M.M: 60   **Time : 1 hour**

English (10 Marks)

Q1.   **Fill in the blank with correct verb :-**

Neither of the boys _____ to take reportcard.

(A) have not come

(B) has come

(C) are not come

(D) were not come

Q2.   **Fill in the blank with correct determiner :-**

The council has taken _____ decisions.

(A) his

(B) their

(C) there

(D) its

Q3.   **Fill in the blank with correct option :-**

The result _____ by this evening.

(A) will has come

(B) will have come

(C) had come

(D) has come

Q4.   My problem is that <u>I get a few time</u> for reading these days. **(Improve the underlined part of the sentence)**

(A) I gets the few time

(B) I get fewer time

(C) I get little time

(D) The given sentence is correct

Q5. **Select the Indirect speech of the following sentence**

Anshu said, "Did you have her laptop?"

(A) Anshu told that he had her laptop.

(B) Anshu said if he had her laptop.

(C) Anshu asked if he has her laptop.

(D) Anshu asked if he had had her laptop.

Q6. **Select the Indirect speech of the following sentence**

The students said to their teacher "Good bye."

(A) The students forbade their teacher good bye.

(B) The students bade their teacher good bye.

(C) The students told to their teacher good bye.

(D) The students bade their teacher to good bye.

Q7. We know that if we throw a stone up it will come back to the earth. **(Which part of the sentence has an error)**

(A) We know that

(B) if we throw a stone up

(C) it will come back

(D) to the earth

Q8. **Fill in the blank with correct determiners.**

_____ days I am very busy completing my _____ assignment.

(A) These, second

(B) These, two

(C) Those, first

(D) Those, one

Q9. '**To make clean breast of'** means :-

(A) To destroy before it blooms

(B) To praise oneself

(C) To gain prominence

(D) To confess

Q10. **'To drive home'** means :-

(A) To emphasize

(B) To find one's roots

(C) To return to the place of rest

(D) Back original position

Mathematics (20 Marks)

Q11. $1^{13} + 2^{13} + 3^{13} + \ldots\ldots + 60^{13}$ is divisible by :

(A) 61

(B) 63

(C) 65

(D) 59

Q12. If the remainder of the polynomial $a_0 + a_1x + a_2x^2 + \ldots\ldots + a_nx^n$ when divided by $(x - 1)$ is 1, then which one of the following is correct ?

(A) $a_0 + a_2 + \ldots\ldots = a_1 + a_3 + \ldots\ldots$

(B) $a_0 + a_2 + \ldots\ldots = 1 + a_1 + a_3 + \ldots\ldots$

(C) $1 + a_0 + a_2 + \ldots\ldots = - (a_1 + a_3 + \ldots\ldots)$

(D) $1 - a_0 - a_2 - \ldots\ldots = a_1 + a_3 + \ldots\ldots$

Q.13 A cubic polynomial $p(x)$ is such that $p(1) = 1$, $p(2) = 2$, $p(3) = 3$ and $p(4) = 5$, then the value of $p(6)$ is :

(A) 16

(B) 13

(C) 10

(D) 7

Q.14 If the digits of a three digit number are reversed, then the number so obtained is less than the original number by 297. If the sum of the digits of the number is 8 and its hundred's digit has the largest possible value, then the ten's digit of the number is

(A) 3

(B) 2

(C) 1

(D) 0

Q.15 One of the two students, while solving a quadratic equation in x, copied the constant term incorrectly and got the roots 3 and 2. The other copied the constant term and coefficient of x^2 correctly as -6 and 1 respectively. The correct roots are :

(A) 3, –2

(B) –3, 2

(C) –6, –1

(D) 6, –1

Q.16 A person on tour has Rs. 360 for his expenses. If he extends his tour for 4 days, he has to cut down his daily expenses by Rs. 3, Find the original duration of the tour.

(A) 16

(B) 20

(C) 24

(D) 28

Q.17 If $x^2 + mx + n = 0$ and $x^2 + px + q = 0$ have a common root, then the common root is

(A) $\dfrac{q - n}{m - p}$

(B) $\dfrac{q - n}{m + p}$

(C) $\dfrac{q + n}{m + p}$

(D) None of these

Q.18 Let p and q be the roots of the quadratic equation $x^2 - (\alpha - 2)x - \alpha - 1 = 0$. What is the minimum possible value of $p^2 + q^2$?

(A) 0

(B) 3

(C) 4

(D) 5

Q.19 The first and last term of an A.P. are a and l respectively. If S is the sum of all the terms of the A.P. and the common difference is $\dfrac{l^2 - a^2}{k - (l + a)}$, then k is equal to

(A) S

(B) 2S

(C) 3S

(D) None of these

Q.20 If S_1, S_2 and S_3 denote the sum of first n_1, n_2 and n_3 terms respectively of an A.P., find

$$\frac{S_1}{n_1}(n_2 - n_3) + \frac{S_2}{n_2}(n_3 - n_1) + \frac{S_3}{n_3}(n_1 - n_2)$$

(A) 0

(B) 4

(C) 2

(D) 1

Q21. In $\triangle ABC$, if M is the circumcentre, $AC = BC$ and $\angle AMB = 130^0$, then the measure of $\angle CAB$ equals.

(A) $53\frac{1^0}{2}$

(B) $57\frac{1^0}{2}$

(C) $59\frac{1^0}{2}$

(D) 52^0

Q22. In ∆ABC, AD is median on BC, AB = 10 cm, AC = 12 cm and BC = 16 cm, then length of AD equals

(A) $\sqrt{57}$ cm

(B) $2\sqrt{5}$ cm

(C) $6\sqrt{3}$ cm

(D) $\sqrt{58}$ cm

Q23. Find the third vertex of a triangle, if two of its vertices are (–4, 2) and (–2, 0) and the centroid of the triangle lies at the origin.

(A) (2, 6)

(B) (–2, 6)

(C) (6, 2)

(D) (6, –2)

Q24. If $cos\theta + sec\theta = 2$, then the value of $\cos^8 \theta + \sin^8 \theta$ is

(A) 2

(B) 1

(C) 4

(D) 8

Q25. If $\sin \theta - \cos \theta = 1$, then $\sin \theta + \cos \theta$ is equal to

(A) 0

(B) ± 2

(C) ± 3

(D) ± 1

Q26. The angle of elevation of the top of two vertical towers as seen from middle point of the line joining the foot of the tower are 60⁰ and 30⁰ respectively. The ratio of heights of the towers is

(A) 2 ∶ 1

(B) $\sqrt{3}$ ∶ 1

(C) 3 ∶ 2

(D) 3 ∶ 1

Q27. Three circles each of radius 1 touch one another externally and they lie between two parallel lines. The minimum possible distance between the lines is .

(A) $2 + \sqrt{3}$

(B) $3 + \sqrt{3}$

(C) 4

(D) $2 + \frac{1}{\sqrt{3}}$

Q28. $ABCD$ is a cyclic quadrilateral and 'O' is the centre of the circle. If $\angle COD = 130^o$ and $\angle BAC = 25^o$, the value of $\angle BOC$ and $\angle BCD$ are respectively.

(A) $40^o, 90^o$

(B) $50^o, 90^o$

(C) $65^o, 90^o$

(D) $70^o, 80^o$

Q29. A solid sphere is cut into identical pieces by three mutually perpendicular planes passing through its centre. Increase in total surface area of all the pieces with respect to the total surface area of the original sphere is

(A) 250%

(B) 175%

(C) 150%

(D) 125%

Q30. What is the probability of a number which is a multiple of 3 to be divisible by 4?

(A) 1/3

(B) 2/3

(C) 1/4

(D) 1/5

Social Science (10 Marks)

Q31. Which two Muslim brothers supported the Non-Cooperation Movement along with Gandhiji?

(A) Arbaaz Ali and Shujaat Ali

(B) Muhammad Ali and Shaukat Ali

(C) Arbaaz Ali and Shaukat Ali

(D) Shujaat Ali and Muhammad Ali

Q32. How did the French Revolutionaries creat a sense of collective identity among the French people?

(A) army was formed

(B) social work was done

(C) hymns were composed, oaths were taken and martyrs were commemorated on the name of nation

(D) regular meetings were held

Q33. Brussels, the capital city of Belgium presented a special problem.What was it?

(A) Dutch-speaking people constituted a minority in the country, but a majority in the capital

(B) Dutch-speaking people constituted a majority in the country, but a minority in the capital

(C) Other foreign languages were speaking

(D) English was becoming dominant

Q34. When was Bahujan Samaj Party (BSP) formed?

(A) 1980

(B) 1982

(C) 1984

(D) 1986

Q35. Which of these is true about the ugliest form of communalism?

(A) Communal violence

(B) Riots

(C) Massacre

(D) All the above

Q36. The sectors are classified into organized and unorganised sector on the basis of :

(A) Employment conditions

(B) The nature of economic activity

(C) Ownership of enterprises

(D) Number of workers employed in the enterprise

Q37. Who is current Governer of Reserve Bank of India (RBI)?

(A) Shaktikanta Das

(B) Sashi Das

(C) Rajiv Kumar

(D) None of these

Q38. Which one of the following is not a factor of soil formation?

(A) Soil texture

(B) Organic matter

(C) Time

(D) Parent Rock

Q39. Minerals are deposited and accumulated in stratas of which of the following rocks?

(A) Sedimentary rocks

(B) Metamorphic rocks

(C) Igneous rocks

(D) None of the above

Q40. Every litre of waste water discharged by our industry pollutes _____ times the quantity of fresh water.

(A) 5

(B) 8

(C) 10

(D) 2

Physics (7)

Q41. A soft iron bar is introduced inside a current-carrying solenoid. The magnetic field inside a solenoid:

(A) Will Decrease

(B) Will increase

(C) Will become zero

(d) Will remain unaffected

Q42. What will be the value of current I in given diagram?
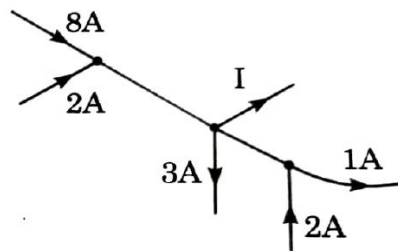

(A) 14 A

(B) 8A

(C) 12A

(D) 7A

Q.43 If power dissipated in the 9Ω resistor in the circuit shown is 36 Watt, the potential difference across the 2Ω resistor is
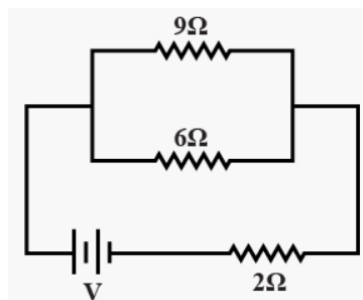
(A) 2 volt

(B) 4 volt

(C) 8 volt

(D) 10 volt

Q.44 An object is placed at a distance 15 cm in front of a convex lens rays coming from object O after refraction from lens and then after reflection from mirror retrace its path, then distance d between lens and mirror will be :
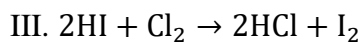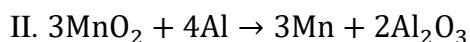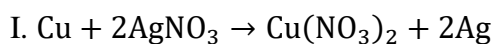
(A) 40 cm

(B) 20 cm

(C) 10 cm

(D) 50 cm
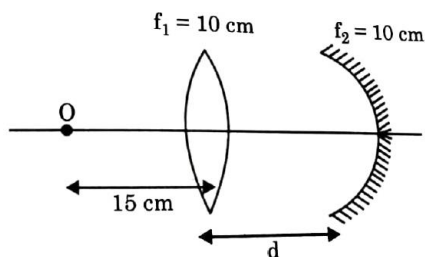
Q.45 A man can see the object between 15 cm and 30 cm. He used the lens to see the far objects. Then due to the lens used, the near point will be at :

(A) 10/3 cm

(B) 30 cm

(C) 15 cm

(D) 100/3 cm

Q.46 An air bubble in water will act like a :

(A) mirror

(B) convex lens

(C) reflective mirror

(D) concave lens

Q.47 When the current flowing in a circular coil is doubled and the number of turns of the coil in it is halved, the magnetic field at its centre will become :

(A) Four times

(B) Same

(C) Half

(D) Double

Chemistry (7)

Q48. A few redox reactions are given as follows :

I. $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$

II. $3MnO_2 + 4Al \rightarrow 3Mn + 2Al_2O_3$

III. $2HI + Cl_2 \rightarrow 2HCl + I_2$

IV. $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

Select the correct option.

(A) In reaction I, copper is an oxidising agent.

(B) In reaction II, MnO_2 is oxidised.

(C) In reaction III, HI is the reducing agent.

(D) In reaction IV, CO is reduced.

Q49. Which of the following elements form acidic oxide?

(A) Element with atomic no. 11

(B) Element with atomic no. 3

(C) Element with atomic no. 15

(D) Element with atomic no. 19

Q50. A brief information about the reactivity of metals X, Y and Z towards oxygen is given below:

X: It does not burn but on prolonged heating in air, it forms a black solid mass of its oxide.

Y: Its surface gets coated with a thin layer of oxide when exposed to air.

Z: It reacts with oxygen upon heating and burns brightly to form oxide.

Identify X, Y and Z.

	X	**Y**	**Z**
(A)	Cu	Ag	Mg
(B)	Al	Pb	Cu
(C)	K	Zn	Cu
(D)	Cu	Al	Mg

Q51. Two organic compounds 'X and 'Y' react with sodium metal and both produce same gas 'A'. With sodium hydrogen carbonate only compound 'Y' reacts to produce gas 'B' identity X, Y, A and B.

(A) $X = C_2H_4$, $Y = C_2H_5OH$, $A = CO_2$, $B = H_2$

(B) $X = C_2H_5OH$, $Y = CH_3COOH$, $A = H_2$, $B = CO_2$

(C) $X = CH_3OH$, $Y = C_2H_5OH$, $A = H_2$, $B = CO_2$

(D) $X = CH_3COOH$, $Y = HCOOH$, $A = CO_2$, $B = H_2$

Q52. The number of oxygen molecules used in the combustion of one molecule of ethanol is -

(A) 1

(B) 2

(C) 3

(D) 4

Q53. Which of the following hydrocarbons undergoes addition reactions?

(i) C_2H_6

(ii) C_3H_8

(iii) C_3H_6

(iv) C_2H_2

Select the correct alternative.

(A) Only (i)

(B) (ii) and (iii)

(C) (iii) and (iv)

(D) Only (iv)

Q54. Which of the following options shows the correct arrangement of different substances with increasing pH values?

(A) Ammonium hydroxide, magnesium hydroxide, lactic acid and sulphuric acid

(B) Sulphuric acid, lactic acid, sodium hydroxide and ammonium hydroxide

(C) Potassium hydroxide, calcium hydroxide, acetic acid and hydrochloric acid

(D) Hydrochloric acid, acetic acid, ammonium hydroxide and potassium hydroxide

Biology (6)

Q55. Body tissues obtain oxygen from haemoglobin because of its dissociation in tissues caused by

(A) low oxygen concentration and high carbon dioxide concentration

(B) low oxygen concentration

(C) low carbon dioxide concentration

(D) high carbon dioxide concentration

Q56. The process of the escape of liquid from the tip of uninjured margins of leaf or through hydathodes is called

(A) transpiration

(B) guttation

(C) evapo-transpiration

(D) evaporation

Q57. Anterior lobe of pituitary gland secretes

I. ACTH, TSH and oxytocin   II. STH, LH and TSH

III. TSH, ADH and prolactin   IV. FSH, GH and LH

Which of the following is correct?

(A) I, II and III

(B) II and IV

(C) III and IV

(D) I and III

Q58. What is pollen grain?

(A) Microspore mother cell

(B) Male gamete

(C) Male gametophyte

(D) Partially developed embryo

Q59. The process of conversion of nitrates to nitrogen is called :

(A) Nitrogen fixation

(B) Nitrification

(C) Dentrification

(D) Ammonification

Q60. A child receives genes from his father to the extent of

(A) 25%

(B) 50%

(C) 75%

(D) 100%