

Full Practice Exam — Set 2

Science · Class 8 · Full Syllabus Practice Exam

TIME 60 minutes	QUESTIONS 50	TOTAL MARKS 60	MAX. SCORE ___ / 60
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **50 questions** in this paper. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–45 carry **1 mark** each. Questions 46–50 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Study every diagram and table carefully.

Section 1 — Logical Reasoning

Q1–Q10 · 1 mark each

- What comes next in the series? 2, 6, 18, 54, ____
 (A) 108 (B) 162
 (C) 216 (D) 270
- Find the **odd one out**: Amoeba, Euglena, Mushroom, Paramecium
 (A) Amoeba (B) Euglena
 (C) Paramecium (D) Mushroom
- What comes next in the letter series? Z, W, T, Q, ____
 (A) N (B) M
 (C) O (D) P
- In a certain code, WATER is written as 23-1-20-5-18. How is EARTH written in the same code?
 (A) 5-2-18-20-8 (B) 5-1-20-18-8
 (C) 4-1-18-20-8 (D) 5-1-18-20-8
- Pointing to a boy, Meera said, 'He is the son of my mother's only daughter.' How is the boy related to Meera?
 (A) Son (B) Brother
 (C) Nephew (D) Cousin
- In a row of 40 students, Ana is 14th from the left end. What is her position from the right end?
 (A) 25th (B) 26th
 (C) 28th (D) 27th
- A cyclist rides 9 km east, then 12 km north. How far is she from the starting point?
 (A) 15 km (B) 13 km
 (C) 21 km (D) 225 km
- Which of these does **not** belong with the rest?
 (A) Condensation (B) Combustion
 (C) Evaporation (D) Sublimation

9. $5 : 125 :: 7 : \underline{\hspace{1cm}}$

(A) 294

(B) 336

(C) 343

(D) 350

10. The figure shows a growing sequence of dot patterns. How many dots will Pattern 4 have?



Pattern 1



Pattern 2



Pattern 3

Pattern 1, Pattern 2 and Pattern 3 in a growing dot sequence

(A) 6

(B) 7

(C) 8

(D) 9

Section 2 — Science

Q11–Q35 · 1 mark each

11. Which of these is an example of a **Rabi** crop, sown in winter and harvested in spring?

(A) Cotton

(B) Maize

(C) Wheat

(D) Rice

12. Which microorganism ferments bread dough, releasing gas bubbles that make the dough rise?

(A) Lactobacillus

(B) Rhizobium

(C) Plasmodium

(D) Yeast

13. Which disease is caused by a protozoan parasite and spread by the bite of a female Anopheles mosquito?

(A) Malaria

(B) Typhoid

(C) Cholera

(D) Measles

14. Which bacterium lives in the root nodules of leguminous plants such as gram and pea and fixes nitrogen from the air?

(A) Escherichia

(B) Rhizobium

(C) Streptococcus

(D) Penicillium

15. Which of these is a completely synthetic fibre, made entirely from chemicals rather than from cellulose?

(A) Rayon

(B) Cotton

(C) Nylon

(D) Wool

16. Buckets and chairs are commonly made of plastic mainly because plastic is ____.

(A) A good conductor of heat

(B) Very heavy

(C) A good conductor of electricity

(D) Non-biodegradable and durable

17. Which of these non-metals is stored under water because it catches fire spontaneously when exposed to air?

(A) Phosphorus

(B) Sulphur

(C) Iodine

(D) Carbon

18. Which metal reacts so vigorously with cold water that it must be stored in kerosene?

(A) Iron

(B) Sodium

(C) Copper

(D) Gold

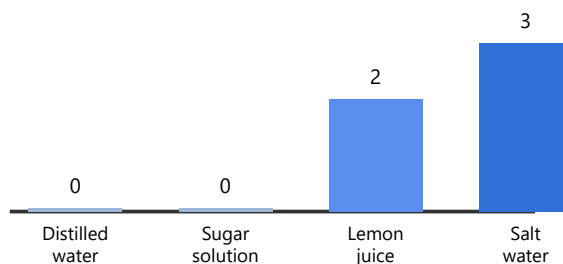
19. Metal oxides are generally _____, while non-metal oxides are generally _____.
(A) Acidic; basic (B) Neutral; acidic
(C) Basic; acidic (D) Basic; neutral
20. Which fossil fuel, formed from the remains of dead plants buried over millions of years, is often called 'black gold'?
(A) Petroleum (B) CNG
(C) Natural gas (D) Coal
21. Which of these is **not** obtained by refining petroleum?
(A) Charcoal (B) Diesel
(C) Petrol (D) Kerosene
22. A substance that burns in air to release heat energy is called a _____.
(A) Catalyst (B) Fuel
(C) Oxidiser (D) Extinguisher
23. Which of these is an example of spontaneous combustion?
(A) Burning of a matchstick (B) Lighting a gas stove
(C) A heap of oily rags left in a warehouse bursting into flames without any external flame (D) Burning of a candle
24. Which zone of a candle flame contains unburnt carbon particles and glows brightly yellow?
(A) Dark zone (B) Luminous zone
(C) Non-luminous zone (D) There is no such zone
25. Which cell organelle is known as the 'powerhouse of the cell' because it releases energy from food?
(A) Nucleus (B) Ribosome
(C) Golgi body (D) Mitochondria
26. In which type of cell is the genetic material NOT enclosed within a nuclear membrane?
(A) Prokaryotic cell (B) Eukaryotic cell
(C) Plant cell (D) Animal cell
27. The green, disc-shaped plastids that trap sunlight for photosynthesis are called _____.
(A) Chromoplasts (B) Chloroplasts
(C) Leucoplasts (D) Ribosomes
28. The type of reproduction in which a new individual grows out as a small bud on the parent's body, as seen in Hydra, is called _____.
(A) Binary fission (B) Fragmentation
(C) Budding (D) Spore formation
29. Animals that give birth to young ones directly, such as the cow and the human, are called _____.
(A) Oviparous (B) Hermaphrodite
(C) Asexual (D) Viviparous
30. In humans, the developing embryo grows and is nourished inside the _____.
(A) Uterus (B) Ovary
(C) Testis (D) Kidney

31. A push or a pull acting on an object is called a _____.
 (A) Pressure (B) Force
 (C) Energy (D) Work
32. Friction between two surfaces in contact can be reduced by _____.
 (A) Increasing the roughness of the surfaces (B) Increasing the contact area
 (C) Applying a lubricant such as oil (D) Pressing the surfaces harder together
33. The number of vibrations completed by a sound source in one second is called its _____.
 (A) Amplitude (B) Wavelength
 (C) Time period (D) Frequency
34. A sharp nail and the same nail's flat head are each pressed into wood with the force shown in the table. Using the data, which part of the nail exerts greater pressure on the wood, and why?

Nail part	Contact area	Force applied
Sharp pointed tip	1 mm ²	10 N
Flat, blunt head	5 mm ²	10 N

Table — force applied through the tip and the head of the same nail

- (A) The sharp tip, because the same force acts on a smaller area, producing greater pressure
 (B) The flat head, because it has a larger area
 (C) Both parts exert equal pressure since the force is the same
 (D) Neither part exerts any pressure on the wood
35. The chart shows how brightly a bulb glows (on a scale of 0 to 3) when its electrodes are dipped into different liquids, with a battery in the circuit. Based on the chart, which liquid conducts electricity best?



Bulb brightness (0 = no glow, 3 = brightest) for electrodes dipped in different liquids

- (A) Salt water (B) Lemon juice
 (C) Distilled water (D) Sugar solution

Section 2 — Science (contd.)

Q36–Q45 · 1 mark each

36. Why does warm milk turn into curd soon after a small amount of Lactobacillus culture is added to it?
 (A) The bacteria destroy all the protein in the milk (B) The bacteria convert milk sugar into lactic acid, which curdles the milk
 (C) The bacteria cool the milk rapidly (D) The bacteria add extra sugar to the milk

37. Why is milk usually boiled before storing, and then kept refrigerated?

- (A) Refrigeration kills all microorganisms instantly
- (B) Boiling adds nutrients to the milk
- (C) Boiling kills harmful microorganisms and refrigeration slows the growth of any that remain, keeping the milk fresh longer
- (D) Boiling and refrigeration have no effect on microorganisms in milk

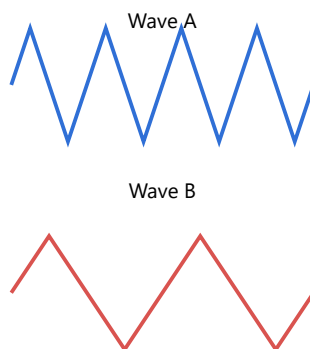
38. Why are iron water pipes and buckets often galvanised, that is, coated with a thin layer of zinc?

- (A) To make the iron heavier
- (B) To colour the iron for decoration
- (C) To make the iron a better conductor of heat
- (D) To prevent rusting by keeping air and moisture away from the iron surface

39. Why does a wooden block need a smaller pulling force to keep moving at constant speed across a polished floor than across a rough floor?

- (A) A polished floor offers less friction between the surfaces in contact
- (B) A polished floor is heavier than a rough floor
- (C) Gravity is weaker on a polished floor
- (D) Rough floors have no friction at all

40. The figure shows two sound waves, Wave A and Wave B, each recorded over the same time interval. Which wave represents the sound with the higher pitch?



Wave A and Wave B, each shown over the same time interval

- (A) Wave B, because it completes fewer vibrations
 - (B) Wave A, because it completes more vibrations in the same time, giving it a higher frequency
 - (C) Both waves have the same pitch
 - (D) Pitch cannot be judged from a wave diagram
- 41.** Why must astronauts on a spacewalk use radio waves rather than ordinary sound to talk to each other?
- (A) Radio waves are a type of sound wave
 - (B) Sound travels faster in space than radio waves
 - (C) Sound needs a material medium to travel, and space is a vacuum
 - (D) Oxygen in the suit makes sound too loud to use
- 42.** Why does a bulb connected across electrodes dipped in distilled water stay off, but glow when a pinch of salt is dissolved into the same water?
- (A) The bulb was faulty before the salt was added
 - (B) Distilled water is too cold to conduct electricity
 - (C) Salt makes the water lighter
 - (D) Distilled water contains almost no dissolved ions, while dissolving salt releases sodium and chloride ions that carry the current
- 43.** Why should water never be poured onto a burning cooking-oil fire?
- (A) Oil is lighter than water and floats on top, so the water spreads the burning oil over a wider area instead of putting it out
 - (B) Water always makes any fire burn faster
 - (C) Water raises the ignition temperature of the oil
 - (D) Oil dissolves completely in water

44. Why do animals with external fertilisation, such as frogs and fish, usually release a very large number of eggs at a time?
- (A) Eggs fertilised outside the body do not need to survive at all
(B) Most of the eggs and young are lost to predators or fail to be fertilised in the open water, so many eggs give a better chance that some survive
(C) External fertilisation always produces unusually small eggs
(D) Frogs and fish do not reproduce sexually
45. Why is a concave mirror used to focus light into a patient's ear or throat during an examination?
- (A) A concave mirror absorbs most of the light falling on it
(B) A concave mirror spreads light evenly over a wide area
(C) A concave mirror converges light rays reflected from it to a point, concentrating light onto a small area
(D) A concave mirror cannot form any image of a light source

Achievers Section

Q46–Q50 · 3 marks each

46. Consider the following statements.

- (i) Fertilisation occurring inside the body of the female is called external fertilisation.
(ii) Oviparous animals lay eggs, while viviparous animals give birth to young ones directly.
(iii) The change of a tadpole into an adult frog is called budding.

Which of the statements is/are correct?

- (A) (i) only
(B) (ii) only
(C) (i) and (iii) only
(D) (ii) and (iii) only
47. Assertion (A): Rayon is commonly called artificial silk.
Reason (R): Rayon, like nylon, is manufactured purely from petrochemicals.
- (A) Both A and R are true, and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true, but R is false.
(D) A is false, but R is true.

48. Match List I with List II, then choose the option that gives all four pairings correctly.

List I	List II
(1) Coal	(a) Used for cooking and vehicles after compression
(2) Petroleum	(b) Formed from dead plants; used in thermal power plants
(3) Natural gas	(c) Formed from remains of marine organisms; refined into fuels
(4) CNG	(d) Transported through pipelines for domestic and industrial use

List I (fuels) to be matched with List II (descriptions, scrambled)

- (A) 1-c, 2-b, 3-a, 4-d
(B) 1-a, 2-c, 3-d, 4-b
(C) 1-b, 2-d, 3-c, 4-a
(D) 1-b, 2-c, 3-d, 4-a
49. A student places three identical shiny iron nails in three test tubes: one in plain water, one in salt water, and one in dry air with no water at all. After a week, the nail in salt water shows heavy rusting, the nail in plain water shows only slight rusting, and the nail kept in dry air shows no rusting at all. What do these results show about the conditions needed for rusting?
- (A) Rusting needs both air (oxygen) and moisture together, and dissolved salts speed up the process
(B) Rusting needs moisture alone; air is not required
(C) Salt prevents rusting from occurring
(D) Rusting occurs fastest in completely dry air

- 50.** The same nail is pressed into a board twice with a force of 50 N: once through its sharp tip, which has an area of 0.5 cm^2 , and once through its flat head, which has an area of 5 cm^2 . Calculate the pressure in each case and identify which part experiences the greater pressure.
- (A) The tip experiences 10 N/cm^2 , equal to the pressure at the flat head
- (B) The tip experiences 100 N/cm^2 , which is ten times the 10 N/cm^2 pressure at the flat head
- (C) The flat head experiences 100 N/cm^2 , greater than the tip's 10 N/cm^2
- (D) Pressure is the same in both cases since the applied force is equal

Answer Key

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

Solutions

1. Answer: (B) 162

Each number is multiplied by 3: $2 \times 3 = 6$, $6 \times 3 = 18$, $18 \times 3 = 54$, $54 \times 3 = 162$.

2. Answer: (D) Mushroom

Amoeba, Euglena and Paramecium are all single-celled protozoa. A **mushroom** is a multicellular fungus, so it is the odd one out among these microorganisms.

3. Answer: (A) N

Each letter moves back by 3 places: Z to W is -3 , W to T is -3 , T to Q is -3 . The next letter is 3 places before Q, which is **N**.

4. Answer: (D) 5-1-18-20-8

Each letter is replaced by its position in the alphabet: E=5, A=1, R=18, T=20, H=8, giving **5-1-18-20-8**.

5. Answer: (A) Son

Meera's mother's only daughter is Meera herself, since she has no sisters. So the boy is Meera's own **son**.

6. Answer: (D) 27th

Position from the right = $40 - 14 + 1 = 27\text{th}$.

7. Answer: (A) 15 km

Distance = $\sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15 \text{ km}$.

8. Answer: (B) Combustion

Condensation, evaporation and sublimation are all physical changes in which no new substance is formed. **Combustion** is a chemical change that produces new substances, so it does not belong with the rest.

9. Answer: (C) 343

The second number is the cube of the first: $5^3 = 125$. So $7^3 = 343$.

10. Answer: (C) 8

Pattern 1 has 2 dots, Pattern 2 has 4 dots and Pattern 3 has 6 dots, so each new pattern adds 2 more dots. Pattern 4 will have $6 + 2 = 8$ dots.

11. Answer: (C) Wheat

Wheat is sown in winter and harvested in spring, making it a Rabi crop.

12. Answer: (D) Yeast

Yeast respires in the dough and releases carbon dioxide gas, which makes the dough rise.

13. Answer: (A) Malaria

Malaria is caused by the protozoan Plasmodium, transmitted through the bite of a female Anopheles mosquito.

14. Answer: (B) Rhizobium

Rhizobium bacteria live in root nodules and convert atmospheric nitrogen into a usable form.

15. Answer: (C) Nylon

Nylon is made purely from petrochemicals, unlike rayon which starts from wood-pulp cellulose.

16. Answer: (D) Non-biodegradable and durable

Plastic is chosen for its **durability and resistance to decay**, though this same non-biodegradable quality causes pollution once discarded.

17. Answer: (A) Phosphorus

Phosphorus is so reactive with atmospheric oxygen that it is stored under water to keep air away from it.

18. Answer: (B) Sodium

Sodium reacts violently with water, so it is kept immersed in kerosene to prevent contact with moisture in the air.

19. **Answer: (C)** Basic; acidic

Metal oxides are typically **basic**, while non-metal oxides are typically **acidic**.

20. **Answer: (D)** Coal

Coal formed from buried plant remains and is prized as a major fuel source, earning it the name black gold.

21. **Answer: (A)** Charcoal

Charcoal is made by heating wood in limited air, not by refining petroleum.

22. **Answer: (B)** Fuel

A **fuel** is a substance that burns to produce heat energy.

23. **Answer: (C)** A heap of oily rags left in a warehouse bursting into flames without any external flame

In **spontaneous combustion**, a substance catches fire on its own without any external flame being applied, as can happen with heaps of oily rags.

24. **Answer: (B)** Luminous zone

The **luminous zone** contains partially burnt, glowing carbon particles that give the flame its bright yellow colour.

25. **Answer: (D)** Mitochondria

Mitochondria release energy through respiration, earning them the name powerhouse of the cell.

26. **Answer: (A)** Prokaryotic cell

In a **prokaryotic cell**, the genetic material lies free in the cytoplasm, without a surrounding nuclear membrane.

27. **Answer: (B)** Chloroplasts

Chloroplasts contain chlorophyll and trap light energy for photosynthesis.

28. **Answer: (C)** Budding

Budding is reproduction where a new individual develops from an outgrowth on the parent's body.

29. **Answer: (D)** Viviparous

Viviparous animals give birth to young ones directly, rather than laying eggs.

30. **Answer: (A)** Uterus

The embryo implants and develops inside the **uterus** until birth.

31. **Answer: (B)** Force

A **force** is any push or pull acting on an object.

32. **Answer: (C)** Applying a lubricant such as oil

A **lubricant such as oil** creates a thin film between surfaces that reduces friction.

33. **Answer: (D)** Frequency

Frequency is the number of vibrations per second, measured in hertz.

34. **Answer: (A)** The sharp tip, because the same force acts on a smaller area, producing greater pressure

Pressure = force ÷ area. Both parts carry the same 10 N force, but the sharp tip has a much smaller contact area than the flat head. A smaller area concentrates the same force into a **greater pressure**, so the tip presses into the wood far more easily.

35. **Answer: (A)** Salt water

The chart shows a brightness rating of 3, the tallest bar, for **salt water**. Dissolved salt breaks up into ions that carry electric current, making salt water the best conductor of the four liquids tested.

36. **Answer: (B)** The bacteria convert milk sugar into lactic acid, which curdles the milk

Lactobacillus bacteria convert lactose (milk sugar) into **lactic acid**, and this acid causes the milk proteins to curdle and set.

- 37. Answer: (C)** Boiling kills harmful microorganisms and refrigeration slows the growth of any that remain, keeping the milk fresh longer
Boiling kills most harmful microorganisms present in raw milk, and the low temperature of a refrigerator **slows the growth** of any that survive, delaying spoilage.
- 38. Answer: (D)** To prevent rusting by keeping air and moisture away from the iron surface
The zinc coating forms a barrier that keeps air and moisture from reaching the iron underneath, and these are the two conditions needed for rusting, so galvanising **prevents rusting**.
- 39. Answer: (A)** A polished floor offers less friction between the surfaces in contact
A polished floor is smoother, so it offers **less friction** to oppose the block's motion, and a smaller force is enough to keep it moving steadily.
- 40. Answer: (B)** Wave A, because it completes more vibrations in the same time, giving it a higher frequency
Wave A completes four full up-and-down cycles in the interval shown, while Wave B completes only two. More cycles in the same time means a **higher frequency**, and a higher frequency is heard as a higher pitch.
- 41. Answer: (C)** Sound needs a material medium to travel, and space is a vacuum
Sound waves must travel through a medium such as air, water or a solid. Space is a **vacuum** with no such medium, so sound cannot travel through it, and astronauts rely on radio waves instead.
- 42. Answer: (D)** Distilled water contains almost no dissolved ions, while dissolving salt releases sodium and chloride ions that carry the current
Pure distilled water has almost no free ions to carry charge, so very little current flows and the bulb stays off. Dissolving salt releases sodium and chloride ions into the water, and these ions carry current between the electrodes, so the bulb glows.
- 43. Answer: (A)** Oil is lighter than water and floats on top, so the water spreads the burning oil over a wider area instead of putting it out
Oil floats on top of water because it is less dense. Pouring water onto a burning oil fire lets the burning oil spread across the water's surface, **making the fire worse** rather than putting it out.
- 44. Answer: (B)** Most of the eggs and young are lost to predators or fail to be fertilised in the open water, so many eggs give a better chance that some survive
Since fertilisation happens in open water, many eggs and young are eaten by predators or never get fertilised. Releasing a **very large number of eggs** increases the chance that enough young survive to adulthood.
- 45. Answer: (C)** A concave mirror converges light rays reflected from it to a point, concentrating light onto a small area
A concave mirror is converging: light rays falling on it are reflected so that they come together at a point, **concentrating light** onto the small area being examined.
- 46. Answer: (B)** (ii) only
Statement (i) is incorrect: fertilisation inside the female's body is called internal fertilisation, not external. Statement (ii) is correct: oviparous animals lay eggs and viviparous animals give birth directly. Statement (iii) is incorrect: the drastic change from tadpole to adult frog is called metamorphosis, not budding. Hence **(ii) only**.
- 47. Answer: (C)** A is true, but R is false.
Rayon is indeed marketed as artificial silk because of its silky sheen, so the assertion is correct. However, rayon is a regenerated cellulose fibre made from wood pulp, not a fibre made purely from petrochemicals like nylon, so the reason given is incorrect.
- 48. Answer: (D)** 1-b, 2-c, 3-d, 4-a
Coal is formed from the remains of dead plants and is burnt in thermal power plants. Petroleum is formed from the remains of marine organisms and is refined into fuels. Natural gas is a cleaner-burning fuel carried by pipelines for domestic and industrial use. CNG is natural gas compressed for use in vehicles and cooking. This matches Coal with the thermal-power-plant description, Petroleum with the marine-origin description, Natural gas with the pipeline description, and CNG with the compressed-fuel description.

49. Answer: (A) Rusting needs both air (oxygen) and moisture together, and dissolved salts speed up the process

The nail kept in dry air did not rust at all, showing moisture is essential. The nail in plain water rusted only slightly, while the nail in salt water rusted heavily, showing that dissolved salt speeds up the reaction between iron, water and air. Together these results show **rusting needs both air and moisture, and salt accelerates it.**

50. Answer: (B) The tip experiences 100 N/cm^2 , which is ten times the 10 N/cm^2 pressure at the flat head

Pressure = force $\div$ area. At the tip: $50 \text{ N} \div 0.5 \text{ cm}^2 = 100 \text{ N/cm}^2$. At the flat head: $50 \text{ N} \div 5 \text{ cm}^2 = 10 \text{ N/cm}^2$. The tip therefore experiences **ten times the pressure** of the flat head for the same applied force.