MOTION OPEN SCHOLARSHIP TEST
SESSION - 2020-21

MOVING CLASS : 11th

SAMPLE PAPER

CANDIDATE'S NAME : _____

DURATION: 90 MINUTES | **TOTAL QUESTIONS: 40** | **MAXIMUM MARKS : 80**

INSTRUCTION:

1. The paper consists of Four sections :- Physics (10 Questions), Chemistry (10 Questions), Biology/Mathematics (10 Questions) and Mental ability (10 Questions).

2. All questions are compulsory and carry 2 marks each.

3. There is only one correct answer hence mark one choice only.

4. Darken your choice in OMR Sheet with Blue/ Black Ball Point Pen.

5. Return the OMR Sheet to the invigilator at the end of the exam.

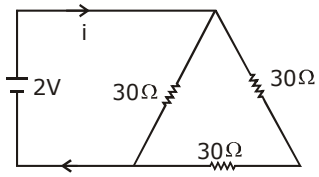
PHYSICS

1. Which of the following shows that the earth behaves as a magnet ?
(A) Repulsion between like poles.
(B) Attraction between unlike poles.
(C) Existence of null points in the magnetic field of a bar magnet.
(D) Non-existence of monopoles.

2. The acceleration due to gravity on the moon's surface is:
(A) approximately equal to that near the earth's surface
(B) approximately six times that near the earth's surface
(C) approximately one-sixth of that near the earth's surface
(D) slightly greater than that near the earth's surface

3. A person sees his virtual image by holding a mirror very close to the face. When he moves the mirror away from his face, the image becomes inverted. What type of mirror he is using
(A) Plane mirror (B) Convex mirror
(C) Concave mirror (D) None of these

4. The currrent in the adjoining circuit will be



(A) $\frac{1}{45}$ ampere (B) $\frac{1}{15}$ ampere
(C) $\frac{1}{10}$ ampere (D) $\frac{1}{5}$ ampere

5. The defect of vision in which person can see distant objects clearly but nearly object looks blurred is :
(A) myopia (B) astigmatism
(C) hypermetropia (D) presbyopia

6. When an electron beam is moving in a magnetic field, then the work done is equal to the -
(A) charge of electron
(B) magnetic field
(C) product of electronic charge and the magnetic field
(D) 0

7. The resistance of an incandescent lamp is:
(A) Greater when switched off
(B) Smaller when switched on
(C) Greater when switched on
(D) The same whether it is switched off or switched on

8. Which one of the following statement is correct about geothermal energy ?
(A) Geothermal energy is directly derived from the sun
(B) It is a non renewable source of energy.
(C) It is a clean and renewable source of energy.
(D) Geothermal energy cannot the used to produce electricity none of these.

9. An object of height 4 cm is placed at a distance of 15 cm in front of a concave lens of power, –10 diopters. Find the size of the image :
(A) 1.6 cm (B) 1.2 cm
(C) 1.4 cm (D) 0.8 cm

10. The far point of a myopic person is 25 cm in front of the eye. The nature and power of the lens rquired to correct the problem, will be :
(A) convex lens, – 4 D
(B) concave lens, – 4 D
(C) concave lens, + 4 D
(D) convex lens, + 4 D.

CHEMISTRY

11. Which of the following correctly represents the balanced chemical reaction between aluminium and sulphur?
(A) $16\ Al + 3S_8 \longrightarrow 8Al_2S_3$
(B) $12\ Al + S_8 \longrightarrow 4Al_3S_2$
(C) $8\ Al + S_8 \longrightarrow 8AlS$
(D) $4\ Al + S_8 \longrightarrow 4AlS_2$

12. An element X on exposure to moist air turns reddish-brown and a new compound Y is formed. The substance X and Y are
(A) X = Fe, Y = Fe_2O_3
(B) X = Ag, Y = Ag_2S
(C) X = Cu, Y = CuO
(D) X = Al, Y = Al_2O_3

13. The basicity of acetic acid is the same as the basicity of _____ .
(A) HNO_3 (B) H_2SO_4
(C) H_3PO_4 (D) H_2CO_3

14. A strong acid in aqueous medium exist in
(A) mostly molecules
(B) mostly ions
(C) both molecules & ions
(D) None

15. Calcination means
(A) heating the ore under pressure
(B) heating the ore in air
(C) heating the ore without air
(D) heating the ore with reducing agent

16. Froth floatation method is used to concentrate
(A) oxide ores (B) sulphide ores
(C) chloride ores (D) carbonate ores

17. All member of alkane series has general formula?
(A) C_nH_{2n+1} (B) C_nH_{2n-2}
(C) C_nH_{2n} (D) C_nH_{2n+2}

18. Which of the following statements is not applicable to carbon compounds?
(A) They have low melting and boiling points
(B) They are ionic in nature
(C) They form homologous series.
(D) They are generally soluble in organic solvents.

19. The last member in each period of the periodic table is
(A) An inert gas element
(B) A transition element
(C) A halogen
(D) An alkali metal

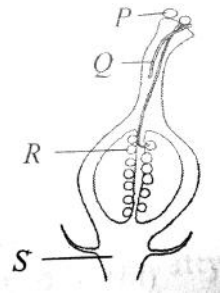
20. Fluorine, chlorine, bromine and iodine are placed in the same group (17) of the modern periodic table, because
(A) they are non-metals
(B) they are electronegative
(C) their atoms are generally univalent
(D) they have 7 electrons in the outermost shell of their atom

BIOLOGY

21. Which is correct sequence of air passage during inhalation?
(A) Nostrils → Pharynx → Larynx → Trachea → Alveoli
(B) Nostrils → Larynx → Pharynx → Trachea → Lungs
(C) Nasal Passage → Trachea → Pharynx → Larynx → Alveoli
(D) Larynx → Nostrils → Pharynx → Lungs

22. A person is excreting about 10 litres of urine per day. Which of the following endocrine gland is reponsible for this?
(A) Pituitary (B) Thyroid
(C) Parathyroid (D) Adrenal

23. New plants may be grown from groups of cells that are taken from same/other plants. The given diagram shows a part of plant X.



Cell samples obtained from which of the labelled structures will grow into new plants that are genetically identical to plant X?
(A) P (B) Q
(C) R (D) S

24. Movement of water and mineral salts in plant is
(A) osmosis (B) absorption
(C) ascent of sap (D) active absorption

25. Phototropic and geotropic response of a plant is under control of following hormone
(A) auxin (B) gibberellin
(C) cytokinin (D) ethylene

26. If there is no formation of egg cell during the development of ovule, then after fertilization which of the following structure will not develop?
(A) Embryo (B) Endosperm
(C) Seed (D) Fruit

27. DNA (Deoxyribonucleic acid) and RNA (Riobonucleic acid) are found in cells of all living beings. Its amount in the cells are
(A) RNA is more than DNA
(B) DNA is more than RNA
(C) RNA and DNA is equal in amount
(D) None of the above

28. Pick the odd one out with respect to Mendel's observation.
(A) Tall and dwarf stem
(B) Smooth and rough stem
(C) Yellow and green seed
(D) Violet and white flowers

29. A group of interconnected food chains is called
(A) food cycle
(B) pyramid of energy
(C) complex food chain
(D) food web

30. The decomposers in an ecosystem convert
(A) inorganic substance into organic substance
(B) simpler substance into complex substance
(C) solar energy into chemical energy
(D) organic substance into inorganic substance

MATHS

21. Find the least number which when divided by 15, leaves a remainder of 5, when divided by 25, leaves a remainder of 15 and when divided by 35 leaves a remainder of 25.
(A) 515 (B) 525
(C) 1040 (D) 1050

22. Rs. 9,000 were divided equally among a centain number of persons. Had there been 20 more persons, each would have got Rs. 160 less. Find the original number of persons.
(A) 25 (B) 24
(C) 26 (D) 27

23. If sum of the squares of zeroes of the quadratic polynomial f (x) = x^2 – 8x + k is 40, the value of k is
(A) 10 (B) 16
(C) 14 (D) 12

24. The roots of the equation $2x-\frac{3}{x}=1$ are
(A) $\frac{1}{2},-1$ (B) $\frac{3}{2},1$
(C) $\frac{3}{2},-1$ (D) none of these

25. A right triangle has hypotenuse of length p cm and one side of length q cm. If p – q = 1, then the length of the third side of the triangle (in cm) is:
(A) $\sqrt{2q+1}$ (B) $\sqrt{2p+1}$
(C) 2p (D) 1 + q

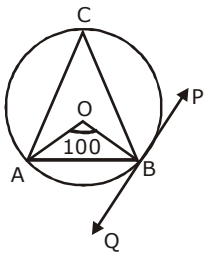
26. If m^{th} term of an A.P. is $\frac{1}{n}$ and n^{th} term is $\frac{1}{m}$. them the sum of first mn terms is
(A) $\frac{mn+1}{2}$ (B) mn+1
(C) $\frac{mn-1}{2}$ (D) $\frac{mn-1}{3}$

27. The top of two poles of height 20 m and 14 m are connected by a wire. If the wire makes an angle of 30° with the horizontal, then the length of the wire is
(A) 12 m (B) 10 m
(C) 8 m (D) 6 m

28. If $\tan\theta + \sin\theta = m$ and $\tan\theta - \sin\theta = n$, the $m^2 - n^2$ is equal to
(A) $\sqrt{mm}$ (B) $4\sqrt{mn}$
(C) $\sqrt{\frac{m}{n}}$ (D) none of these

29. If two vertices of a parallelogram are (3,2) and (-1,0) and the diagonals intersect at (2,-5), then the other two vertices are
(A) (1,-10), (5,-12) (B) (1,-12), (5,-10)
(C) (1,-10), (2,-12) (D) (2,-10), (5,-12)

30. In figure, AB is a chord of circle, and PQ is a tangent at point B of the circle. If ∠AOB=100°, then ∠ABQ is



(A) 45° (B) 70°
(C) 35° (D) 50°

MENTAL ABILITY

31. Find the missing term in figure.

25	17	41
32	83	11
26	?	31

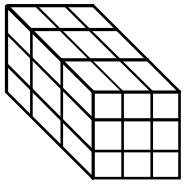
7	10	11
8	28	3
13	1	14

(A) 26 (B) 25
(C) 34 (D) 38

32. If > = ÷, V = ×, < = +, ∧= –, + = =, × = <, – = >
(A) 6 < 2 > 3∧ 8 V 4 + 13
(B) 6 ∧ 2 < 3 > 8 < 4 – 13
(C) 6 V 2 < 3 ∧ 8 > 4 × 13
(D) 6 > 2 V 3 < 8 ∧ 4 + 13

33. One evening before sunset two friends Amit and Sunit were talking to each other face to face. If Sunil's shadow was exactly to his left side, which direction was Amit facing ?
(A) North
(B) South
(C) West
(D) Data inadequate

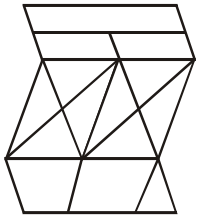
34. Twenty seven cubes are arranged in a block as shown below. How many cubes are surrounded by other cubes on all sides ?



(A) 3 (B) 1
(C) 9 (D) 6

35. In a coded language, BRAIN is written as *%÷#× and TIER is wirtten as $#+%; then in the same coded language, RENT will be written as:
(A) %×#$ (B) %#×$
(C) %+×$ (D) +×%$

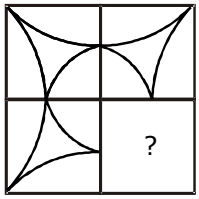
36. How many parallelograms are there in the given figure?

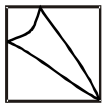


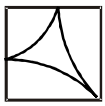
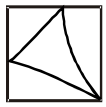
(A) 14 (B) 15
(C) 16 (D) 17

37. Find the mirror image.
QUALITY
(A) ϽՈ∀ΓꓕΛ (B) YTILAUQ
(C) YTIꓶAUϘ (D) YTIꓶAՈϘ

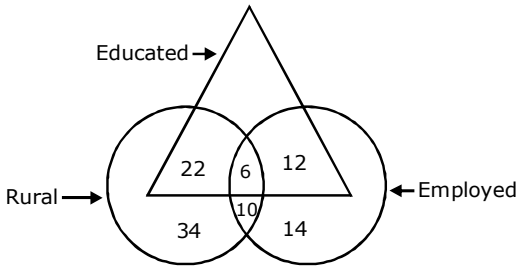
38. Which of the answer-figures will complete the matrix figure?



(A)  (B) 

(C)  (D) 

39. How many educated people are employed?



(A) 18 (B) 26
(C) 24 (D) 20

40. Which letter is midway between 13th letter from the left and the 4th letter from the right in the sequence given below?
USBEYFHKOPRAWCGJMQDIVLNTXZ
(A) O (B2) Q
(C) P (D) M