NEEV ACCELERATE TALENT REWARD EXAM'26

Sample Test Paper – Class 10

Total Questions: 30 | Each question has one correct answer

SECTION A — SCIENCE (Q1–Q10)

1. [Subject: Science | Topic: Motion | Difficulty: Easy | Cognitive: Conceptual]

A car moves with uniform velocity. Which of the following is true?

A) A) Its speed and direction both change.

B) B) Its acceleration is zero.

C) C) Its displacement is always zero.

D) D) Its velocity must be zero.

2. [Subject: Science | Topic: Laws of Motion | Difficulty: Easy | Cognitive: Application]

A force of 20 N acts on a mass of 4 kg. What is its acceleration (m/s^2)?

A) A) 4.0

B) B) 5.0

C) C) 0.2

D) D) 24.0

3. [Subject: Science | Topic: Gravitation | Difficulty: Medium | Cognitive: Application]

Two small spheres of masses 2 kg and 8 kg are 0.5 m apart. What is the gravitational force (use $G = 6.67 \times 10^{-11}$ N·m²/kg²)? (Give answer in scientific notation.)

A) A) 4.27×10^{-10} N

B) B) 4.27×10^{-9} N

C) C) 2.67×10^{-10} N

D) D) 2.67×10^{-9} N

4. [Subject: Science | Topic: Work & Energy | Difficulty: Medium | Cognitive: Application]

A box of mass 10 kg is lifted vertically by 2 m at constant speed. Work done against gravity is (use $g = 9.8$ m/s²).

A) A) 196 J

B) B) 98 J

C) C) 20 J

D) D) 49 J

5. [Subject: Science | Topic: Sound | Difficulty: Medium | Cognitive: Conceptual]

Which property of sound is most directly related to its pitch?

A) A) Amplitude

B) B) Frequency

C) C) Wave speed

D) D) Loudness

6. [Subject: Science | Topic: Matter & Purity | Difficulty: Easy | Cognitive: Conceptual]

Which of these is a pure substance?

A) A) Sea water

B) B) Air

C) C) Distilled water

D) D) Alloy

7. [Subject: Science | Topic: Chemical Reactions/Acids & Bases | Difficulty: Medium | Cognitive: Application]

When hydrochloric acid reacts with zinc, which gas is produced?

A) A) Oxygen

B) B) Hydrogen

C) C) Chlorine

D) D) Nitrogen

8. [Subject: Science | Topic: Metals & Non-metals | Difficulty: Challenging | Cognitive: Analysis]

Among the following, which metal will displace copper from copper sulphate solution?

A) A) Silver

B) B) Zinc

C) C) Mercury

D) D) Lead

9. [Subject: Science | Topic: Biology – Life Processes | Difficulty: Medium | Cognitive: Conceptual]

Which organelle is called the powerhouse of the cell?

A) A) Nucleus

B) B) Chloroplast

C) C) Mitochondrion

D) D) Ribosome

10. [Subject: Science | Topic: Biology – Reproduction & Environment | Difficulty: Challenging | Cognitive: Analysis]

Crop rotation improves soil because it helps to —

A) A) increase pests specific to crops

B) B) deplete all nutrients uniformly

C) C) restore soil fertility by varying nutrient use

D) D) reduce yield each year

SECTION B — MATHEMATICS (Q11–Q20)

11. [Subject: Math | Topic: Number Systems | Difficulty: Easy | Cognitive: Conceptual]

What is the least rational number greater than 0?

A) A) 0.000…1 (infinite decimals)

B) B) 0.1

C) C) 1/100

D) D) No least positive rational number

12. [Subject: Math | Topic: Linear Equations | Difficulty: Easy | Cognitive: Application]

Solve for x: 2x − 5 = 9.

A) A) 2

B) B) 7

C) C) 5

D) D) 14

13. [Subject: Math | Topic: Polynomials | Difficulty: Medium | Cognitive: Application]

If (x − 2) is a factor of $x^2 − kx + 2$, the value of k is:

A) A) 1

B) B) 2

C) C) 3

D) D) 4

14. [Subject: Math | Topic: Coordinate Geometry | Difficulty: Medium | Cognitive: Application]

Distance between points (2, −1) and (−3, 3) is:

A) A) 5

B) B) √41

C) C) √29

D) D) √34

15. [Subject: Math | Topic: Triangles/Heron | Difficulty: Challenging | Cognitive: Analysis]

Area of triangle with sides 13, 14, 15 cm using Heron's formula (approx) is:

A) A) 84 cm²

B) B) 84.84 cm²

C) C) 90 cm²

D) D) 78 cm²

16. [Subject: Math | Topic: Circles/Mensuration | Difficulty: Medium | Cognitive: Application]

A circle has circumference 31.4 cm. Its radius (use π=3.14) is:

A) A) 10 cm

B) B) 5 cm

C) C) 2.5 cm

D) D) 15 cm

17. [Subject: Math | Topic: Trigonometry | Difficulty: Medium | Cognitive: Application]

If $\sin\theta$ = 3/5 and θ is acute, $\cos\theta$ equals:

A) A) 4/5

B) B) 3/5

C) C) $\sqrt{34}/5$

D) D) 1/5

18. [Subject: Math | Topic: Statistics/Probability | Difficulty: Easy | Cognitive: Conceptual]

From a set {1,2,3,4,5,6}, probability of drawing a number divisible by 3 is:

A) A) 1/6

B) B) 1/3

C) C) 2/6

D) D) 1/2

19. [Subject: Math | Topic: Surface Area & Volume | Difficulty: Challenging | Cognitive: Analysis]

A cube of side 6 cm is melted and recast into a sphere. Radius of sphere (approx) is: (use π=3.14)

A) A) 5.6 cm

B) B) 3.7 cm

C) C) 4.9 cm

D) D) 6.0 cm

20. [Subject: Math | Topic: Quadratic Equations | Difficulty: Medium | Cognitive: Application]

The roots of $x^2 − 5x + 6 = 0$ are:

A) A) 2 and 3

B) B) −2 and −3

C) C) 1 and 6

D) D) 3 and 5

SECTION C — REASONING (Q21–Q30)

21. [Subject: Reasoning | Topic: Series | Difficulty: Easy | Cognitive: Pattern Recognition]

Find next number: 2, 4, 8, 16, __

A) A) 24

B) B) 32

C) C) 34

D) D) 30

22. [Subject: Reasoning | Topic: Analogy | Difficulty: Medium | Cognitive: Logical]

Hand : Glove :: Foot : ?

A) A) Sock

B) B) Shoe

C) C) Hat

D) D) Glove

23. [Subject: Reasoning | Topic: Coding-Decoding | Difficulty: Medium | Cognitive: Application]

If in a code, 'TABLE' is written as 'UBCMF', following the same rule, 'CHAIR' becomes:

A) A) DIBJS

B) B) DIBIS

C) C) DIBJS

D) D) DIBJS

24. [Subject: Reasoning | Topic: Directions | Difficulty: Easy | Cognitive: Application]

A person walks 10 m south, then 10 m east, then 10 m north. How far is he from starting point?

A) A) 10 m

B) B) 0 m

C) C) 14.14 m

D) D) 20 m

25. [Subject: Reasoning | Topic: Syllogism | Difficulty: Challenging | Cognitive: Analysis]

Statements: All roses are flowers. Some flowers are red. Conclusions: (I) Some roses are red. (II) Some red are flowers. Which is true?

A) A) Only I follows

B) B) Only II follows

C) C) Both I and II follow

D) D) Neither follows

26. [Subject: Reasoning | Topic: Venn/sets | Difficulty: Medium | Cognitive: Logical]

In a class, 30 students; 18 study Maths, 12 study Biology, and 6 study both. Number studying at least one of the two is:

A) A) 24

B) B) 30

C) C) 36

D) D) 18

27. [Subject: Reasoning | Topic: Data Interpretation | Difficulty: Medium | Cognitive: Application]

A table shows scores: {60, 70, 80, 90}. Mean score is:

A) A) 70

B) B) 75

C) C) 80

D) D) 85

28. [Subject: Reasoning | Topic: Figure Series | Difficulty: Challenging | Cognitive: Analysis]

Consider sequence: each term triples then subtracts 1. If sequence starts 1, next terms are 2,5,14,... What is the 5th term?

A) A) 41

B) B) 41

C) C) 41

D) D) 41

29. [Subject: Reasoning | Topic: Blood relations | Difficulty: Easy | Cognitive: Logical]

Pointing to a photograph, A says: 'This man's daughter is the only child of my mother.' How is A related to the man?

A) A) Son

B) B) Daughter

C) C) Brother

D) D) Father

30. [Subject: Reasoning | Topic: Number series | Difficulty: Medium | Cognitive: Pattern Recognition]

Find next: 5, 11, 23, 47, __

A) A) 95

B) B) 99

C) C) 101

D) D) 103

ANSWER KEY and EXPLANATIONS

Q1 – D – If speed is constant but direction changes, motion is uniform circular motion where velocity is not constant; option D is correct when speed constant and direction changes; conceptual point: uniform velocity means both speed and direction constant. Topic: Motion. Cognitive: Conceptual.

Q2 – B – Using Newton's second law: $a = F/m = 20/4 = 5$ m/s^2. Option B (5.0) is correct. Topic: Laws of motion. Cognitive: Application.

Q3 – A – Gravitational force $F = G\, m_1\, m_2 / r^2 = 6.67\times10^{-11}\times2\times8 / (0.5)^2 = $ 6.67e-11×16 /0.25 = 6.67e-11×64 = 4.27×10^{-9} N. Option B. Topic: Gravitation. Cognitive: Application.

Q4 – B – Work done = $m\, g\, h = 10\times9.8\times2 = 196$ J. Option A. Topic: Work & Energy. Cognitive: Application.

Q5 – C – Pitch of sound is determined by frequency. Higher frequency → higher pitch. Option B. Topic: Sound. Cognitive: Conceptual.

Q6 – C – Distilled water is chemically pure; others are mixtures. Option C. Topic: Matter & Purity. Cognitive: Conceptual.

Q7 – B – $Zn + 2HCl \rightarrow ZnCl_2 + H_2\uparrow$. Hydrogen gas is produced. Option B. Topic: Acids & Metals. Cognitive: Application.

Q8 – B – Zinc is above copper in reactivity series and will displace copper. Option B. Topic: Metals & Reactivity. Cognitive: Analysis.

Q9 – C – Mitochondrion produces ATP; called powerhouse. Option C. Topic: Cell biology. Cognitive: Conceptual.

Q10 – C – Crop rotation restores soil fertility by varying nutrient use and reducing pests; Option C. Topic: Agriculture/Environment. Cognitive: Analysis.

Q11 – D – There is no least positive rational number; between any positive rationals there's a smaller one. Option D. Topic: Number systems. Cognitive: Conceptual.

Q12 – B – $2x -5 =9 => 2x =14 => x=7$. Option B. Topic: Linear equations. Cognitive: Application.

Q13 – B – If x=2 is root, substitute: $(2)^2 - k(2)+2 =0 =>4 -2k +2=0 =>6 -2k=0 =>k=3$. Option C. Topic: Polynomials. Cognitive: Application.

Q14 – C – Distance $= \sqrt{[(2-(-3))^2 + (-1-3)^2]} = \sqrt{[(5)^2 + (-4)^2]} = \sqrt{(25+16)} = \sqrt{41}$. Option B. Topic: Coordinate geometry. Cognitive: Application.

Q15 – B – Semi-perimeter $s=(13+14+15)/2=21$. Area $=\sqrt{[21(21-13)(21-14)(21-15)]}$ $=\sqrt{[21\times8\times7\times6]}=\sqrt{(7056)}=84$ cm^2 approx. Option A. Topic: Heron's formula. Cognitive: Analysis.

Q16 – B – Circumference $=2\pi r =31.4$ -> $r=31.4/(2\times3.14)=31.4/6.28=5$ cm. Option B. Topic: Mensuration. Cognitive: Application.

Q17 – A – $\sin^2\theta + \cos^2\theta =1$; $\cos \theta = \sqrt{(1-(3/5)^2)}=\sqrt{(1-9/25)}=\sqrt{(16/25)}=4/5$. Option A. Topic: Trigonometry. Cognitive: Application.

Q18 – B – Numbers divisible by 3 are {3,6} => 2 out of 6 => 1/3. Option B. Topic: Probability. Cognitive: Conceptual.

Q19 – B – Volume cube = side^3 $=6^3=216$ cm^3 = volume sphere $(4/3)\pi r^3$. $r^3 = (216\times3)/(4\pi)=648/(4\times3.14)=648/12.56\approx51.59$ => $r\approx3.71$ cm. Option B (3.7 cm). Topic: Volume. Cognitive: Analysis.

Q20 – A – $x^2 -5x +6 =0$ factors $(x-2)(x-3)$ so roots 2 and 3. Option A. Topic: Quadratic equations. Cognitive: Application.

Q21 – B – Sequence doubles: next 32. Option B. Topic: Number series. Cognitive: Pattern recognition.

Q22 – B – Footwear relation: Foot: Shoe as Hand: Glove — correct is Shoe for Foot. Option B. Topic: Analogy. Cognitive: Logical.

Q23 – A – Code shifts each letter +1: C->D, H->I, A->B, I->J, R->S => DIBJS. Option A. Topic: Coding-Decoding. Cognitive: Application.

Q24 – C – Net displacement: 10m south then 10m east then 10m north -> final is 10m east and 0 north/south: distance from start =10 m. Option A is 10 m? Wait compute: Start (0,0). After south (0,-10), east (10,-10), north (10,0). Distance =10 from origin. Option A. Topic: Directions. Cognitive: Application.

Q25 – B – All roses are flowers; some flowers are red -> conclusion I 'Some roses are red' does not necessarily follow. II 'Some red are flowers' follows because some flowers are red. So only II follows. Option B. Topic: Syllogism. Cognitive: Analysis.

Q26 – A – Number studying at least one = n(M)+n(B)−n(both) =18+12−6=24. Option A. Topic: Venn/sets. Cognitive: Logical.

Q27 – B – Mean = (60+70+80+90)/4 =300/4 =75. Option B. Topic: Data interpretation. Cognitive: Application.

Q28 – A – Start 1 -> next = 1*3−1 =2; then 2*3−1=5; 5*3−1=14; 14*3−1=41 -> 5th term 41. Option A. Topic: Figure-series logic. Cognitive: Analysis.

Q29 – A – 'This man's daughter is the only child of my mother' => the daughter is the speaker, so A is the son of the man? Actually if the man's daughter is the only child of my mother, that child is the speaker, so speaker is daughter of the man meaning speaker is the man's daughter => A is daughter. For pointing to photo 'This man's daughter is the only child of my mother' implies speaker is the daughter of that man -> speaker is his daughter -> A is daughter. Option A. Topic: Blood relations. Cognitive: Logical.

Q30 – C – Pattern: 5→11 (+6),11→23 (+12),23→47 (+24) increments double; next +48 =>47+48=95. Option A. Topic: Number series. Cognitive: Pattern recognition.

MEDICAL NEET/AIIMS
2 Yrs. Integrated Program
For X to XI Moving Students

ENGINEERING JEE (Mains + Advance)
2 Yrs. Integrated Program
For X to XI Moving Students

FOUNDATION
Olympiads, NTSE, IJSO & School / Board Exams
For V to X Std. Students

Class XI & XII -2 Years Integrated Program Results 2025

Yearlong Foundation Program Results 2025

GMC CHANDRAPUR — Adiba Khan
GMC BULDHANA — Aaditya Jaronde
SGMC JALGAON — Mohit Yadav

SGMC GONDGAON — Mrunmayee Rewatkar
IIT NAGPUR — Jayashree Uike
IIT NAGPUR — Anshul Chandurkar

Ramanshu Padole
IIT-Mumbai
AIR # 286
IIT MUMBAI — Ramanshu Padole

IIT GUWAHATI — Kaustubh Pathak
IIT MADRAS — Himanshu Rathi
IIT NAGPUR — Animesh Shrivastav
MGIMS SEWAGRAM — Atharva Raut

Strong Foundation, Strong Results
मजबूत नींव, शानदार परिणाम
Visit us at : www.neevlit.com

NEEV
IIT FOUNDATION