NEW STANDARD ACADEMY

Test Type : Unit Test - 02

Do not open this Test Booklet until you are asked to do so. **31-07-2023**

JEE(MAIN): 11th Undergoing Students

Read carefully the Instructions on the Back Cover of this Test Booklet.

Important Instructions :

1.Immediately fill in the form number on this page of the Test Booklet with Blue/Black Ball Point Pen. Use of pencil is strictly prohibited.
2.The candidates should not write their Form Number anywhere else (except in the specified space) on the Test Booklet/Answer Sheet.
3.The Test Booklet consists of 90 questions.
4. There are three parts in the question paper 1,2,3 consisting of Physics, Chemistry and Mathematics having 30 questions in each subject and each subject having Two sections. (i) Section-I contains 20 multiple choice questions with only one correct option. Marking scheme : +4 for correct answer, 0 if not attempted and –1 in all other cases. (ii) Section-II contains 10 Numerical Value Type questions. Attempt any 5 questions. First 5 attempted questions will be considered for marking. Marking scheme : +4 for correct answer, 0 if not attempted and –1 in all other cases.
5. Use Blue/Black Ball Point Pen only for writting particulars/marking responses on Side –1 and Side–2 of the Answer Sheet. Use of pencil is strictly prohibited.
6. No candidate is allowed to carry any textual material, printed or written, bits of papers, mobile phone any electronic device etc, except the Identity Card inside the examination hall/room.
7. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
8. On completion of the test, the candidate must hand over the Answer Sheet to the invigilator on duty in the Room/ Hall. However, the candidate are allowed to take away this Test Booklet with them.

Name of the Candidate(In Capitals) ______________________________

Date of Examintation ______________________________

Candidate`s Signature:__________ Invigilator`s Signature: __________

PART-1 : PHYSICS

SECTION-I : (Maximum Marks: 80)

This section contains **20 questions**. Each question has 4 options for correct answer. Multiple-Choice Questions (MCQs) **Only one option is correct**. For each question, marks will be awarded as follows:

Full Marks : +4 If correct answer is selected.
Zero Marks : 0 If none of the option is selected.
Negative Marks : –1 If wrong option is selected.

1. A particle is moving eastwards with a velocity of 5 ms^{-1}. In 10 s the velocity changes to 5 ms^{-1} northwards. The average acceleration in this time is-

(A) $\frac{1}{\sqrt{2}}$ ms^{-2} towards north-east

(B) $\frac{1}{2}$ ms^{-2} towards north

(C) zero

(D) $\frac{1}{\sqrt{2}}$ ms^{-2} towards north-west

2. A parachutist after bailing out falls 50 m without friction. When parachute opens, it decelerates at 2 m/s^2. He reaches the ground with a speed of 3m/s. At what height, did he bail out ?

(A) 91 m (B) 182 m

(C) 293 m (D) 111 m

3. A particle located at x = 0 at time t = 0, starts moving along the positive x-direction with a velocity 'v' that varies as $v = \alpha\sqrt{x}$. the displacement of the particle varies with time as

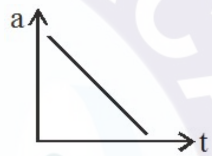
(A) t^2 (B) t (C) $t^{1/2}$ (D) t^3

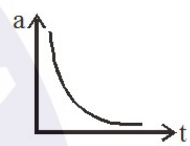
4. The velocity of a particle is $v = v_0 + gt + ft^2$. If its position is x = 0 at t = 0, then its displacement after unit time (t = 1) is-

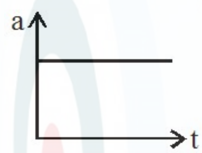
(A) $v_0 + 2g + 3f$ (B) $v_0 + g/2 + f/3$

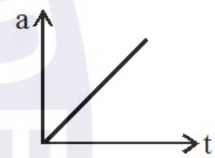
(C) $v_0 + g + f$ (D) $v_0 + g/2 + f$

5. The distance travelled by a body moving along a line in time t is proportional to t^3.
The acceleration-time (a, t) graph for the motion of the body will be :-

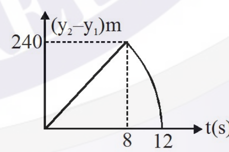
(A) 

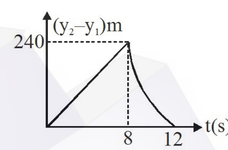
(B) 

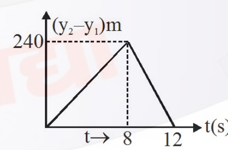
(C) 

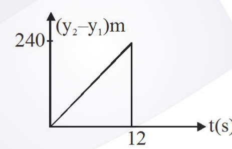
(D) 

6. Two stones are thrown up simultaneously from the edge of a cliff 240 m high with initial speed of 10 m/s and 40 m/s respectively. Which of the following graph best represents the time variation of relative position of the second stone with respect to the first? (Assume stones do not rebound after hitting the ground and neglect air resistance, take $g = 10\ m/s^2$)
(The figure are schematic and not drawn to scale)

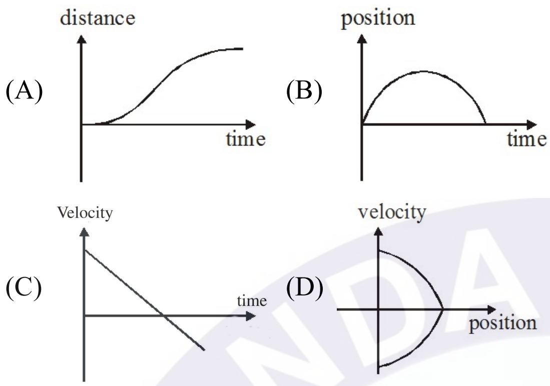
(A) 

(B) 

(C) 

(D) 

7. All the graphs below are intended to represent the same motion. One of them does it incorrectly. Pick it up.



8. A man is walking on a road with a velocity 3 km/hr suddnly rain starts falling. The velocity of rain is 10 km/hr in vertically downward direction. the relative velocity of the rain with respect to man is

(A) $\sqrt{13}$ km/hr (B) $\sqrt{7}$ km/hr

(C) $\sqrt{109}$ km/hr (D) 13 km/hr

9. A body starts from rest and with a uniform acceleration of 10 m/s^{-2} for 5 seconds. During the next 10 seconds it moves with uniform velocity, the total distance travelled by the body is :–

(A) 100 m (B) 125 m

(C) 500 m (D) 625 m

10. A particle moving in a straight line covers half the distance with speed of 3 m/s. The other half of the distance is covered in two equal time intervals with speed of 4.5 m/s and 7.5 m/s respectively. The average speed of the particle during this motion is

(A) 4.0 m/s (B) 5.0 m/s

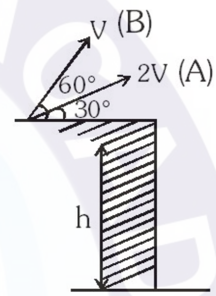
(C) 5.5 m/s (D) 4.8 m/s

11. A bomber is flying horizontally with a constant speed of 150 m/s at a height of 78.4 m. The pilot has to drop a bomb at the enemy target. At what horizontal distance from the target should he release the bomb ?

(A) 0 m (B) 300 m

(C) 600 m (D) 1000 m

12. Two particles A & B are projected from a building. A is projected with speed 2V making an angle 30° with horizontal & B with speed V making an angle 60° with horizontal. Which particle will hit the ground earlier



(A) Particle A

(B) Particle B

(C) Particle A & B will hit at same time.

(D) None of these

13. A particle is projected from a horizontal plane (x-z plane) such that its velocity vector at time t is given by $\vec{V} = a\hat{i} + (b - ct)\hat{j}$. Its range on the horizontal plane is given by

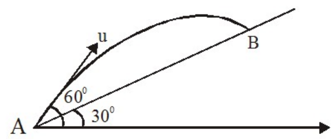
(A) $\frac{ba}{c}$

(B) $\frac{2ba}{c}$

(C) $\frac{3ba}{c}$

(D) None

14. Time taken by the projectile to reach from A to B is t. Then the distance AB is equal to :-



(A) $\frac{ut}{\sqrt{3}}$ (B) $\frac{\sqrt{3}ut}{2}$

(C) $\sqrt{3}$ ut (D) 2 ut

15. A boy playing on the roof of a 10 m high building throws a ball with a speed of 10 m/s at an angle of 30° with the horizontal. How far from the throwing point will the ball be at the height of 10 m from the ground ? [$g = 10\ m/s^2$, $\sin 30° = 1/2$, $\cos 30° = \sqrt{3}/2$]

(A) 5.20 m (B) 4.33 m

(C) 2.60 m (D) 8.66 m

16. A ball is thrown from a point with a speed v_0 at an angle of projection θ. From the same point and at the same instant, a person starts running with a constant speed $\frac{v_0}{2}$ to catch the ball. Will the person be able to catch the ball ? If yes, what should be the angle of projection ?

(A) Yes, 60° (B) Yes, 30°

(C) No (D) Yes, 45°

17. A boy can throw a stone up to a maximum height of 10 m. The maximum horizontal distance that the boy can throw the same stone up to will be :-

(A) 20 m (B) $20\sqrt{2}$ m

(C) 10 m (D) $10\sqrt{2}$ m

18. A projectile is given an initial velocity of $(\hat{i} + 2\hat{j})$ m/s, where $\hat{i}$ is along the ground and $\hat{j}$ is along the vertical. If $g = 10\ m/s^2$, the equation of its trajectory is :

(A) $y = x - 5x^2$

(B) $y = 2x - 5x^2$

(C) $4y = 2x - 5x^2$

(D) $4y = 2x - 25x^2$

19. A particle is projected with a velocity u making an angle θ with the horizontal. At any instant, its velocity v is at right angles to its initial velocity u; then v is: –

(A) $u \cos \theta$ (B) $u \tan \theta$

(C) $u \cot \theta$ (D) $u \sec \theta$

20. A stone is projected from the ground with a velocity of 25 m/s. 2 sec. later, it just clears wall 5 m. high. Then angle of projection of the stone and the greatest height reached are- [Neglect air resistance, Assume $g = 10\ m/sec^2$]

(A) 30°, 7.8 m (B) 60°, 8.7 m

(C) 30°, 8.7 m (D) 60°, 8.7 cm

SECTION-II : (Maximum Marks: 20)

This section contains 10 questions Candidates have to attempt any 5 questions out of 10. If more than 5 questions are attempted, then only first 5 attempted questions will be evaluated.

The answer to each question is a **Numerical Value.**
For each question, enter the correct integer value (In case of non-integer value, the answer should be rounded off to the nearest Integer).
Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +4 If correct answer is entered.
Zero Marks : 0 If the question is unanswered.
Negative Marks : –1 If wrong answer is entered.

1. A stone falls from a balloon that is descending at a uniform rate of 12 m/s. The displacement of the stone from the point of release after 10 sec is :–

2. A body is projected vertically up at t = 0 with a velocity of 98 m/s. Another body is projected from the same point with same velocity after time 4 seconds. Both bodies will meet after :–

3. A boat takes 2 hours to go 8 km and come back in still water lake. With water velocity of 4 km/hr,the time taken for going upstream of 8 km and coming back is :–

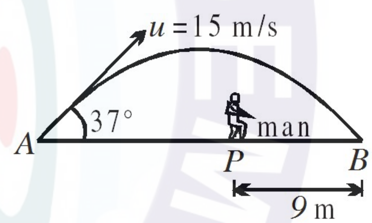
4. A car moving with a velocity of 20 ms^{-1} is brought to rest in 5 seconds by applying brakes. Calculate the retardation of the car.

5. Velocity of a particle varies with time as v = 4t. The displacement of particle between t = 2 to t = 4 sec, is :-

6. A ball is thrown from the top of a tower with an initial velocity of 10m/s at an angle 37° above the horizontal, hits the ground at a distance 16m from the base of tower. Calculate height of tower. [g = 10 m/s^2]

7. A particle is thrown with a speed 60 ms^{-1} at an angle 60° to the horizontal. When the particle makes an angle 30° with the horizontal in downward direction, it's speed at that instant is v. What is the value of v^2 in SI units ?

8. A ball is hit by a batsman at an angle of 37° as shown in figure. The man standing at P should run at what minimum velocity (in m/s) so that he catches the ball before it strikes the ground. Assume that height of man is negligible in comparison to maximum height of projectile.



9. The vertical height y and horizontal distance x of a projectile on a certain planet are given by x = (3t)m, y = (4t – 6) m where t is in seconds. Find the speed of projection (in m/s).

10. At a height 0.4 m from the ground, the velocity of a projectile in vector form is : $\vec{v} = \left(6\hat{i} + 2\hat{j}\right)$ m/s
The angle (in degree) of projection is :-
($g = 10m/s^2$)

PART-2 : CHEMISTRY

SECTION-I : (Maximum Marks: 80)

This section contains **20 questions**. Each question has 4 options for correct answer. Multiple-Choice Questions (MCQs) **Only one option is correct**. For each question, marks will be awarded as follows:

Full Marks : +4 If correct answer is selected.

Zero Marks : 0 If none of the option is selected.

Negative Marks : –1 If wrong option is selected.

1. Which of the following oxides is amphoteric in character ?

(A) SnO_2 (B) SiO_2

(C) CO_2 (D) CaO

2. Incorrect order of ionization energy is :-

(A) Pb (I.E.) > Sn(I.E.)

(B) Na^+ (I.E.) > Mg^+(I.E.)

(C) Li^+(I.E.) < O^+ (I.E.)

(D) Be^+ (I.E.) < C^+ (I.E.)

3. The value of IE_1, IE_2, IE_3 and IE_4 of an atom are 7.5 eV, 25.6 eV, 48.6 eV and 170.6 eV respectively. The electronic configuration of the atom will be:-

(A) $1s^2\ 2s^2\ 2p^6\ 3s^1$

(B) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^1$

(C) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$

(D) $1s^2\ 2s^2\ 2p^6\ 3s^2$

4. Arrange Ce^{3+}, La^{3+}, Pm^{3+} and Yb^{3+} in increasing order of their size:-

(A) $Yb^{3+} < Pm^{3+} < Ce^{3+} < La^{3+}$

(B) $Ce^{3+} < Yb^{3+} < Pm^{3+} < La^{3+}$

(C) $Yb^{3+} < Pm^{3+} < La^{3+} < Ce^{3+}$

(D) $Pm^{3+} < La^{3+} < Ce^{3+} < Yb^{3+}$

5. In which process maximum energy released :-

(A) $He_{(g)} + e^- \longrightarrow He^-_{(g)}$

(B) $Cl^-_{(g)} + e^- \longrightarrow Cl^{-2}_{(g)}$

(C) $S_{(g)} + e^- \longrightarrow S^-_{(g)}$

(D) $F_{(g)} + e^- \longrightarrow F^-_{(g)}$

6. A sudden large jump between the values of second and third ionisation energies of an element would be associated with the electronic configuration :-

(A) $1s^2, 2s^2\ 2p^6, 3s^1$

(B) $1s^2, 2s^2\ 2p^6, 3s^2\ 3p^1$

(C) $1s^2, 2s^2\ 2p^6, 3s^2\ 3p^2$

(D) $1s^2, 2s^2\ 2p^6, 3s^2$

7. Which of the following is correctly matched :-

Column –I (Atomic Number)		**Column–II (Position Periodic table)**
(1) 52	–	s–block
(2) 56	–	p–block
(3) 57	–	d–block
(4)109	–	f-block

(A) 1 (B) 2 (C) 3 (D) 4

8. Correct order of EA is :-

(A) Be > N > Li > B > C > O

(B) O > C > Li > B > N > Be

(C) O > C > B > N > Be > Li

(D) Be > N > B > Li > O > C

9. Element X belongs to 4th period. It contains 18 and 1 electron in the penultimate and ultimate orbit respectively. The element X should be :

(A) Normal element

(B) Transition element

(C) Inert gas

(D) Inner-transition element

10. In which of the following reaction size of product ion is less than initial atom/ion :-

(A) $Ne_{(g)} + e^{-} \rightarrow Ne^{-}_{(g)}$

(B) $Na_{(g)} \rightarrow Na^{+}_{(g)} + e^{-}$

(C) $O^{-}_{(g)} + e^{-} \rightarrow O^{-2}_{(g)}$

(D) $Mg^{+2}_{(g)} + e^{-} \rightarrow Mg^{+}_{(g)}$

11. Which anion has the smallest radius :-

(A) H^{-} (B) F^{-}

(C) Cl^{-} (D) Br^{-}

12. Which of the two have almost similar size ?

(A) Fe and Co

(B) Mn and Zn

(C) Ti and Zr

(D) Ca and Sr

13. Magic numbers for III A group elements are :-

(A) 2, 8, 8, 18, 18, 32

(B) 8, 8, 18, 18, 32

(C) 8, 18, 18, 32

(D) 18, 18, 32

14. Maximum EN of Xe in :-

(A) XeF_2

(B) XeF_4

(C) $XeOF_4$

(D) Equal EN in all compounds

15. Which bond is expected to be least polar :-

(A) O–F

(B) P–F

(C) Si–N

(D) B–F

16. Which of the following is not correctly matched

(A) [Xe] $4f^{14}$ $5d^{10}$ $6s^{2}$ ⟶ Transition element

(B) [Rn] $5f^{14}$ $6d^{1}$ $7s^{2}$ ⟶ Inner transition element

(C) [Xe] $4f^{14}$ $5d^{10}$ $6s^{2}$ $6p^{6}$ $7s^{2}$ ⟶ Representative element

(D) [Xe] $4f^{14}$ $5d^{2}$ $6s^{2}$ ⟶ d-block element

17. Which is/are correct about electronegativity order of the following elements ?

(A) P > Si

(B) C > N

(C) C > Br

(D) Sr > Ca

18. Arrange the following in increasing order of energy

(i) $n = 4, \ell = 2, m = -1, s = +½$

(ii) $n = 3, \ell = 2, m = -1, s = -½$

(iii) $n = 4, \ell = 0, m = 0, s = +½$

(iv) $n = 5, \ell = 0, m = 0, s = -½$

(A) (i) < (ii) < (iii) < (iv)

(B) (iii) < (ii) < (iv) < (i)

(C) (iii) < (iv) < (ii) < (i)

(D) (ii) < (iii) < (i) < (iv)

19. Which of the following statements are correct :-

(a) Two unpaired electrons present in Ni^{+2} ion

(b) One electron present in chromium for which $\ell = 0$

(c) Penultimate shell of magnesium has 13 electrons

(d) 18 electrons present in the nucleus of Ca^{+2} ion

(A) a, c, d (B) Only a

(C) a, d (D) a, b, c, d

20. If an electron has spin quantum number of $+\frac{1}{2}$ and magnetic quantum number of -1 it cannot be present in -

(A) f-orbital

(B) d-orbital

(C) p-orbital

(D) s-orbital

SECTION-II : (Maximum Marks: 20)

This section contains 10 questions Candidates have to attempt any 5 questions out of 10. If more than 5 questions are attempted, then only first 5 attempted questions will be evaluated.

The answer to each question is a **Numerical Value.** For each question, enter the correct integer value (In case of non-integer value, the answer should be rounded off to the nearest Integer).

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Full Marks : +4 If correct answer is entered.

Zero Marks : 0 If the question is unanswered.

Negative Marks : –1 If wrong answer is entered.

1. The total number of elements present in group 3 is xy. Find x + y :

2. In the long form of the periodic table, the valence shell electronic configuration of $5s^2\ 5p^4$ corresponds to the element present in group X and period Y, then value of X + Y is ?

3. Number of amphoteric compound among the following is __________

$BeO,\ BaO,\ Be(OH)_2,\ Sr(OH)_2,$

$Al_2O_3,\ Cr_2O_3,\ MnO_2,\ Sb_2O_3,$

4. IP_1 and IP_2 of Mg are 178 and 348 K. cal mol^{-1}. The enthalpy required for the reaction

$Mg \longrightarrow Mg^{2+} + 2e^-$ is :-

5. $A_{(g)} \rightarrow A^{+}_{(g)} + e^{-}$ Ionization energy = 201 kJ/mol

$A_{(g)} \rightarrow A^{2+}_{(g)} + 2e^{-}$ Ionization energy = 440 kJ/mol

$A_{(g)} \rightarrow A^{3+}_{(g)} + 3e^{-}$ Ionization energy = 700 kJ/mol

If the difference between $IE_3 - IE_2$ is X, then the value of $\frac{X}{7}$ is :-

6. How many elements are more electropositive than Cl?

B, N, O, S, P, At, H, Li

7. What is the sum of group number and period number of element with atomic number 31 ?

8. An element has atomic number 25, calculate number of electron in M-shell?

9. The maximum number of electrons that can have principal quantum number, n = 3, and spin quantum number, $m_s = -1/2$, is :

10. How many electron will have m(magnetic quantum number) = 0 in Fe^{+3} ion?

PART-3 : MATHEMATICS

SECTION-I : (Maximum Marks: 80)

This section contains **20 questions**. Each question has 4 options for correct answer. Multiple-Choice Questions (MCQs) **Only one option is correct**. For each question, marks will be awarded as follows:

Full Marks : +4 If correct answer is selected.
Zero Marks : 0 If none of the option is selected.
Negative Marks : –1 If wrong option is selected.

1. The interior angles of a convex polygon form an arithmetic progression with a common difference of 4°. Determine the number of sides of the polygon if its largest interior angle is 172° :-

(A) 14 (B) 12

(C) 16 (D) 13

2. The natural numbers are grouped as follows {1}, {2, 3, 4}, {5, 6, 7, 8, 9}, ... , then the first element of the n^{th} group is-

(A) $n^2 - 1$ (B) $n^2 + 1$

(C) $(n-1)^2 - 1$ (D) $(n-1)^2 + 1$

3. If the 9^{th} term of an A.P. be zero, then the ratio of its 29^{th} and 19^{th} term is :-

(A) 1 : 2 (B) 2 : 1

(C) 1 : 3 (D) 3 : 1

4. If 1, $\log_9(3^{1-x} + 2)$, $\log_3(4.3^x - 1)$ are in A.P. then x equals :-

(A) $\log_3 4$ (B) $1 - \log_3 4$

(C) $1 - \log_4 3$ (D) $\log_4 3$

5. The solutions of

$\log_{\sqrt{3}}x + \log_{\sqrt[4]{3}}x + \log_{\sqrt[6]{3}}x + \ldots\ldots + \log_{\sqrt[16]{3}}x = 36$

(A) $x = 3$ (B) $x = 4\sqrt{3}$

(C) $x = 9$ (D) $x = \sqrt{3}$

6. Three numbers are in A.P. whose sum is 33 and product is 792, then the smallest number from these numbers is :-

(A) 4 (B) 8

(C) 11 (D) 14

7. If the 4^{th}, 7^{th} and 10^{th} terms of a G.P. be a, b, c respectively, then the relation between a, b, c is :-

(A) $b = \frac{a+c}{2}$ (B) $a^2 = bc$

(C) $b^2 = ac$ (D) $c^2 = ab$

8. If a, b, c are in A.P and $(a + 2b - c)(2b + c - a)(c + a - b) = k\,abc$, then k =

(A) 4 (B) 2

(C) 1 (D) None of these

9. If $a_1, a_2, \ldots, a_{15}$ are in A.P. and $a_1 + a_8 + a_{15} = 15$, then $a_2 + a_3 + a_8 + a_{13} + a_{14} =$

(A) 15 (B) 10

(C) 25 (D) None

10. The number of common terms to the two sequence 17, 21, 25, ..., 417 and 16, 21, 26, ..., 466 is : –

(A) 20 (B) 19

(C) 21 (D) 18

11. A golf ball is dropped from a height of 80 m. Each time the ball hits the ground, it rebounds to $\frac{1}{3}$ of the height through which it has fallen. The total distance travelled by the ball is :-

(A) 240 m (B) 160 m

(C) 120 m (D) 320 m

12. The first two terms of an infinite G.P. are together equal to 5 and every term is 3 times the sum of all the terms that follow it ; the common ratio of the G.P. is :-

(A) $\frac{1}{3}$ (B) $\frac{1}{4}$

(C) 3 (D) 4

13. If the sum of the first n natural numbers is one-fifth of the sum of their squares, then n equals :-

(A) 5 (B) 6

(C) 7 (D) 8

14. If $\frac{3+5+7+\ldots+n \text{ terms}}{5+8+11+\ldots+10 \text{ terms}} = 7$, then the value of n is-

(A) 35 (B) 26

(C) 37 (D) 40

15. If the sum of n terms of an A.P. is $3n^2 + 5n$ and $t_m = 164$, then m = :-

(A) 26 (B) 27

(C) 28 (D) None of these

16. If $16x^2 + 4y^2 + z^2 = 2xyz\left(\frac{1}{x} + \frac{2}{y} + \frac{4}{z}\right)$; then x, y, z are in :-

(A) A.P. (B) G.P.

(C) H.P. (D) None of these

17. If a, b, c $\in R^+$ such that a + b + c = 18 then the maximum value of $a^2b^3c^4$ is equal to :-

(A) $2^{19}3^3$ (B) $2^{18}3^3$

(C) $2^{18}3^2$ (D) $2^{19}3^2$

18. 8+88+888+...... to n terms =

(A) $\frac{80}{81}(10^n-1)-\frac{8n}{9}$

(B) $\frac{10}{81}(10^n-1)$

(C) $\frac{80}{81}(10^n-1)+\frac{8n}{9}$

(D) None of these

19. If $\frac{1}{1^2}+\frac{1}{2^2}+\frac{1}{3^2}+\ldots\ldots$ upto $\infty = \frac{\pi^2}{6}$, then value of $\frac{1}{1^2}+\frac{1}{3^2}+\frac{1}{5^2}+\ldots\ldots$ up to ∞ is :-

(A) $\frac{\pi^2}{4}$ (B) $\frac{\pi^2}{6}$

(C) $\frac{\pi^2}{8}$ (D) $\frac{\pi^2}{12}$

20. A man saves Rs. 100 in the first month of his service. In each of the subsequent months his saving increases by twice of the saving of immediately previous month. His total saving from the start of service will be Rs. 409500 after :-

(A) 10 months (B) 14 months

(C) 12 months (D) 19 months

SECTION-II : (Maximum Marks: 20)

This section contains 10 questions Candidates have to attempt any 5 questions out of 10. If more than 5 questions are attempted, then only first 5 attempted questions will be evaluated.

The answer to each question is a **Numerical Value.**

For each question, enter the correct integer value (In case of non-integer value, the answer should be rounded off to the nearest Integer).

Answer to each question will be evaluated according to the following marking scheme:

Full Marks : +4 If correct answer is entered.

Zero Marks : 0 If the question is unanswered.

Negative Marks : –1 If wrong answer is entered.

1. Consider an A.P. $a_1, a_2, a_3, \ldots\ldots$ such that $a_3 + a_5 + a_8 = 11$ & $a_4 + a_2 = -2$, then value of $a_1 + a_6 + a_7$ is :-

2. If a, b, c, d, e, f are A.M's between 2 and 12, then a + b + c + d + e + f is equal to :

3. If $\log_5 2$, $\log_5(2^x - 3)$ and $\log_5\left(\frac{17}{2}+2^{x-1}\right)$ are in A.P. then the value of x is :-

4. If the first term of an A.P. is 2 and the sum of its first five terms is one fourth of the sum of its next five terms, then its common difference is :-

5. If n arithmetic means are inserted between 1 and 31 such that the ratio of the first mean and n^{th} mean is 3 : 29, then the value of n is :-

6. Let a, b, c, d $\in R^+$ and 256 abcd $\geq (a + b + c + d)^4$ and $3a + b + 2c + 5d = 11$ then $a^3 + b + c^2 + 5d$ is equal to :-

7. The value of $2^{1/4} . 4^{1/8} . 8^{1/16} . 16^{1/32}$ .... is :-

8. A student read common difference of an A.P. as -2 instead of 2 and got the sum of first 5 terms as -5. Actual sum of first five terms is :-

9. A club consists of members whose ages are in A.P., common difference being 3 months. If youngest member of club is 7 years old and the sum of ages of all members is 250 years, then the number of members in club is :

10. If the p^{th}, q^{th} and r^{th} terms of a G.P. are ℓ, m and n respectively, then $\ell^{q-r} m^{r-p} n^{p-q}$ is :-