

Read all the instructions carefully before answering your questions.
You are not allowed to leave the exam hall before the end of the test.

GENERAL INSTRUCTIONS

- This booklet is your question paper. Answers are to be marked in the provided OMR sheet.
- This question paper contains FIVE sections.
 - Section- I is **MATHEMATICS**,
 - Section - II is **PHYSICS**,
 - Section - III is **CHEMISTRY**,
 - Section–IV IS **BIOLOGY**,
 - Section – V is **APTITUDE**.
- There are a total of 100 questions.
- All questions are **Multiple Choice questions with single answer correct**.
- Each question carries **+4 marks** for correct answer, **No negative marks**

FILLING OMR SHEET

Ensure all details in the OMR are filled before you start marking your answers.

On the OMR sheet, darken the appropriate bubble with **BALL POINT PEN ONLY**

Name of the Candidate :

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Roll Number :

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Date of Examination :

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Centre :

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Useful Data

PHYSICS

Acceleration due to gravity	: $g = 10 \text{ m/s}^2$
Planck constant	: $h = 6.6 \times 10^{-34} \text{ J-s}$
Charge of electron	: $e = 1.6 \times 10^{-19} \text{ C}$
Mass of electron	: $m_e = 9.1 \times 10^{-31} \text{ kg}$
Permittivity of free space	: $\epsilon_0 = 8.85 \times 10^{-12} \text{ C}^2 / \text{N-m}^2$
Density of water	: $\rho_{\text{water}} = 10^3 \text{ kg/m}^3$
Atmospheric pressure	: $P_a = 10^5 \text{ N/m}^2$
Gas constant:	$R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$

CHEMISTRY

Gas Constant R	=	$8.314 \text{ J K}^{-1} \text{ mol}^{-1}$
	=	$0.0821 \text{ Lit atm K}^{-1} \text{ mol}^{-1}$
	=	$1.987 \approx 2 \text{ Cal K}^{-1} \text{ mol}^{-1}$
Avogadro's number N_a	=	6.023×10^{23}
Planck's constant h	=	$6.625 \times 10^{-34} \text{ J.s}$
	=	$6.625 \times 10^{-27} \text{ erg.s}$
1 Faraday	=	96500 coulomb
1 calorie	=	4.2 joule
1 amu	=	$1.66 \times 10^{-27} \text{ kg}$
1 eV	=	$1.6 \times 10^{-19} \text{ J}$

Atomic No: H = 1, He = 2, Li = 3, Be = 4, B = 5, C = 6, N = 7, O = 8, F = 9, Ne = 10, Na = 11, Mg = 12, Si = 14, Al = 13, P = 15, S = 16, Cl = 17, Ar = 18, K = 19, Ca = 20, Cr = 24, Mn = 25, Fe = 26, Co = 27, Ni = 28, Cu = 29, Zn = 30, As = 33, Br = 35, Ag = 47, Sn = 50, I = 53, Xe = 54, Ba = 56, Pb = 82, U = 92.

Atomic masses: H = 1, He = 4, Li = 7, Be = 9, B = 11, C = 12, N = 14, O = 16, F = 19, Na = 23, Mg = 24, Si = 28, Al = 27, P = 31, S = 32, Cl = 35.5, K = 39, Ca = 40, Cr = 52, Mn = 55, Fe = 56, Co = 59, Ni = 58.7, Cu = 63.5, Zn = 65.4, As = 75, Br = 80, Ag = 108, Sn = 118.7, I = 127, Xe = 131, Ba = 137, Pb = 207, U = 238.

Section – I – MATHEMATICS

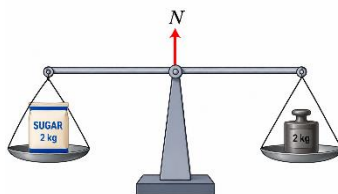
- The value of $\frac{2^{2001} + 2^{1999}}{2^{2000} - 2^{1998}}$ is –
 - 2
 - $10/3$
 - $2^{1000} + 1$
 - 10
- The largest number among the following is –
 - 3^{2^2}
 - $[(3^2)^2]^2$
 - $3^2 \times 3^2 \times 3^2$
 - 3222
- The value of $-\left(\frac{125}{64}\right)^{2/3} \div \left(\frac{1}{(625/256)^{-1/4}}\right) + \left[\left(\frac{\sqrt{36}}{\sqrt[3]{64}}\right)^0\right]^{1/2} =$
 - $\frac{9}{8}$
 - $\frac{6}{5}$
 - $\frac{4}{9}$
 - $\frac{9}{4}$
- $\frac{3\sqrt[3]{13824}}{2\sqrt[3]{-15625}} \div \frac{2\sqrt[3]{-13824}}{\sqrt[3]{5832}}$
 - $\frac{50}{27}$
 - $-\frac{50}{27}$
 - $\frac{27}{50}$
 - $-\frac{27}{50}$
- If $\sqrt[3]{\frac{x}{729}} + \sqrt[3]{\frac{27x}{3375}} = 1$, then find the value of x .
 - $\frac{79507}{3375}$
 - $\frac{91125}{2744}$
 - $\frac{2025}{196}$
 - $\frac{443}{125}$
- The sum of all the angles of a quadrilateral is –
 - 180°
 - 270°
 - 360°
 - 400°
- A square has –
 - all sides equal and diagonals unequal
 - all sides equal and diagonals equal
 - all sides unequal and diagonals equal
 - None of these
- If $x = \frac{1}{2}$, then the value of $x + \frac{1}{1 + \frac{1}{1 + \frac{1}{x}}}$ is –
 - $\frac{5}{4}$
 - $\frac{4}{5}$
 - $\frac{3}{4}$
 - None of these
- Solve for x : $\frac{x-a}{b+c} + \frac{x-b}{c+a} + \frac{x-c}{a+b} = 3$
 - $1/2(x + b + c)$
 - $a + b + c$
 - $3(a + b + c)$
 - $2(abc)$
- A bag contains x red balls, $(x + 5)$ blue balls and $(3x + 10)$ white balls. If the probability of drawing a white ball is $11/18$, what is the number of blue balls?
 - 15
 - 20
 - 35
 - 55

Section – II – PHYSICS

11. A man has a mass of 90 kg. His weight on the Earth and on the Moon will be, respectively? (Take acceleration due to gravity on Earth = 9.8 m/s^2 .)
- (a) 90 kg on Earth and 15 kg on Moon (b) 90 kg on Earth and 90 kg on Moon
(c) 882 N on Earth and 147 N on Moon (d) 90 N on Earth and 90 N on Moon
12. 100 g of sugar is mixed in 500 mL of pure water. Find the density of the mixture. (Density of pure water = 1 kg/L)
- (a) 1.2 kg/L (b) 1.0 kg/L (c) 0.8 kg/L (d) 1.6 kg/L
13. A wooden cork is tightly fitted into the neck of a glass bottle and is not coming out easily. As a science student, what solution would you recommend to remove the cork?



- (a) Heat the neck of the glass bottle under warm water
(b) Cool the neck of the glass bottle with ice cubes
(c) Heat the wooden cork directly with a candle flame
(d) Cut the bottle to remove the cork
14. A 2 kg sugar packet is placed on one side of a beam balance, as shown in the figure. Find the normal force acting at the middle of the horizontal rod.

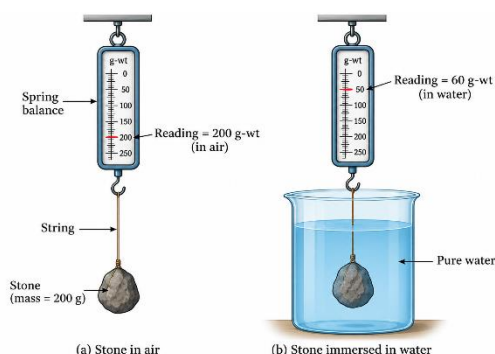


- (a) 2 kg-wt. (b) 20 N (c) 4 kg-wt. (d) 4 N
15. High-speed wind often blows away the roofs of houses because –



- (a) The wind exerts a very large force directly on the roof and breaks it.
(b) The fast-moving air above the roof creates low pressure, while the air inside the house has relatively higher pressure, producing an upward force on the roof.
(c) High-speed wind creates high pressure above the roof and pushes it upward.
(d) The weight of the roof becomes less due to wind, so it flies away.

16. A stone of mass 200 g is tied to a string and immersed completely in pure water. After immersion, the spring balance reads 60 g-wt. The weight of water displaced by the stone is –



- (a) 200 g-wt. (b) 60 g-wt. (c) 260 g-wt. (d) 140 g-wt.
17. To make a strong electromagnet, which of the following combinations is most suitable?
- (a) Copper wire with a large number of turns wound around a soft iron core.
 (b) Aluminium wire with a large number of turns wound around a soft iron core.
 (c) Copper wire with many turns wound around a paper core.
 (d) Aluminium wire with fewer turns wound around a soft-iron core and a smaller cross-sectional area.
18. In an electrical circuit, 6 coulombs of electric charge pass through the cross-section of a wire in 3 seconds. What will be the ammeter reading?
- (a) 6 C (b) 2 A (c) 6 A (d) 18 C
19. A 1000 W heater is connected to a 200 V supply. Find the resistance of the nichrome wire used in the heater.
- (a) 5 Ω (b) 50 Ω (c) 40 Ω (d) 0.2 Ω
20. An electric cell is a device that converts –
- (a) Mechanical energy into chemical energy (b) Electrical energy into light energy
 (c) Chemical energy into light energy (d) Chemical energy into electrical energy

Section – III – CHEMISTRY

21. Which of the following sequences represents sublimation
- (a) Solid $\rightarrow$ liquid $\rightarrow$ gas (b) Gas $\rightarrow$ liquid $\rightarrow$ solid
 (c) Solid $\rightarrow$ gas (d) Gas $\rightarrow$ liquid
22. Find the incorrect statement regarding 'Diffusion'.
- (a) Diffusion is possible within all states of matter
 (b) Copper sulfate dissolves in water due to diffusion
 (c) Alloy formation is solid state diffusion
 (d) Dew drops formation takes place due to diffusion of moisture in cool air
23. Which of the following perfectly explains freezing?
- (a) KE of particles decreases, latent heat is evolved
 (b) KE of particles increases, latent heat is absorbed
 (c) KE of particles increases, latent heat is evolved
 (d) KE of particles decreases, latent heat is absorbed

RISE SCHOLARSHIP CUM ADMISSION TEST – SAMPLE PAPER

Class – 8th to 9th



24. Determine the incorrect statement regarding 'evaporation'.
- (a) Increasing surface area leads to higher evaporation and cooling faster
 - (b) Rate of evaporation at Marina beach is higher than Mount Everest considering atmospheric pressure alone.
 - (c) Rate of evaporation at Marina beach is lower than Mount Everest considering humidity factor alone.
 - (d) Human body sweats and body temperature slightly drops due to evaporation of sweat.
25. A student has 25 g of ice at 0°C. If 5040 J of heat is supplied find out amount of ice left unmelted.
Given – Latent heat of fusion of ice = 336 J/g
Latent vaporization of water = 2260 J/g
- (a) 5 g
 - (b) 10 g
 - (c) 15 g
 - (d) 20 g
26. Determine if the following statement true or false. As well as choose correct explanation regarding it.
Compounds are pure substances whereas solutions are mixtures.
- (a) False, both compounds and mixtures are made up of combination of different substances hence both are impure
 - (b) True because compounds and solutions have fixed melting and boiling point under normal conditions.
 - (c) True because composition of compound is always fixed while solutions may vary in composition.
 - (d) False, both solutions and compounds can be pure due to fixed set of physical and chemical properties.
27. Observe the given list of elements.
Boron, Calcium, Zinc, Gallium, Arsenic, Phosphorus, Silicon, Tin, Sulphur, Carbon, Germanium, Argon, Fluorine, Astatine.
Find the number of solid non-metals at room temperature (X)
Find the number of solid metalloids given (Y)
- (a) 20
 - (b) 17
 - (c) 18
 - (d) 15
28. Find incorrectly matched pair of alloys and its components.
- (a) Stainless steel – Iron, Nickel, Chromium, Carbon
 - (b) Cast Iron – Iron, Sulphur, Carbon, Silicon
 - (c) Duralumin – Aluminum, Copper, Magnesium, Manganese
 - (d) Nichrome – Nickel, Chromium
29. Find correctly matched pair of elements and its mineral.
- (a) Bauxite – Aluminium
 - (b) Magnetite – Magnesium
 - (c) Quartz – Calcium
 - (d) Mica – Sulphur
30. Find correct statement about mixture of iron filling and sulphur powder.
- (a) It is a homogeneous mixture with uniform composition of 'Fe – S'
 - (b) It cannot be separated by magnet as forces of attraction between iron and sulphur is very high.
 - (c) Sulphur and iron undergo chemical reaction to form strong compound
 - (d) When reacted with dil. HCl, hydrogen gas is released from mixture which burns with 'POP' sound

Section – IV – Biology

31. Which of the following is not a characteristic of bacteria?
 - (a) They are unicellular organisms
 - (b) They have well defined nucleus
 - (c) Their size ranges from 0.2 microns to 100 microns
 - (d) They are of different shapes
32. Which of the following is not the name of a bacteria?
 - (a) Spiral
 - (b) Nipah
 - (c) Cocci
 - (d) Bacillus
33. Which of these is not a disease caused by bacteria?
 - (a) Fever
 - (b) Whooping cough
 - (c) Tuberculosis
 - (d) Cholera
34. Which of the following statements is not true about viruses?
 - (a) They can be seen with a simple microscope
 - (b) They can only be seen with a powerful microscope
 - (c) They are active inside the living cells only
 - (d) They are the smallest of all microorganisms
35. Raju has a powerful hand lens with him. He boasted that he has seen a microorganism with his hand lens. It may be a
 - (a) Virus
 - (b) Bacteria
 - (c) Protozoan
 - (d) Fungus
36. Who gave coin the term 'protoplasm'?
 - (a) T. Schwann
 - (b) Robert Brown
 - (c) M. J. Schleiden
 - (d) J.E. Purkinje
37. Read the given statements and select the correct option.

Statement 1: The fungi have nucleus, mitochondria and multicellular and some unicellular.

Statement 2: Yeast is a unicellular fungus.

 - (a) Statement 1 and 2 are true but Statement 2 is not true the correct explanation of Statement 1
 - (b) Statement 1 is false and Statement 2 is true
 - (c) Statement 1 and 2 are true and Statement 2 is the correct explanation of Statement 1
 - (d) Statement 1 is true and Statement 2 is false
38. Which pair consists entirely of communicable diseases?
 - (a) Asthma and Diabetes
 - (b) Typhoid and Cholera
 - (c) Cancer and Obesity
 - (d) Diabetes and Tuberculosis
39. What is the main cause of antibiotic resistance?
 - (a) Overuse of vaccines
 - (b) Indiscriminate use of antibiotics
 - (c) Lack of exercise
 - (d) Poor diet
40. What is the primary definition of health according to the World Health Organization (WHO)?
 - (a) Absence of disease
 - (b) Complete physical, mental and social well-being
 - (c) Regular exercise and diet
 - (d) Freedom from stress

Section – V – Aptitude

41. The timetable of a class with five periods is so set that the fourth period is of a language. Mathematics is just before Geography. The period of Science is not the first or the last. The order of the periods is –
- (a) Mathematics, Science, Geography, Malayalam, History
 (b) Science, History, Mathematics, Kannada, Geography
 (c) Mathematics, Geography, Science, Marathi, History
 (d) Mathematics, Geography, History, Sanskrit, Science
42. Sohan drinks 20% of the milk present in a bottle in one sip. How much milk will remain in the bottle after the first 3 sips, if it contained 1 litre milk to begin with?
- (a) 400 ml (b) 512 ml (c) 600 ml (d) 625 ml
43. In a group of 6 persons of unequal heights, D is shorter than A and C, but taller than E and F. Two persons are taller than B, and one person is shorter than E. Which of the following inferences is NOT NECESSARILY valid?
- (a) A is the tallest of all (b) C is taller than B (c) F is the shortest of all (d) B is taller than D
44. The addition of a three-digit number and the number with the same digits in reverse order, is 1089. The middle digit of that number must be –
- (a) 9 (b) 8 (c) 0 (d) 4
45. What would be the minimum number of notes for Rs 4849 if notes are available only in denominations of Rs 2, 5, 20, 50, 500?
- (a) 19 (b) 20 (c) 21 (d) 22
46. Select the option that will correctly replace the question mark (?) in the following series.
W90D, S135H, O180L, K225P, G270T?
- (a) D315X (b) C325X (c) D315Y (d) C315X
47. Find the next term in the following series.
5I, 7J, 11L, 17O, ?
- (a) 25S (b) 25Y (c) 20P (d) 18C
48. If in a certain language, MADRAS is coded as NBESBT, how is BOMBAY coded in that code?
- (a) CPNCBX (b) CPNCBZ (c) CPOCBZ (d) CQOCBZ
49. In a certain code 'SAND' is written as 'UCPF'. How is 'STONE' written in that code?
- (a) SRLFE (b) UNSOP (c) UVQPG (d) UDLPQ
50. The difference of the squares of two distinct two-digit numbers with one being obtained by reversing the digits of the other is always divisible by –
- (a) 4 (b) 6 (c) 10 (d) 11

RISE SCHOLARSHIP CUM ADMISSION TEST – SAMPLE PAPER

Class – 8th to 9th



ANSWER KEY

1	2	3	4	5	6	7	8	9	10
B	A	D	C	B	C	B	A	B	B
11	12	13	14	15	16	17	18	19	20
C	A	A	C	B	D	A	B	C	D
21	22	23	24	25	26	27	28	29	30
C	D	A	B	B	C	A	B	A	D
31	32	33	34	35	36	37	38	39	40
B	B	A	A	D	D	A	B	B	B
41	42	43	44	45	46	47	48	49	50
C	B	A	A	B	D	A	B	C	D