PRESENTED BY

Bennett & Coleman
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PULSE
THE FUTURE DOCTOR CHALLENGE

THE FUTURE DOCTOR CHALLENGE

PULSE 2026 Sample Paper

For Class 10 Students

90	2 Hours	+3 / -1 / 0	270
Questions	Duration	Correct / Incorrect / Unattempted	Maximum marks

Practice paper — this is not the actual PULSE examination.

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Instructions

90	2 Hours	+3 / -1	270
Questions	Duration	Correct / Incorrect	Maximum marks

SECTION	QUESTIONS	QUESTION NUMBERS
Physics + Chemistry	25	Q1 – Q25
Biology	45	Q26 – Q70
Mental Ability	20	Q71 – Q90
Total	**90**	

1. Each question has four options (A, B, C, D). Only **one** option is correct.
2. Marking: **+3** for each correct answer, **-1** for each incorrect answer, and **0** for a question left unattempted.
3. Score = (Correct × 3) − (Incorrect × 1). Maximum marks: 90 × 3 = 270.
4. Time allowed: 2 Hours. Practise under the same time limit as the real examination.
5. Mark your answers on a separate sheet, then check them against the **Answer Key** on the last page.
6. You can also attempt this paper online at **spectrumcoaches.in/pulse** and get an instant, question-wise result.

Name: _____ School: _____ Score: _____ / 270

PHYSICS + CHEMISTRY

Physics

Questions 1–12 · 12 questions

Q1. A car travels 120 m in 10 seconds. Its average speed is:

(A) 10 m/s
(B) 12 m/s
(C) 20 m/s
(D) 1200 m/s

Q2. Which of the following is a vector quantity?

(A) Distance
(B) Speed
(C) Mass
(D) Velocity

Q3. The SI unit of electric power is:

(A) Joule
(B) Volt
(C) Watt
(D) Ohm

Q4. Which lens is generally used to correct myopia?

(A) Convex lens
(B) Concave lens
(C) Cylindrical lens
(D) Plane glass

Q5. A body starts from rest and accelerates uniformly at 2 m/s². Its velocity after 5 seconds will be:

(A) 2 m/s
(B) 5 m/s
(C) 10 m/s
(D) 25 m/s

Q6. Two resistors of 6 Ω and 3 Ω are connected in parallel. Their equivalent resistance is:

(A) 9 Ω
(B) 3 Ω
(C) 2 Ω
(D) 18 Ω

Q7. A force of 20 N acts on a body of mass 5 kg. The acceleration produced is:

(A) 0.25 m/s²
(B) 4 m/s²
(C) 15 m/s²
(D) 100 m/s²

Q8. An object is placed beyond 2F of a convex lens. The image formed is:

(A) Virtual, erect and magnified
(B) Real, inverted and diminished
(C) Real, erect and magnified
(D) Virtual, inverted and diminished

Q9. A 100 W bulb operates for 5 hours. The electrical energy consumed is:

(A) 0.2 kWh
(B) 0.5 kWh
(C) 5 kWh
(D) 20 kWh

Q10. A body moving with a velocity of 10 m/s is brought to rest uniformly in 5 seconds. Its acceleration is:

(A) +2 m/s²
(B) −2 m/s²
(C) +5 m/s²
(D) −5 m/s²

Q11. Two bulbs rated 60 W and 100 W are connected in parallel to the same supply voltage. Which bulb has greater resistance?

(A) 60 W bulb
(B) 100 W bulb
(C) Both have equal resistance
(D) Cannot be determined

Q12. A stone is thrown vertically upward with an initial velocity of 20 m/s. Taking g = 10 m/s², the maximum height reached is:

(A) 10 m
(B) 20 m
(C) 30 m
(D) 40 m

PHYSICS + CHEMISTRY

Chemistry

Questions 13–25 · 13 questions

Q13. Which of the following is a chemical change?

(A) Melting of ice
(B) Boiling of water
(C) Rusting of iron
(D) Dissolving sugar in water

Q14. The smallest particle of an element that retains its chemical properties is:

(A) Molecule
(B) Atom
(C) Compound
(D) Ion

Q15. A solution with pH 2 is:

(A) Strongly acidic
(B) Weakly acidic
(C) Neutral
(D) Basic

Q16. Which gas is released when an acid reacts with a metal?

(A) Oxygen
(B) Nitrogen
(C) Hydrogen
(D) Carbon dioxide

Q17. Which of the following is a combination reaction?

(A) $CaCO_3 \rightarrow CaO + CO_2$
(B) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$
(C) $CaO + H_2O \rightarrow Ca(OH)_2$
(D) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$

Q18. An element has electronic configuration 2,8,1. It is most likely to:

(A) Gain one electron
(B) Lose one electron
(C) Share three electrons
(D) Remain chemically inactive

Q19. Which of the following is an example of oxidation?

(A) Addition of hydrogen
(B) Removal of oxygen
(C) Addition of oxygen
(D) Removal of electrons only

Q20. Which metal is commonly extracted from its ore by electrolysis?

(A) Sodium
(B) Iron
(C) Copper
(D) Zinc

Q21. When dilute hydrochloric acid reacts with sodium hydroxide, the products are:

(A) NaCl and H_2
(B) NaCl and H_2O
(C) NaOH and Cl_2
(D) Na_2O and HCl

Q22. Which of the following has the highest hydrogen ion concentration?

(A) pH 2
(B) pH 5
(C) pH 7
(D) pH 10

Q23. An element X has atomic number 17. Which statement is correct?

(A) X belongs to Group 1
(B) X has 7 valence electrons
(C) X is a noble gas
(D) X readily loses one electron

Q24. Which pair represents an unsaturated hydrocarbon?

(A) Methane and ethane
(B) Ethane and propane
(C) Ethene and ethyne
(D) Propane and butane

Q25. A compound contains carbon, hydrogen and oxygen. Complete combustion produces carbon dioxide and water. Which type of compound could it be?

(A) Hydrocarbon only
(B) Alcohol
(C) Metal oxide
(D) Salt

BIOLOGY

Biology

Questions 26–70 · 45 questions

Q26. The basic structural and functional unit of life is:

(A) Tissue
(B) Organ
(C) Cell
(D) Nucleus

Q27. Which organelle is known as the powerhouse of the cell?

(A) Ribosome
(B) Mitochondria
(C) Golgi apparatus
(D) Vacuole

Q28. Photosynthesis mainly occurs in:

(A) Mitochondria
(B) Chloroplasts
(C) Ribosomes
(D) Nucleus

Q29. The green pigment necessary for photosynthesis is:

(A) Haemoglobin
(B) Chlorophyll
(C) Melanin
(D) Carotene

Q30. Which gas is released during photosynthesis?

(A) Carbon dioxide
(B) Nitrogen
(C) Oxygen
(D) Hydrogen

Q31. The organ responsible for pumping blood throughout the human body is:

(A) Lungs
(B) Kidney
(C) Heart
(D) Liver

Q32. The functional unit of the kidney is:

(A) Neuron
(B) Nephron
(C) Alveolus
(D) Villus

Q33. Which blood cells help in fighting infections?

(A) RBCs
(B) Platelets
(C) WBCs
(D) Plasma cells only

Q34. Which part of the plant absorbs water and minerals from the soil?

(A) Stem
(B) Leaf
(C) Root
(D) Flower

Q35. The process by which green plants prepare food is called:

(A) Respiration
(B) Photosynthesis
(C) Transpiration
(D) Digestion

Q36. Which organ is primarily responsible for gaseous exchange in humans?

(A) Stomach
(B) Lungs
(C) Kidney
(D) Heart

Q37. The male reproductive cell is called:

(A) Ovum
(B) Zygote
(C) Sperm
(D) Embryo

Q38. The female reproductive cell is called:

(A) Sperm
(B) Ovum
(C) Zygote
(D) Embryo

Q39. DNA is mainly present in the:

(A) Cell wall
(B) Nucleus
(C) Vacuole
(D) Cell membrane

Q40. Which of the following is a renewable natural resource?

(A) Coal
(B) Petroleum
(C) Solar energy
(D) Natural gas

Q41. During respiration, the main function of oxygen is to:

(A) Produce glucose
(B) Help release energy from food
(C) Transport hormones
(D) Digest proteins

Q42. Which blood vessel carries oxygenated blood from the lungs to the heart?

(A) Pulmonary artery
(B) Pulmonary vein
(C) Aorta
(D) Vena cava

Q43. The movement of water through a selectively permeable membrane is called:

(A) Diffusion
(B) Osmosis
(C) Transpiration
(D) Active transport

Q44. Which tissue transports food in plants?

(A) Xylem
(B) Phloem
(C) Epidermis
(D) Cambium

Q45. Xylem mainly transports:

(A) Food
(B) Hormones
(C) Water and minerals
(D) Oxygen

Q46. Which part of the brain controls balance and coordination?

(A) Cerebrum
(B) Cerebellum
(C) Medulla
(D) Hypothalamus

Q47. Reflex actions are mainly controlled by the:

(A) Spinal cord
(B) Cerebrum
(C) Cerebellum
(D) Pituitary gland

Q48. Insulin is secreted by the:

(A) Thyroid
(B) Pancreas
(C) Adrenal gland
(D) Pituitary

Q49. Which hormone is responsible for the development of male secondary sexual characteristics?

(A) Estrogen
(B) Testosterone
(C) Insulin
(D) Thyroxine

Q50. In humans, fertilisation normally occurs in the:

(A) Uterus
(B) Ovary
(C) Fallopian tube
(D) Vagina

Q51. A gene is best described as:

(A) A type of cell
(B) A unit of heredity
(C) A type of tissue
(D) A digestive enzyme

Q52. If a tall pea plant (T) is dominant over a dwarf plant (t), which genotype represents a dwarf plant?

(A) TT
(B) Tt
(C) tt
(D) TTT

Q53. Which of the following is an example of asexual reproduction?

(A) Fertilisation
(B) Binary fission
(C) Fusion of gametes
(D) Pollination

Q54. Which organisms are generally placed at the first trophic level?

(A) Herbivores
(B) Carnivores
(C) Producers
(D) Decomposers

Q55. In a food chain, energy:

(A) Increases at each trophic level
(B) Remains constant
(C) Decreases at successive trophic levels
(D) Is created at every level

Q56. Which process returns water vapour to the atmosphere from plant leaves?

(A) Respiration
(B) Transpiration
(C) Photosynthesis
(D) Absorption

Q57. Which structure prevents food from entering the windpipe while swallowing?

(A) Diaphragm
(B) Epiglottis
(C) Trachea
(D) Larynx

Q58. Which component of blood is mainly responsible for clotting?

(A) RBCs
(B) WBCs
(C) Platelets
(D) Plasma

Q59. Which condition is most directly associated with a deficiency of iodine?

(A) Diabetes
(B) Goitre
(C) Scurvy
(D) Rickets

Q60. The opening and closing of stomata is mainly controlled by:

(A) Root cells
(B) Guard cells
(C) Xylem cells
(D) Phloem cells

Q61. A plant is kept in darkness for several days and then one of its leaves is exposed to sunlight. Which test would demonstrate that photosynthesis has occurred?

(A) Testing for oxygen
(B) Testing the leaf for starch
(C) Testing for carbon dioxide
(D) Testing for water

Q62. A person has a very low haemoglobin level. Which process would be most directly affected?

(A) Digestion of proteins
(B) Transport of oxygen
(C) Production of urine
(D) Transmission of nerve impulses

Q63. If the phloem of a plant is damaged, which process is most directly affected?

(A) Transport of water from roots
(B) Transport of prepared food
(C) Absorption of minerals
(D) Exchange of gases

Q64. In a cross between two heterozygous tall pea plants (Tt × Tt), the expected phenotypic ratio of tall to dwarf plants is:

(A) 1 : 1
(B) 2 : 1
(C) 3 : 1
(D) 1 : 3

Q65. Why does a person breathe faster during vigorous exercise?

(A) The body needs less oxygen
(B) Muscles require more energy and therefore more oxygen
(C) The heart stops pumping efficiently
(D) Carbon dioxide production decreases

Q66. Which statement correctly explains why antibiotics do not normally cure viral infections?

(A) Viruses are larger than bacteria
(B) Antibiotics specifically target bacterial structures/processes
(C) Viruses have no genetic material
(D) Antibiotics increase viral reproduction

Q67. If decomposers were completely removed from an ecosystem, which consequence would occur first?

(A) Producers would immediately disappear
(B) Dead organic matter would accumulate
(C) Sunlight would decrease
(D) Herbivores would become producers

Q68. A person has a mutation in a gene that codes for an important protein. The mutation can potentially affect the person because:

(A) Genes determine only body temperature
(B) Genes contain information used to make functional proteins
(C) All mutations are always harmful
(D) DNA cannot influence characteristics

Q69. Which sequence correctly represents the flow of oxygen during inhalation?

(A) Nose → trachea → bronchi → lungs → alveoli
(B) Nose → oesophagus → lungs → alveoli
(C) Nose → stomach → lungs → alveoli
(D) Nose → bronchi → stomach → alveoli

Q70. Consider the food chain:
Grass → Grasshopper → Frog → Snake → Eagle
If the grasshopper population decreases drastically, which is the most immediate likely effect?

(A) Frog population may decrease
(B) Grass population will immediately disappear
(C) Eagle population will immediately increase
(D) Snake population will immediately increase

MENTAL ABILITY

Mental Ability

Questions 71–90 · 20 questions

Q71. Find the next number:
2, 4, 6, 8, ___

(A) 9
(B) 10
(C) 11
(D) 12

Q72. Find the odd one out:

(A) Apple
(B) Mango
(C) Potato
(D) Banana

Q73. If CAT is coded as DBU, then DOG is coded as:

(A) EPH
(B) EOG
(C) CNE
(D) FPH

Q74. Find the missing number:
3, 6, 12, 24, ___

(A) 36
(B) 42
(C) 48
(D) 54

Q75. A clock shows 3:00. What is the angle between the hour and minute hands?

(A) 30°
(B) 60°
(C) 90°
(D) 180°

Q76. If today is Monday, what day will it be after 10 days?

(A) Wednesday
(B) Thursday
(C) Friday
(D) Saturday

Q77. Find the next number:
5, 11, 23, 47, ___

(A) 83
(B) 91
(C) 95
(D) 99

Q78. If in a certain code,
PEN = 35 and BOOK = 43,
then CAT = ?

(A) 21
(B) 24
(C) 26
(D) 28

Q79. A student walks 5 km north, then 3 km east, and finally 5 km south. How far is the student from the starting point?

(A) 3 km
(B) 5 km
(C) 8 km
(D) 13 km

Q80. Find the missing term:
AZ, BY, CX, DW, ___

(A) EU
(B) EV
(C) FU
(D) EX

Q81. A is taller than B. B is taller than C. D is taller than A. Who is the shortest?

(A) A
(B) B
(C) C
(D) D

Q82. If 8 workers can complete a task in 12 days, assuming equal efficiency, how many days would 6 workers take?

(A) 14
(B) 16
(C) 18
(D) 20

Q83. Find the number that does not belong to the group:

(A) 16
(B) 25
(C) 36
(D) 45

Q84. Complete the analogy:
Book : Reading :: Food : ?

(A) Cooking
(B) Eating
(C) Buying
(D) Serving

Q85. Find the next number:
1, 4, 9, 16, 25, ___

(A) 30
(B) 32
(C) 36
(D) 49

Q86. A father is three times as old as his son. After 10 years, the father will be twice as old as his son. What is the son's present age?

(A) 5 years
(B) 10 years
(C) 15 years
(D) 20 years

Q87. Five students P, Q, R, S and T are standing in a line. P is to the left of Q but to the right of R. S is to the right of Q. T is to the left of R. Who is standing in the middle?

(A) P
(B) Q
(C) R
(D) S

Q88. A number is increased by 20% and then decreased by 20%. Compared with the original number, the final number is:

(A) Same
(B) 4% greater
(C) 4% smaller
(D) 8% smaller

Q89. If all squares are rectangles and some rectangles are circles, which conclusion is definitely true?

(A) All circles are squares
(B) Some squares are circles
(C) All squares are rectangles
(D) No rectangle is a circle

Q90. A two-digit number has digits whose sum is 11. When the digits are reversed, the new number is 27 greater than the original number. The original number is:

(A) 47
(B) 56
(C) 65
(D) 74

ANSWER KEY

PULSE 2026 Sample Paper · 90 questions

PHYSICS + CHEMISTRY · Q1–Q25

Q1	B	Q2	D	Q3	C	Q4	B	Q5	C
Q6	C	Q7	B	Q8	B	Q9	B	Q10	B
Q11	A	Q12	B	Q13	C	Q14	B	Q15	A
Q16	C	Q17	C	Q18	B	Q19	C	Q20	A
Q21	B	Q22	A	Q23	B	Q24	C	Q25	B

BIOLOGY · Q26–Q70

Q26	C	Q27	B	Q28	B	Q29	B	Q30	C
Q31	C	Q32	B	Q33	C	Q34	C	Q35	B
Q36	B	Q37	C	Q38	B	Q39	B	Q40	C
Q41	B	Q42	B	Q43	B	Q44	B	Q45	C
Q46	B	Q47	A	Q48	B	Q49	B	Q50	C
Q51	B	Q52	C	Q53	B	Q54	C	Q55	C
Q56	B	Q57	B	Q58	C	Q59	B	Q60	B
Q61	B	Q62	B	Q63	B	Q64	C	Q65	B
Q66	B	Q67	B	Q68	B	Q69	A	Q70	A

MENTAL ABILITY · Q71–Q90

Q71	B	Q72	C	Q73	A	Q74	C	Q75	C
Q76	B	Q77	C	Q78	B	Q79	A	Q80	B
Q81	C	Q82	B	Q83	D	Q84	B	Q85	C
Q86	B	Q87	A	Q88	C	Q89	C	Q90	A

Marking: correct +3 · incorrect -1 · unattempted 0.