solid of mass 540 g and volume 200 cm^3 is immersed in a liquid. The liquid displaced weighs 160 g. The density of the solid is:
(a) 2.7 g/cm^3 (b) 2.0 g/cm^3 (c) 1.35 g/cm^3 (d) 0.37 g/cm^3

9. A blob of mercury is dropped into a beaker of cold water. What happens at the molecular level?
(a) The mercury molecules slow down, intermolecular space increases
(b) The water molecules escape into vapour
(c) The mercury molecules remain fixed in position
(d) The mercury molecules convert to gas directly

10. Frequency 256 Hz, wavelength 1.3 m in air? Speed≈?
(a) 200 m/s (b) 256 m/s (c) 320 m/s (d) 333 m/s

Subjective Questions

1. (a) How does large cornea and a large pupil in the eyes of the nocturnal birds help them?
(b) What kind of lens is there in our eyes? Where does it form the image of an object?

2. An iron washer is heated. State the effect on its:
(i) Mass (ii) Internal diameter
(iii) External diameter and (iv) Density.

3. (a) Explain how sound is produced and propagated through a medium.
(b) Why can't sound travel through vacuum? Describe an experiment to demonstrate this.
(c) A sound wave has a frequency of 400 Hz and a wavelength of 0.85 m.
(i) Calculate its speed.
(ii) If the same sound travels through water where its speed becomes 1500 m/s, find its new wavelength.
(d) A wall is 20 m away from a boy. He hears an echo of his shout. Calculate the time gap between the sound and the echo.
(Speed of sound in air = 340 m/s)
(e) Why do we not hear echoes in a small classroom even though reflection of sound occurs?

4. (a) Define reflection of light and state the laws of reflection.
(b) A ray of light incident at an angle of 40° on a plane mirror is reflected.
(i) Find the angle of reflection.
(ii) Find the angle between the incident and reflected rays.
(c) Draw a neat, labelled ray diagram showing the reflection of a ray from a plane mirror.

(d) Explain lateral inversion with an example — why does a person see the letters on an ambulance written in reverse when viewed through a mirror?

(e) If a mirror is rotated by 10°, by how much does the reflected ray rotate? Explain the principle used.

SECTION – B CHEMISTRY

1. When an electric current is passed through acidulated water, water decomposes to give-
(a) hydrogen at cathode and oxygen at anode
(b) oxygen at cathode and hydrogen at anode
(c) both gases evolved at cathode
(d) both gases evolved at anode

2. Which of the following is not a characteristic of a compound?
(a) A compound contains the constituent elements in a fixed proportion by mass
(b) The properties of a compound are entirely different from those of the constituent elements.
(c) A compound cannot be split into its constituent elements by chemical means.
(d) A compound cannot be split into its constituent elements by physical means.

3. Which of the following is not true for cathode rays?
(a) They originate at the cathode and travel straight lines.
(b) Cathode rays are a stream of negatively charged particles.
(c) Cathode rays bend towards the positive plate in an electric field.
(d) None of these.

4. Which of the following information is not given by Rutherford's alpha particles scattering experiment.
(a) Nucleus of an atom is positively charged
(b) electrons do not radiate energy while revolving in an energy level
(c) There is a lot of empty space in atom
(d) Nucleus of an atom is very hard and dense

5. The value of x, y, and z in a given chemical equation respectively?
$xKClO_3$ ——-----> $yKCl + zO_2$
(a) 3,2,2 (b) 1,2,3 (c) 2,2,3 (d) 3,3,2

6. Carbon dioxide turns lime water milky due to formation of-
(a) Calcium oxide (b) Calcium bicarbonate
(c) Calcium hydroxide (d) Calcium carbonate

7. When iron is placed in copper sulphate solution, the blue colour of the solution fades because
(a) Iron reacts with copper sulphate to form ferrous sulphate and copper

(b) Copper reacts with iron to form iron sulphate
(c) Iron and copper sulphate do not react
(d) Copper gets oxidised to copper sulphate

8. Which of the following is the correct formula of Aluminium sulphate?
(a) $Al_2(SO_4)_3$ (b) $Al_3(SO_4)_2$ (c) $AlSO_4$ $Al(SO_4)_3$

9. On strong heating ($CuSO_4 \cdot 5H_2O$) what is observed?
(a) White crystals changes to blue powder
(b) Blue crystals changes to white powder
(c) White powder changes to blue crystals
(d) Blue powder changes to white crystals

10. Which of the following is not responsible for the permanent hardness of water?
(a) CaCl2 (b) $MgSO_4$ (c) $Ca(HCO_3)_2$ (d) $CaSO_4$

Subjective Type Questions (3+2 = 5 Marks for each)

1. (a) Give three points to justify that water is a compound not a mixture?
(b) Write the balanced chemical equation of reaction between silver nitrate solution and sodium chloride solution. Write the name of the precipitate formed during this solution.

2. (a) Why does your tongue feel cold when you put some glucose on it?
(b) Crude common salt, when left in the open in the rainy season, appears to have melted. Why?

3. (a) Write three observations of Rutherford's alpha particle scattering experiment along with their conclusions.
(b) What happens when zinc metal is placed in a copper sulphate solution? Explain with a balanced chemical equation.

4. (a) How can you remove permanent hardness of water? Write the balanced chemical equation for the removal of permanent hardness.
(b) Write the balanced chemical equation for the following reactions:
(i) Iron with steam (ii) Magnesium with hot water

SECTION – C [BIOLOGY]

1. Heartbeat increases during running because —
(a) The body needs more oxygen and nutrients for energy
(b) The heart loses control
(c) Lungs slow down
(d) Brain activity decreases

2. Sudden growth during puberty occurs because —
(a) Body temperature rises
(b) Growth hormones and sex hormones increase
(c) Bones absorb more water
(d) The brain develops faster

3. When frogs are removed from a forest ecosystem, mosquito numbers rise. The best explanation is —
(a) Frogs used to eat mosquitoes; their absence increases mosquito population
(b) Mosquitoes multiply faster in water without frogs
(c) Frogs pollinate plants
(d) Mosquitoes migrate from other areas

4. White blood cells mainly —
(a) Help in oxygen transport (b) Help in blood clotting
(c) Defend the body from infection (d) Absorb nutrients from food

5. A farmer covers a papaya plant with a bag during flowering. Later, no fruits form. The most likely reason is —
(a) Lack of sunlight
(b) Pollination failed as air/insects couldn't reach flowers
(c) The plant was unhealthy
(d) Fertilization occurred too soon

6. If a person loses a lot of blood due to injury, the immediate danger is —
(a) Increase in blood pressure (b) Lack of oxygen supply to organs
(c) Growth of new cells (d) Increase in RBC count

7. Which method is fastest for increasing population under stable conditions?
(a) Sexual reproduction (b) Vegetative propagation
(c) Spore formation (d) Fragmentation

8. If grass in the region dries up, which color lizard will now have survival advantage?
(a) Green (b) Brown (c) Yellow (d) Blue

9. Disappearance of bees from an ecosystem mainly affects —
(a) Decomposition process (b) Pollination and seed formation
(c) Nitrogen fixation (d) Water cycle

10. Which statement correctly differentiates sexual and asexual reproduction?
(a) Sexual – identical offspring; Asexual – variation present
(b) Sexual – slow but creates variation; Asexual – fast but no variation
(c) Both produce identical offspring
(d) Both require two parents

Subjective Type Questions

1. Describe the process of internal fertilization in humans and state how it differs from external fertilization in frogs. (You can use diagrams also).

2. (a) "Adolescence is a period of rapid growth and emotional changes." Discuss with examples.
   (b) Suggest two hygiene and two mental health practices important during adolescence.

3. What is a food chain? Construct a terrestrial and an aquatic food chain, showing energy flow.

4. Describe the structure and function of the human heart also explain how blood circulates twice through the heart during one complete cycle.

SECTION – D [MATHEMATICS]

1. Simple form of $\dfrac{1}{3-\dfrac{1}{2-\dfrac{1}{7}}}$ is

   (a) $\frac{13}{32}$ (b) $\frac{32}{13}$ (c) $\frac{7}{13}$ (d) $\frac{13}{7}$

2. Mridul has one extra candy than Rakesh. If the difference of the square of number of candies they have is 271. Then how many candies does Mridul have?
   (a) 156 (b) 146 (c) 136 (d) 126

3. Dennis the Menace is thinking of two numbers. Their greatest common factor is 6. Their least common multiple is 36. One of the numbers is 12. What is the other number?
   (a) 18 (b) 16 (c) 6 (d) 24

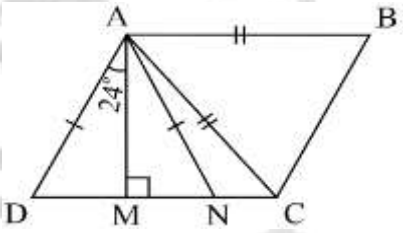
4. A company has [x+3] branches and the total sales from all branches over a month is [x^4-81]. The director wants to know the average sales per branch.
   (a) (x-3)(x+3) (b) $(x - 3)(x^2+ 9)$ (c) (x+9)(x-9) (d) (x+3)(x-9)

5. Maya wants to redesign her rectangular backyard garden. The garden's length is 3 times its width. She wants to create a 3cm wide path along the length and increase the width by 5 cm (to plant more herbs). After these adjustments, the area of her garden increases by 57 cm^2. Based on this, calculate the total length of fencing needed for her original garden design?
   (a) 18 cm (b) 48 cm (c) 24 cm (d) 20 cm

6. A sheet is in the form of a rhombus whose diagonals are 10 m and 8 m. Find the cost of painting both of its surfaces at the rate of ₹70 per m^2.
(a) ₹5,600 (b) ₹4,000 (c) ₹2,800 (d) ₹2,000

7. Consider the following statements:
A number a1 a2 a3 a4 a5 a6 is divisible by 11 if
1. (a1 + a3 + a5) - (a2 + a4 + a6) = 0
2. (a1 + a3 + a5) - (a2 + a4 + a6) is divisible by 11
Which of these statements is/are correct?
(a) 1 alone (b) 2 alone (c) Both 1 and 2 (d) Neither 1 nor 2

8. If ABCD is a parallelogram, ΔADN and ΔABC are isosceles triangles then find Angle BAC.



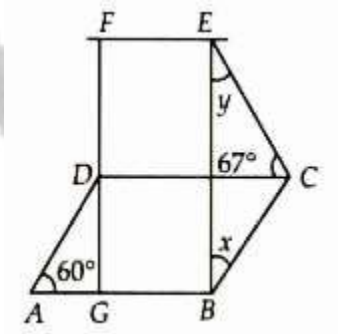
(a) 112º (b) 32º (c) 132º (d) 48º

9. Find the volume of cylinder whose radius is 'h' and height is 'r':
(a) $\pi r^2 h$ (b) $2\pi rh$ (c) $\pi h^2 r$ (d) $\pi r(h+r)$

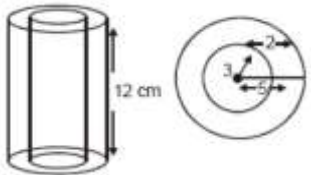
10. Which of the following is the cube root of 4913?
(a) 23 (b) 13 (c) 17 (d) 21

Subjective Questions

1. In the given figure, ABCD is a parallelogram and GBEF is a rectangle. Find X and y.



2. If Ram wants to paint a cylindrical pipe that is open at ends, if its length is 12 cm, the external diameter 10 cm and thickness 2 cm. Find the cost of painting the complete surface if the rate is ₹20 per $100cm^2$



3. I have a total of Rs 300 in coins of denomination Re 1, Rs 2 and Rs 5. The number of Rs 2 coins is 3 times the number of Rs 5 coins. The total number of coins is 160. How many coins of each denomination are with me?

4. 10404 students are sitting in a lecture room in such a manner that there are as many students in a row as there are rows in a lecture room. How many students are there in each row of a lecture room?

SECTION – F [ENGLISH]

1. He _____ be at home by now; it's already midnight.
(a) might (b) must (c) could (d) can

2. Identify the correctly used determiner:
(a) Every of the students was given a chance.
(b) Each student was given a chance.
(c) Every students was given a chance.
(d) All student was given a chance.

3. Choose the correct form: "No sooner _____ the bell rang than the students rushed out."
(a) did (b) has (c) had (d) was

4. Choose the sentence without any grammatical error:
(a) She prefers tea than coffee. (b) She prefers tea to coffee.
(c) She prefers tea over than coffee. (d) She prefers tea instead coffee.

5. There isn't _____ space left in the drawer.
(a) much (b) few (c) some (d) many

Questions 6 &7 are paragraph based
The manager said, "We will review your report tomorrow."
The employees were informed that their work would be evaluated soon.
Later, the HR department circulated an email announcing that rewards might be distributed.
Finally, the staff was congratulated for their dedication.

6. The first sentence in indirect speech would read:
(a) The manager said that they will review the report tomorrow.
(b) The manager said that they would review the report the next day.
(c) The manager told that the report would be reviewed tomorrow.
(d) The manager said they had reviewed the report.

7. In the passage, "were informed" is an example of:
(a) Active voice, past tense (b) Passive voice, past tense
(c) Active voice, perfect tense (d) Passive voice, perfect tense

8. _____ Ganga is a sacred river.
(a) A (b) An (c) The (d) No article

9. He did not attend the meeting _____ he was ill.
(a) although (b) because (c) unless (d) until

10. Find the part that contains an error:
(a) He insisted / (b) to go / (c) on the trip / (d) No error

Section -F [Mental Ability]

1. The Colored Switches (Logical Deduction)
You have three identical, unlabeled boxes. One contains two Red marbles (RR), one contains two Blue marbles (BB), and one contains one of each (RB). All three boxes are labeled, but every single label is guaranteed to be incorrect. If you are only allowed to take out one marble from one box, how can you correctly label all three boxes? EXPLAIN

2. The Mysterious Mirror Clock
A watch shows 4:15. In a mirror, what time will it appear as?

3. The Light Race
You switch on a torch inside a moving train. To someone outside watching through the window, does the light move faster, slower, or the same?

4. The Number That Wanted to Vanish
You can write me in words, but if you remove one letter, I become even. What number am I?

5. The Family Photo Trick
In a photo, Ravi says, "I have as many sisters as brothers." His sister Rina says, "I have twice as many brothers as sisters." How many brothers and sisters are there?

6. The Numeric Code
You have a code where each letter corresponds to its position in the alphabet (A=1, B=2,... Z=26). The message "20 8 9 19 9 19 5 1 19 25" is given. Decode it.

7. The Letter Sequence (Number Pattern)
What is the next letter in the following logical sequence?
O, T, T, F, F, S, S, E, ?

Physics

1.B	2.C	3.A	4.D	5.D	6.C	7.D	8.A	9.C	10.D

Chemistry

1.A	2.C	3.D	4.B	5.C	6.D	7.A	8.A	9.B	10.C

Biology

1.A	2.B	3.A	4.C	5.B	6.B	7.B	8.B	9.B	10.B

Maths

1.A	2.C	3.A	4.B	5.B	6.A	7.C	8.D	9.C	10.C

English

1.B	2.B	3.C	4.B	5.A	6.B	7.B	8.C	9.B	10.B