M.M. MEMORIAL PUBLIC SR. SEC. SCHOOL

GLOBAL TALENT SEARCH EXAMINATION # 5

GTSE # 5 (2024)

Pre Nurture & Career Foundation Courses

Time: 3 Hrs. **Maximum Marks: 600**

Name of the Candidate ……

Class :- 9th Reg. No. : GTS/……

Examination Centre: ……

Instructions for the candidate :

Please read the following instructions carefully before opening the Question Booklet :

1. This Question Booklet consists of 150 questions. Subject wise Serial Order of the questions is as following :

Question No.		Subject
1 – 20	**–**	**English**
21 – 70	**–**	**Mathematics**
71 – 90	**–**	**Physics**
91 – 110	**–**	**Chemistry**
111 – 130	**–**	**Biology**
131 – 150	**–**	**Mental Ability**

2. Each multiple choice question has four options namely (A), (B), (C) and (D). Out of which only ONE option is correct (except MSQs). Each correct answer earns a credit of **4 marks**. A wrong answer carries a penalty of – 1 mark as negative marking.

3. **Use black or blue ball point pen only on OMR sheet**. Use of pencil is strictly prohibited.

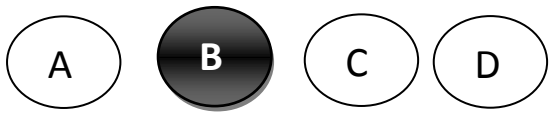
4. Folding, damaging or leaving any identifiable mark on the OMR sheet is strictly prohibited.

5. No Candidate should possess any document other than Admit Card and Photo Identity Card.

6. Candidate may take Question Booklet with him/her only after handling over OMR sheet to invigilating staff.

7. Rough work should be done on the blank space provided on each page of the booklet.

8. For the given 4 alternative, choose only one alternative (expect MSQ's) and dark the selected circle properly as



Your Hard Work Leads To Strong Foundation

ENGLISH

Question No. 1 to 4 are of Assertion and Reason type questions. Each question consists of two statements namely, Assertion (A) and Reason (R) :

1. Assertion (A) : A tense is a form of the verb that allows you to express time.
Reason (R) : The tense of the verb tells us when an event or something existed or when a person did something.
(A) Both A and R are correct and R is the correct explanation of A.
(B) Both A and R are correct but R is not the correct explanation of A.
(C) A is true and R is false.
(D) A is false and R is true.

2. Assertion (A) : An article is a word that comes before a noun to show whether its specific or general.
Reason (R) : Definite article is used to define something in general and indefinite article is used to define something in specific.
(A) Both A and R are correct and R is the correct explanation of A.
(B) Both A and R are correct but R is not the correct explanation of A.
(C) A is true and R is false.
(D) A is false and R is true.

3. Assertion (A) : A verbs is a word which denotes action, possession, state of being.
Reason (R) : There may be sentences without a subject or an object but not without a verb.
(A) Both A and R are correct and R is the correct explanation of A.
(B) Both A and B are correct but R is not the correct explanation of A.
(C) Assertion (A) is true and Reason (R) is false.
(D) Assertion (A) is false and Reason (R) is true.

4. Assertion (A) : I could not attend the meeting because I was suffering from fever.
Reason (R) : It introduces the reason of any action that is why we have used here conjunction of causes.
(A) Both A and R are correct and R is the correct explanation of A.
(B) Both A and R are correct but R is not the correct explanation of A.
(C) A is true and R is false.
(D) A is false and R is true.

Q.5 to 8 are Comprehension Type Questions

Read the passage given below and answer the questions that follow :

A school is a place where many students (5) _____ cultures and attitude **converge.** The first thing they learned in primary school is that there are so many different kinds of people. They experience the pains and pleasures of getting to know their schoolmates. They discover their own strengths and weaknesses. They learn the meaning of tolerance, teamwork, friendship, selflessness, etc. Some experiences are uplifting (6) _____ some are depressing.

5. (A) of (B) with
(C) about (D) between

6. (A) and (B) while
(C) as well as (D) None of these

7. The word 'teamwork' is a/an _____ .
(A) Adjective (B) Adverb
(C) Pronoun (D) None of these

8. Synonymous and Antonymous of '**Converge**' :
(A) Synonymous:Congregate–Antonymous:Disperse
(B) Synonymous:Assemble–Antonymous: Reconstruct
(C) Synonymous:Conversation–Antonymous:Meet
(D) All of these

**********ROUGH WORK**********

Q.9 to 16 are SCQ's (Single Choice Questions):

9. If he _____ in Delhi, he _____ us.

(A) was / will visit (B) were / would visit

(C) will be / will visit (D) is / would visit

10. He _____ smoke but now he has given up.

(A) used to (B) can

(C) ought to (D) must not

11. Report the dialogue between Sherry and Soni by completing the sentences:

Sherry : Why did you not come here on time?

Soni : I had really committed a mistake.

Sherry asked Soni why she _____ not come there on time. Soni replied that she _____ really committed a mistake.

(A) do, has (B) had, have

(C) had, had had (D) had, has had

12. Choose the **correct statement**:

(A) He sweared that he had not stolen the bag.

(B) He swore that he had not stolen the bag.

(C) He was swearing that he had not stolen the bag.

(D) He swears that he had not stolen the bag.

13. After _____ fourth lesson, English students have _____ break of _____ hour and _____ half for dinner.

(A) x, a, a, a (B) the, a, x, a

(C) the, the, an, a (D) the, a, an, a

14. Change the following sentence into **passive voice** :

Who asked you to draft this letter?

(A) By whom you are asked to draft this letter?

(B) By whom have you been asked to draft this letter?

(C) By whom were you asked to draft this letter?

(D) By whom you were asked to draft this letter?

15. Choose the phrase with the **gerund** from the following :

(A) Why do you ignore my warning?

(B) Warnings ignored by her.

(C) To ignore warnings.

(D) Ignoring warnings.

16. He asked her name and _____ told _____ _____ .

(A) she/him/her

(B) he/her/her

(C) she/her/his

(D) she/him/hers

Q.17 to 20 are MSQs (Multiple Selection Questions) :

17. Neither Mary nor her husband_____ English.

(A) spoke (B) speaks

(C) are speaking (D) None of these

18. Choose the correct spelt

(A) Haraasment

(B) Censure

(C) Procedure

(D) Surrender

19. Choose assertive sentence/s:

(A) She does not work hard.

(B) Do come.

(C) Everybody accepts his version.

(D) Please open the door.

20. Identify the error/s and supply correction for the following note in a FLY HIGH ACADEMY manual:

Note : FLY HIGH ACADEMY Riverbank, Patna.
We have made more airhostesses than all other academy puts together.

(A) made - make (B) than - then

(C) academy - academies (D) puts - put

ROUGH WORK

MATHEMATICS

Assertion Reason Type Question

Direction:- In each of the following question, a statement of assertion (A) is followed by a corresponding statement of Reason (R) mark the correct answer using (A), (B), (C) and (D).

21. Assertion (A) :- If $\sqrt{2}$ =1.414, $\sqrt{3}$ =1.732 then, $\sqrt{5}$ =$\sqrt{2}$ +$\sqrt{3}$

Reason (R):- Square root of a positive real number always exists.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

22. Assertion (A) :- If P(x) = a$x + b$, a $\neq 0$ is a linear polynomial, then $x = \frac{-b}{a}$ is the only zero of P(x).

Reason (R):- A linear polynomial has one and only one zero.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

23. Assertion (A) :- All the points (1, 0), $(-1,0)$, (2, 0) and (5,0) lie on the $x-\ axis$.

Reason (R):- Equation of the $x - axis$ is y = 0.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

24. Assertion (A) :- Point $(3,-4)$ lies in 4th Quadrant

Reason (R):- Mirror image of (x, y) in the $x - axis$ is $(-x, y)$

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

25. Assertion (A):- A triangle can have two obtuse angles

Reason(R):- Sum of the three angles in a triangle is 180°

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

26. Assertion (A):- In ΔABC and ΔPQR, AB = PQ, AC= PR and $\angle BAC = \angle QPR$, then $\Delta ABC \cong \Delta PQR$.

Reason (R):- Both the triangle are congruent by SSS congruence.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

27. Assertion (A): If the diagonals of a parallelogram ABCD are equal , the $\angle ABC = 90°$

Reason (R):- If the diagonals of a parallelogram are equal, it becomes a rectangle.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

**********ROUGH WORK**********

28. Assertion (A):- The area of an equilateral triangle is $16\sqrt{3}\ cm^2$ whose each side is 8cm.

Reason (R):- Area of and equilateral triangle is given by $\frac{\sqrt{3}}{4}(\text{side})^2$.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

29. Assertion (A):- The height of a cone is 15cm. If its volume is $1570cm^3$, then radius of the base is 10cm.

Reason (R):- the dimension of room are $12\text{m} \times 4m \times 3m$. The maximum length of an iron rod which can be placed in room is 13cm.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

30. Assertion (A):- The difference between the maximum and minimum values of a variable is called its range.

Reason (R):- The number of times a variate occurs in a given date is called range.

(A) Both assertion and reason are true and reason is correct explanation of assertion

(B) Both assertion and reason are true but reason is not correct explanation of assertion

(C) Assertion is true but reason is false.

(D) Assertion is false but reason is true.

Comprehensive Type Question

Direction:- Mathematics teacher of a school took her 9^{th} standard students to show Red fort. It was a part of their Educational Trip. The teacher had interest in history as well. she nauseated the facts of Red fort to students. Then the teacher said in this monument one can find combination of solid figures. There are 2 pillars which are cylindrical in shape Also 2 domes at the corners which are hemispherical 7 smaller domes at the centre. Flag hoisting ceremony on Independence Day takes place near these domes.

31. How much cloth material will be required to cover 2 big domes each of radius 2.5 metres? (Take $\pi = \frac{22}{7}$)

(A) $78.57m^2$ (B) $80m^2$

(C) $68.75m^2$ (D) $70.5m^2$

32. Write the formula to find volume of cylindrical pillar.

(A) $\frac{1}{3}\pi r^2 h$ (B) $\pi r^2 h$

(C) $2\pi rh$ (D) $2\pi r(r+h)$

33. Find the lateral surface area of two pillars if height of the pillar is 7m and radius of the base is 1.4m

(A) $123m^2$ (B) $123.2m^2$

(C) $133.2m^2$ (D) $100m^2$

34. What is the ratio of sum of volumes of two hemispheres of radius 1cm each to the volume of a sphere of radius 2cm?

(A) 1:2 (B) 1:4 (C) 1:8 (D) 2:7

**********ROUGH WORK**********

35. Write the formula to find volume of a hemisphere?

(A) $\frac{2}{3}\pi r^2$ (B) $\frac{2}{3}\pi r^3$

(C) $4\pi r^2$ (D) $\frac{4}{3}\pi r^3$

Single choice Questions (SCQs)

36. Find the value of $\left(\frac{81}{16}\right)^{-3/4}$

(A) $\frac{27}{8}$ (B) $\frac{8}{27}$

(C) $\frac{3}{2}$ (D) $\frac{2}{3}$

37. If $x = 8 + 3\sqrt{7}$ then find $x^2 + \frac{1}{x^2}$

(A) 254 (B) 154

(C) 300 (D) 286

38. The LCM of x^3 - 8 and x^2 - 5x + 6

(A) (x - 2) (B) x^2 + 2x + 4

(C) (x - 2) (x^2 + 2X + 4) (D) (x^3 - 8) (x - 3)

39. If $x = 2$ is a zero of the polynomial $2x^2 + 3x - P$, then value of P is

(A)-4 (B) 0

(C) 8 (D) 14

40. If $x + \frac{1}{x} = 7$, then find the value of $x^3 + \frac{1}{x^3}$

(A) 322 (B) 341

(C) 350 (D) 346

41. The equation of $y - axis\ is$

(A) $x + y = 0$ (B) $y = 0$

(C) $x = 0$ (D) $x - y = 0$

42. Factorise,

$4\,(x-y)^2 - 12(x-y)(x+y) + 9(x+y)^2$

(A) $(x+y)^2$ (B) $(x+5y)^2$

(C)$(x-5y)^2$ (D)$(x-y)^2$

43. Abscissa of a point is positive in

(A) i and ii quadrant (B) i and iv quadrant

(C) i quadrant only (D) iv quadrant only

44. Number of line segments determined by 3 distinct collinear points P, Q and R is

(A) 1 (B) 2

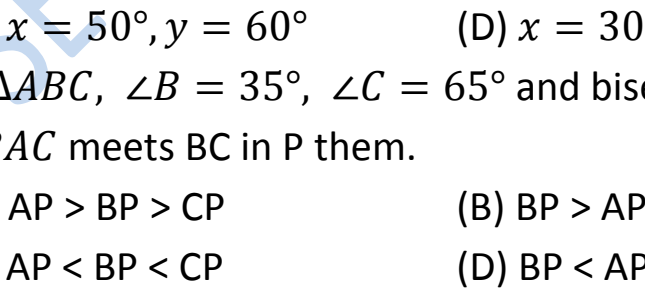
(C) 3 (D) 4

45. The angle which is 8 times of its complement is ____

(A) 80° (B) 10°

(C) 90° (D) 180°

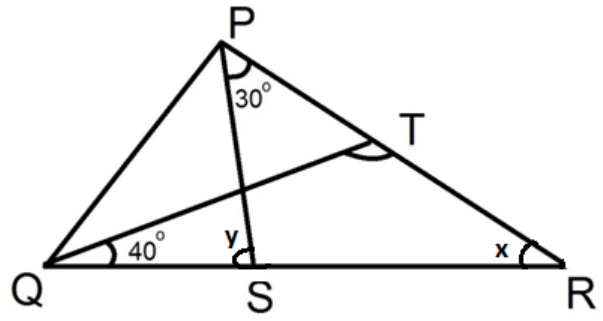
46. In the figure given below, the line l ‖ m then angle x is equal to _____



(A) 110° (B) 70°

(C) 60° (D) 50°

47. In the given figure, if QT⊥PR ∠TQR = 40° and ∠SPR = 30°, find x, y.



(A) $x = 50°, y = 80°$ (B) $x = 50°, y = 50°$

(C) $x = 50°, y = 60°$ (D) $x = 30°, y = 30°$

48. In ΔABC, $\angle B = 35°$, $\angle C = 65°$ and bisector of $\angle BAC$ meets BC in P them.

(A) AP > BP > CP (B) BP > AP > CP

(C) AP < BP < CP (D) BP < AP < CP

49. In ΔABC, ∠C = ∠A and BC = 6cm and AC = 5cm. Them the length of AB is

(A) 6cm (B) 5cm

(C) 13cm (D) 2.5cm

50. The diagonals of a rectangle ABCD intersect each other at O If ∠BOC = 44° then ∠OAD. =

(A) 58° (B) 68° (C) 64° (D) 62°

51. The figure obtained by joing the mid-Point of the sides of a rhombus-taken in order is

(A) a rhombus (B) A rectangle

(C) a square (D) any parallelogram

**********ROUGH WORK**********

52. If the lengths of one side and one diagonal of a rhombus are 20m and 24m respectively, then its area is _____

(A) 284 m^2 (B) 192 m^2

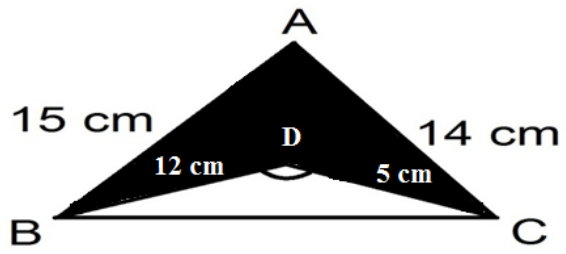
(C) 96 m^2 (D) 384 m^2

53. If an isosceles right triangle has area $8cm^2$, the length of its hypotenuse is

(A) 4 cm (B) $2\sqrt{6}$ cm

(C) $4\sqrt{2}$ cm (D) $4\sqrt{3}$ cm

54. Find the area of the shaded region in the following figure CD⊥BD.



(A) 54 cm^2 (B) 64 cm^2

(C) 74 cm^2 (D) 84 cm^2

55. The length of the longest pole that can be put in a room of dimensions 10m× $10m \times 5m$ is

(A) 15 m (B) 16 m

(C) 10 m (D) 12 cm

56. A cuboidal box is 25cm long and 12cm wide. How high must it be made to hold 576cm^3 of sand?

(A) 1.5 cm (B) 1.64 cm

(C) 1.82 cm (C) 1.92 cm

57. A river 2m deep and 40m wide is flowing at the rate of 3km per hour. The volume of water that runs into the sea per minute is

(A) 2000 m^3 (B) 3000 m^3

(C) 4000 m^3 (D) 6000 m^3

58. If a, b are complementry angles and b, c are supplemntry angles. If the average of a and c is 85° the find a + b + c.

(A) 200° (B) 220°

(C) 210° (D) 240°

59. In a cylinder, if radius is halved and height is doubled them volume will be

(A) same (B) doubled

(C) halved (D) four times

60. The radius of a wire is decreased to one - fourth. If volume remains the same, the length will become.

(A) 8 times (B) 9 times

(C) 12 times (D) 16 times

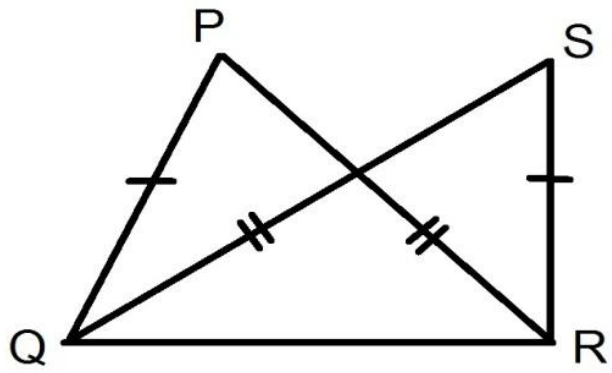
Multiple Selection Questions (MSQs)

61. If supplement of 123° is added to complement of 52°, then their sum is

(A) > 90° (B) < 180°

(C) < 360° (D) < 90°

62. In the given figure PQ = SR and PR = SQ then



(A) $\Delta PQR \cong \Delta SRQ$

(B)∠PQR = ∠SRQ

(C) PQ = QR

(D) ∠PQR = ∠QSR

63. Which of the following is not false

(A) Every parallelogram is a trapezium

(B) Every square is a Trapezium

(C) Every Trapezium is a square

(D) Every Trapezium is a Parallelogram

64. P is a point on line AB and PQ is a ray such that ∠QPA = 7x and ∠QPB = 5x, then value of (8x-10°)

(A) 118°

(B) 110°

(C) Complement of 90°

(D) Supplementary of 70°

**********ROUGH WORK**********

65. Choose the false statement among these given below.

(A) There is one Rational Number between two irrational numbers

(B) There is no rational number between two irrational numbers

(C) There are infinitely many rational numbers between two irrational numbers

(D) There is no irrational number between two irrational numbers.

66. Which are not incorrect statement among these given below.

(A) Degree of zero polynomial is not defined

(B) Let, P(x) any polynomial of degree greater than or equal to one and let a be and real number. If P(x) is divided by linear polynomial $x - a$, then remainder is P(a).

(C) If P(x) is a polynomial of degree n $\geq$ 1 and a is any real number then, $x - a$ is a factor of P(x), if P(a) = 0

(D) If (a + b + c) = 0 then $a^3 + b^3 + c^3 = 3a^2b^2c^2$

67. Choose the correct among these given below.

(A) Sign of abscissa and ordinate of a point in second quadrant are negative and positive respectively.

(B) Abscissa of all points on $x - axis$ is zero.

(C) The equation of $x - axis$ is $y = 0$

(D) A point both of whose Co—ordinates are negative will lie in 3rd Quadrant.

68. Choose the correct among these given below.

Two angles are called adjacent angles if.

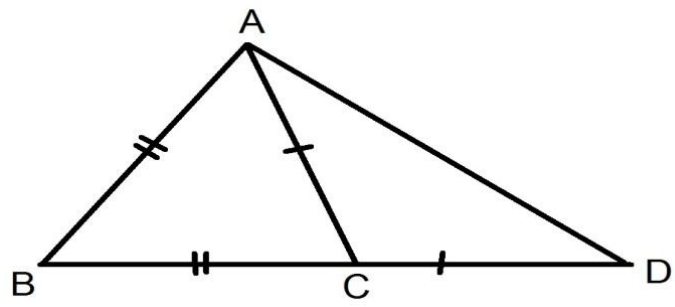
(A) They have the same vertex

(B) They have a common arm

(C) Their non - common arms are on either of the common arm

(D) They are supplementary.

69. In the given figure, AB =BC and AC = CD find ∠BAD : ∠ADB.



(A) 3 : 1 (B) 1 : 3

(C) 2 :3 (D) $9x : 3x$

70. If ab = 1 then $\frac{1}{1+a^{-1}} + \frac{1}{1+b^{-1}}$ =

(A) b (B) 1

(C) a° (D) $\sqrt{1}$

PHYSICS

Assertion/Reason questions

Directions:- The questions from 71 to 74 below consist of an assertion and a Reason. Use the following key to choose the appropriate answer.

(A) Both A and R are True and R is the correct explanation of A.

(B) Both A & 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

71. Assertion (A):- A work done by the gravitational force is zero in closed path.

Reason (R): Gravitational force is a conservative force

72. Assertion (A):- A non conservative force 'F' can be given by the relation F = $-\frac{dU}{dx}$. (U → Potential Energy)

Reason (R):- Work done by the conservative force is independent of the path followed.

73. Assertion (A):- Noise is irritating for the ears.

Reason (R):- Musical sounds consist of a regular succession of pulses in which there is no sudden change in the amplitude.

**********ROUGH WORK**********

74. Assertion (A): If a body is thrown upwards, the distance covered by it in the last second of upward motion is about 5m irrespective of its initial speed.
Reason (R): The distance covered in the last– second of upward motion is equal to that covered in the first second of downward motion when the particle is dropped

Comprehension type questions

Direction : The questions from 75 to 78 have to be answered from the following paragraph.

Two strings X and Y are tied to the two opposite faces of the block. If we apply a force by pulling the string X, the block begins to move to the right. Similarly, if we pull the string Y, the block moves to the left. But, if the block is pulled from both the sides with equal forces, the block will not move. Such forces are called balanced forces and do not change the state of rest or of motion of an object. Now, let us consider a situation in which two opposite forces of different magnitude pull the block. In this case, the block would begin to move in the direction of the greater force. Thus, the two forces are not balanced and the unbalanced force acts in the direction the block moves. This suggests that an unbalanced force acting on an object brings it in motion. Force is push or pull.

75. Force is nothing but
(A) Pull (B) Nothing push
(C) Both push and pull (D) None of these

76. There will be a change in the speed or in the 3 direction of motion of a body when it is acted upon by :-
(A) An unbalanced force (B) Balanced force
(C) Uniform force (D) Zero force

77. When unbalanced forces act on a body, the body :-
(A) Must remains at rest
(B) Must move with uniform velocity
(C) Must be accelerated
(D) Must be moved along a circle.

78. A force F = 5 Newton is applied on the particle in the direction of displacement which displaces it from the point (2, -1) to origin (0, 0), the magnitude of work done on the particle is
(A) $\sqrt{5}$ J (B) $3\sqrt{5}$ J
(C) $5\sqrt{5}$ J (D) $5/\sqrt{5}$ J

Single Choice Questions (SCQs)

79. A Particle is moving in a circular path of radius 'R' the displacement after half a circle would be
(A) Zero (B) πR
(C) 2R (D) 2πR

80. The numerical ratio of displacement to distance for a moving object is
(A) always less than 1
(B) always equal to 1
(C) always more than 1
(D) equal or less than 1

81. The linear momentum of an object is 250 g cm/sec. If the velocity of the object is 5m/sec, then the mass of the object is
(A) 0.5 g (B) 5 kg
(C) 0.5 mg (D) 5 mg

82. Which of the following is true about force?
(A) forces is invisible
(B) force can move a body
(C) It can deform a body
(D) All of the above

**********ROUGH WORK**********

83. The kinetic energy of an object is K. If its velocity is doubled, then its kinetic energy will be

(A) K (B) 2K

(C) 4K (D) $\frac{K}{4}$

84. An object of mass (m) is moving with velocity (v). What is the velocity of the object so that its kinetic energy becomes 4 times its original value?

(A) $\frac{V}{2}$ (B) 2V

(C) $\frac{V}{4}$ (D) 4V

85. A force of 100 N acts on 50 Kg for 2 seconds. The same force acts on 25 Kgs for 2 seconds. The ratio of the momenta produced, and the accelelerations caused in two bodies respectively are –

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

(C) 1 : 2, 1 : 1 (D) 3 : 5, 7 : 4

86. Which of the following was NOT a contribution of Newtons to science?

(A) the first good experimental measure of G, the gravitational constant of proportionality.

(B) the law of universal gravitation

(C) F = ma

(D) explantation of optical phenomena

Multiple Selection Questions (MSQs)

87. The numerical ratio of displacement to distance for a moving object is

(A) always less than 1

(B) always equal than 1

(C) always more than 1

(D) always equal to 0

88. Which of the following statements are wrong about the velocity of sound in air :-

(A) decrease with increase in temperature

(B) increase with decrease in temperature

(C) decreases as humidity increases

(D) independent of density of air

89. If the Mass of an object is 1 kg, What is the weight of that block on earth surface and weight of the same Block measured on the surface of Moon. (Take g = 10 m/s^2)

(A) Weight on earth = 10 N

(B) Weight on Moon = 1.67 N

(C) Weight on Moon = 2.67 N

(D) Weight on earth = 9.8 N

90. In our Solar System, the distance between Sun and Earth is D and the distance between earth and moon is d, then choose the incorrect ones where,

M_e = Mass of Earth

M_S = Mass of Sun

M_m = Mass of Moon

(A) Force of attraction between Earth & Moon is $\frac{GM_eM_m}{D^2}$

(B) Force of attraction between Earth & Moon is $\frac{GM_eM_m}{d^2}$

(C) Force of attraction between sun & Earth is $\frac{GM_sM_e}{D^2}$

(D) Force of Repulsion between Sun & Earth is $\frac{GM_sM_e}{D^2}$

CHEMISTRY

Assertion/Reason questions

Directions:- The questions from 91 to 94 below consist of an assertion and a Reason. Use the following key to choose the appropriate answer.

(A) Both A and R are True and R is the correct explanation of A.

(B) Both A & 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

91. Assertion (A) – In a water compound, ratio of mass of Hydrogen to Oxygen is always 1 : 8

Reason (R) – Standard weight of Hydrogen molecule is 8 gram.

**********ROUGH WORK**********

92. Assertion (A) :- Dilution of any coloured compound in water shows light colour than original colour of compound,
[Hint – Potassium permanganate dissolve in water]
Reason (A) :- When dilution is done by water, the quantity of particle getting decreases by dilution hence it shows light Colour

93. Assertion (A):- Gases exert pressure on the walls of the container
Reason (R):- The intermolecular force of attraction is very strong in gases

94. Assertion (A):- When a solid melts, its temperature remains the same
Reason (R):- The heat gets used up in changing the state by overcoming the force of attraction between the particles

Comprehension type questions

Direction : The following questions Q.95 to Q.98 have to be answered from the following.

The temperature at which a liquid starts boiling at the atmospheric pressure is known as its boiling point. Boiling is a bulk phenomenon. Particles from the bulk of the liquid gain enough energy to change into the vapour state. A change of state directly from solid to gas without changing into liquid state is called sublimation. A mixture of Ammonium chloride and salt can be separated by sublimation technique. The direct change of gas to solid without changing into liquid is called deposition.

95. A change of state directly from solid to gas without changing into liquid state is called_____
(A) Sublimation
(B) Deposition
(C) Boiling point
(D) None of these

96. Which of the following is correct ?
(1) Evaporation is a surface phenomenon, which means particles from the surface change into vapour state.
(2) Boiling is a bulk phenomenon, which means particles from the bulk (whole) of the liquid change into vapour state.
(3) Deposition is the change of gaseous state directly to solid without converting into the liquid state.
(4) The state of matter can be changed by changing its temperature only.
(A) 1, 3 &4 (B) 1, 2 & 3
(C) 1, 2 & 4 (D) 2, 3 & 4

97. The boiling point of water at sea level is:-
(A) 0°C (B) 273 K (C) 373 K (D) 273 °C

98. The solid which undergoes sublimation_____
(A) Ice cubes (B) naphthalene
(C) Sodium chloride (D) Potassium chloride

Single Choice Questions (Q.99 to Q.106)

99. Which of the following has the same number of protons ?
(A) Isobars (B) Isoelectronic
(C) Isotopes (D) Isotones

100. A brief information about two atoms X and Y is given:-
X:- Atomic Number = 7 Mass Number = 14
Y:- Atomic Number = 7 Mass Number = 15
Which of the following is correct about these two atoms?
(A) Electronic configuration of X is 2, 8, 4 while that Y is 2, 8, 5
(B) Both X and Y contain 7 neutrons.
(C) X has 2 electron shells while Y has 3 electron shells
(D) Both X and Y have 5 valence electrons

**********ROUGH WORK**********

101. Fill in the blanks P, Q, R and S left in the table with appropriate words.

	Properties	Solid	Liquid	Gas
1.	Interparticle spaces	Very less	Comparatively large	P
2.	Inter molecular forces	Q	Weak	Very weak
3.	Compressibility	R	Very small	High
4.	Diffusion	Negligible	S	Very fast

	P	Q	R	S
(A)	Very large	Strong	Negligible	slow
(B)	Large	Weak	Small	Fastest
(C)	Less	Strong	High	Slow
(D)	Large	Strong	Strong	Fast

102. Which one of the following sets of phenomenon would increase on raising the temperature ?

(A) Diffusion, evaporation, compression, solubility

(B) Evaporation, compression of gases, solubility

(C) Evaporation, diffusion, expansion of gases

(D) Evaporation, solubility, diffusion, compression of gases

103. Atomic models have been improved over the years. Arrange the following atomic models in the order of their chronological order –

(i) Ruter ford's atomic model

(ii) Thomson's atomic model

(iii) Bohr's atomic model

(A) (i), (ii) and (iii) (B) (ii), (iii) and (i)

(C) (ii), (i) and (iii) (D) (iii), (ii) and (i)

104. Which of the following statements is incorrect about the state of matter?

(A) The force of attraction between the gas particles is very less.

(B) Plasma consists of super energetic and super excited particles

(C) The plasma glows with a special colour depending on the nature of the gas

(D) Bose – Einstein condensate is formed by heating gas of extremely low density

105. Blood and sea water are

(A) Both are compounds

(B) Both mixtures

(C) Blood is a mixture whereas sea water is a compound

(D) Blood is a compound and sea water is a mixture

106. In its outermost shell, a metal cannot have

(A) 1 electron

(B) 2 electron

(C) 3 electron

(D) 5 electron

Multiple Selection Questions (Q.107 to Q.110)

107. The number of water molecules is maximum in :-

(A) 18 molecules of water

(B) 1.8 g of water

(C) 18 g of water

(D) 18 moles of water

108. Name the salts which contain the same number of ions per molecule :

(A) Aluminium phosphate

(B) Potassium sulphate

(C) Barium phosphate

(D) Magnesium nitride

109. Why was the Thomson's Model of an atom failed ?

(A) It could not explain the screening of negative charges from that of positive.

(B) It did not tell about the presence of electrons.

(C) It did not give an idea about discrete energy levels.

(D) It explained the atom as a whole to be electrically neutral.

110. Which of the following are physical changes?

(A) Melting of iron – metal

(B) Rusting of iron

(C) Bending of an iron rod

(D) Drawing of a wire of iron metal

**********ROUGH WORK**********

BIOLOGY

Assertion/Reason questions

Directions:- The questions from 111 to 114 below consist of an assertion and a Reason. Use the following key to choose the appropriate answer.

(A) Both A and R are True and R is the correct explanation of A.

(B) Both A & 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

111. Assertion (A) :- Cell wall is a non-living part of the cell.
Reason (R) :- It offers protection, definite shape and support.

112. Assertion (A) :- Leucoplasts perform photosynthesis.
Reason (R) :- Chloroplasts store fats, starch and proteins.

113. Assertion (A):- All plants and animals are composed of cells.
Reason (R):- Plants and animals made up of DNA.

114. Assertion (A):- Nitrogen is a micronutrient.
Reason (R):- Micronutrients are nutrients required in small quantity

Comprehension type questions (Q.115 to Q.118)

The following questions have to be answered from paragraph.

Plant cells, in addition to the plasma membrane, have another rigid outer covering called the cell wall. The cell wall lies outside the plasma membrane. The plant cell wall is mainly composed of cellulose. Cellulose is a complex substance and provides structural strength to plants. When a living plant cell loses water through osmosis there is shrinkage or contraction of the contents of the cell away from the cell wall. This phenomenon is known as plasmolysis.

115. Which of the following is the main constituent of cell wall?
(A) Proteins (B) Lipids
(C) Lipoproteins (D) Cellulose

116. Which of the following is outer most covering of the plant cell?
(A) Cell membrane (B) Plasma membrane
(C) Cell wall (D) Cellulose

117. Choose the correct set of statements from the following.
Statement 1 – Cell wall lies outside the plasma membrane
Statement 2 – Cell wall is mainly composed to cellulose
Statement 3 – Cellulose is a complex substance and provides structural strength to plants.
Statement 4 – Cellulose is an organic compound.
(A) Statement 1 & 3 only
(B) Statement 1 & 2 only
(C) Statement 3 & 4 only
(D) All statements are correct

118. The movement of water molecules through a semipermeable membrane is called:
(A) Diffusion (B) Osmosis
(C) Contraction (D) None of these

Single Choice Questions:- (Q.119 to Q. 126)

119. Which is not a principal of the cell theory?
(A) All matter consist of at least one cell
(B) Cells are the basic unit of life
(C) All cells arise from pre-existing cells.
(D) All organisms are made of one or more cells.

120. Fats are stored in human body as
(A) Cuboial epithelium (B) Bones
(C) Ariloar tissue (D) Adipose tissue

**********ROUGH WORK**********

121. The best bee variety for commercial honey production is –

(A) Apis Cerena Indica (B) Apis dorsata

(C) Apis florae (D) Apis mellifera

122. During experiment, a peel from a cut bulb of onion is immediately kept in water: why

(A) To prevent drying up.

(B) To prevent its tearing

(C) To prevent its folding and wrinkling

(D) To keep the peel alive

123. Black reaction of camillo golgi consisted of staining with

(A) Charcoal

(B) Silver nitrate

(C) Methylene blue

(D) Sodium citrate

124. Read the following statements carefully.

Which of them are true (T) and which of them are false (F) in sequence as [(i), (ii), (iii), (iv)]

(i) Granum is the site of dark reaction during photosynthesis, whereas stroma is the site of light reaction during photosynthesis.

(ii) Lysosome are formed by the joint activity of endoplasmic reticulum and. Golgi complex.

(iii) Each 70S ribosome consist of a large 50S subunit and a small 30S subunit.

(iv) The chromosome in which the centromere is near the end and consequently its one arm is very short and the other arm very long, is called acrocentric chromosome.

(A) T.T.F.F (B) F.T.T.T

(C) F.F.F.T (D) T.F.T.F

125. ..... is not found in Xylem tissues.

(A) Siene tubes

(B) Xylem Parenchyma

(C) Vessels

(D) Tracheids

126. Which of the following statements is incorrect?

(A) Fertilisers contain much higher amount of nutrients in comparison to the manures

(B) Manures add a great amount of organic matter in the form of humus in the soil

(C) Both fertilisers and manures are nutrient specific

(D) Fertilisers give short – term benefits whereas manures give long–term benefits

Multiple Selection Questions:- (Q.127 to Q.130)

127. If cell of onion peel and RBC are separately kept in hypotonic solution. Choose the correct observation for onion peel and RBC.

(A) Both cell with swell

(B) RBC will burst while cell of onion peel will resist bursting to some extent.

(C) RBC cell shrink while onion peel burst

(D) RBC will swell due to endosmosis and burst while onion peel doesn't burst due to cell wall.

128. Find out correct statement about manure

(A) Manure contain large quantities of organic matter and small quantity of nutrient

(B) It increase the water holding capacity of sandy soil

(C) It help in draining out excess of water from clayey soil

(D) Its excessive use pollutes environment because it is made of animal excretory waste.

129. Choose the incorrect statement

(A) Tissue that form the inner lining of our mouth is epithelial tissue

(B) Tendon are non fibrous tissue and fragile

(C) Pits are observed in cell wall of parenchyma in plants

(D) Meristmatic tissue which increase girth of plant is a type of primary meristem

**********ROUGH WORK**********

130. Choose the incorrect statement.

(A) Most common type of plastid is leucoplast in leaves of plant

(B) Amoeba is eukaryotic cell and ribosome is present in amoeba and bacteria

(C) Cell arise from pre-existing cell was stated by Robert Hooke.

(D) Cell membrane is made up of lipid bilayer and it has two component hydrophobic which is water loving and hydrophillic end which is water resistant.

MENTAL ABILITY

131. Choose the correct alternative to replace the mark(s) '?'.

baa __?__ ba __?__ bb__?____a ___?____b __?___ ab ___?____ aab

(A) baabab (B) abababab

(C) bababa (D) aaabbb

132. Find the missing term in the given series.

CMP, ENN, HOK, LPG, ?

(A) PRC (B) OQA

(C) RPC (D) QQB

133. Identify the correct number which can take place the missing number.

169 : ? :: 196 : 13

(A) 15 (B) 14

(C) 13 (D) 12

134. Choose out the different one.

(A) 782 (B) 682

(C) 231 (D) 275

135. In a certain code language 'COMBO' is written as '* # $ ₹ #' and 'CARRIER' is written as '*ϕ ππ θ% π'. How will the word 'MEMBER' be written in that code language?

(A) $ θ $ ₹ % π (B) $ % $ ₹ % π

(C) $ % θ $ % π (D) $ % $ ϕ % π

136. If 'Ki top joe' means 'Who are you', 'lin ki fin' means 'they are honest', 'fin ti joe' means 'who is honest', then what do you mean by 'lin'?

(A) they (B) honest

(C) who (D) are

137. Read the following information carefully and answer the question that follows.

(i) P * Q means P is the father of Q.

(ii) P ÷ Q means P is the sister of Q.

(iii) P $ Q means P is the brother of Q.

(iv) P # Q means P is the wife of Q.

How is A related to B in "A ÷ C $ D # B"?

(A) Mother (B) Aunt

(C) Sister – in – law (D) Mother – in – law

138. There are five friends A, B, C, D and E. D is not as tall as A. A is taller than C but shorter than B.E is shorter than C. No two are equal in height. Who is the tallest?

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

139. Ravi is older than Dinesh but younger than Manav. Dinesh is as old as Paras but older than Mukesh. Then Paras is

(A) Older than Mukesh

(B) Shorter than Dinesh

(C) Older than Manav

(D) Older than Ravi

Direction: A number arrangement machine when given an input of numbers rearranges them by following a particular rule in each step as given below:

Input	:	45	68	42	12	18	56
Step I	:	68	45	42	12	18	56
Step II	:	68	56	45	42	12	18
Step III	:	68	56	45	42	18	12

Step III is the final/last step.

As per the pattern in above rearrangement, answer the following questions.

**********ROUGH WORK**********

140. If the input is "16 66 32 55 40 54", then what should be the step III?

(A) 66 55 54 40 32 16
(B) 16 32 40 54 55 66
(C) 66 55 54 16 32 40
(D) 66 55 16 32 40 54

Directions: A number arrangement machine when given an input line of numbers rearrange them by following a particular rule in each step as given below:

Input :	**60**	**30**	**45**	**12**	**55**
Step I :	12	60	30	45	55
Step II :	12	30	60	45	55
Step III :	12	30	45	60	55
Step IV:	12	30	45	55	60

The step IV above is the last step of the rearrangement.

Identify the rule followed in the above steps and answer the questions given below.

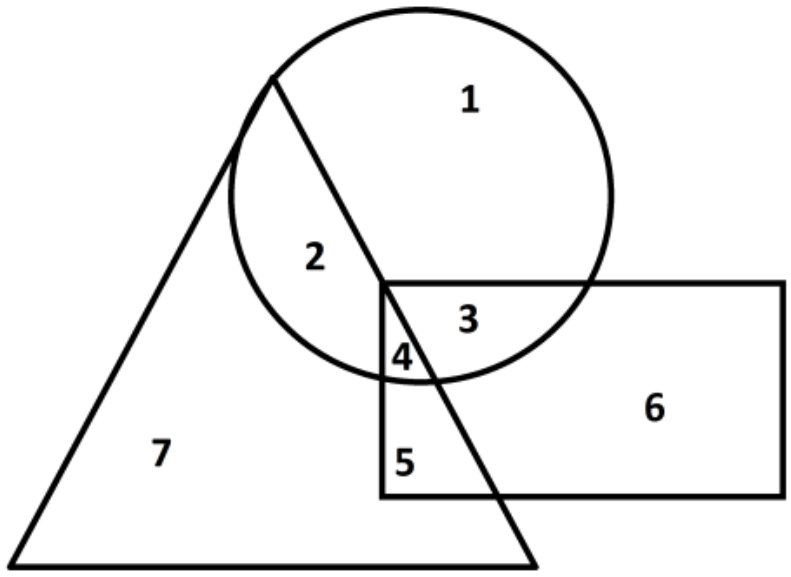
141. What will be the **step II** for the following input?

Input :	**100**	**12**	**65**	**02**	**90**
(A) 02	12	100	65	90	
(B) 02	100	12	65	90	
(C) 02	12	65	90	100	
(D) 02	90	12	65	100	

142. Which will be the last step for the input given below?

Input :	**200**	**110**	**120**	**100**	**180**
(A) 100	110	120	200	180	
(B) 100	120	110	200	180	
(C) 100	110	120	180	200	
(D) 100	120	110	180	200	

143. In the given Venn diagram, if circle represents 'Politicians', triangle represents 'Doctors' and rectangle represents 'Married people', then which of the following number represents the Married doctors who are not Politicians?



(A) 4 (B) 3
(C) 2 (D) 5

144. How many pairs of letters in the given word each of which has as many letters between them in the word as in the English alphabet?

S I G N A T U R E

(A) 3 (B) 4
(C) 5 (D) 6

145. Kuldeep is 9 ranks ahead of Gauri who ranks nineteenth in the class in the annual examinations. What is Kuldeep's rank from the bottom if there are 38 students in the class?

(A) 30^{th}
(B) 9^{th}
(C) 29^{th}
(D) 22^{nd}

ROUGH WORK

146. It is given that 'ϕ' denotes 'divided' by', '@' denotes 'plus', '#' denotes 'minus' and '*' denotes 'multiplied by', then what is the value of the expression given below?

14 # 99 ϕ 33 @ 11 * 5

(A) 56 (B) 46

(C) 66 (D) 36

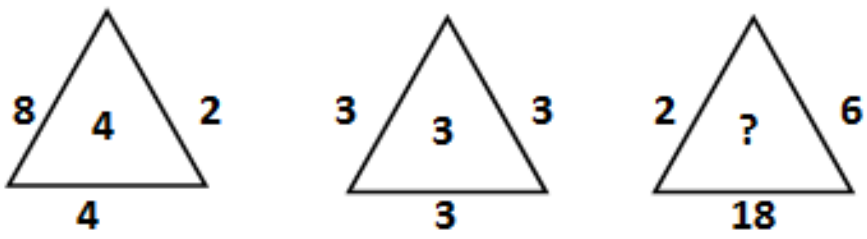
147.

5	4	9
6	3	?
7	2	4
65	20	45

(A) 1 (B) 2

(C) 3 (D) 4

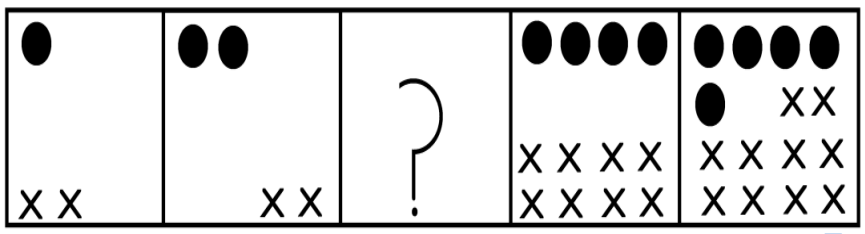
148.

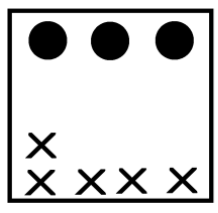


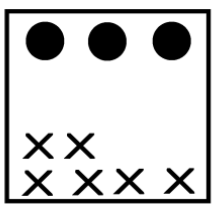
(A) 6 (B) 7

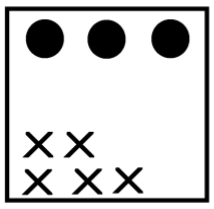
(C) 8 (D) 9

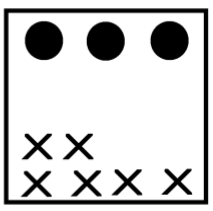
149. Select a figure from the options which will replace the question mark to complete the given series.



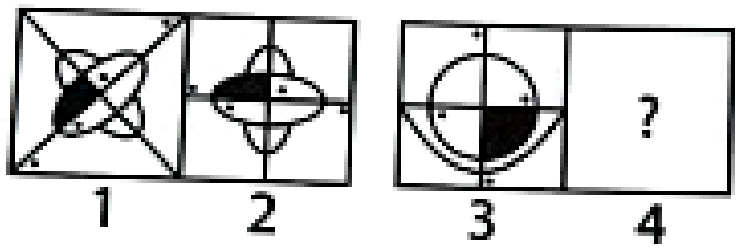
(a) 

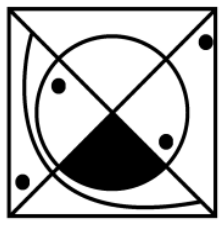
(b) 

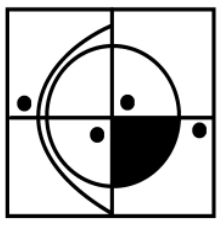
(c) 

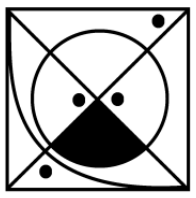
(d) 

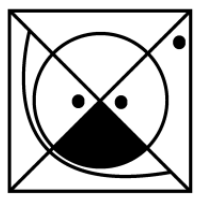
150. There is a certain relationship between the figures (1) and (2). Establish the similar relationship between the figures (3) and (4) by selecting a suitable figure from the options that would replace the (?) in figure (4).



(a) 

(b) 

(c) 

(d) 

**********ROUGH WORK**********