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|  |  | **PRACTICE PAPER – II****MATHEMATICS** **Class – IX** **Time allowed : 3hours Maximum Marks : 90****General Instructions :**(i) All questions are **compulsory**.(ii) The question paper consists of **31** questions divided into five **sections A, B, C** ,D and **E**. **Section-A** comprises of **4** questions of **1 mark** each, **Section-B** comprises of **6** questions of **2 marks** each, **Section-C** comprises of **8** questions of **3 marks** each and **Section-D** comprises of **10** questions of **4 marks** each. **Section E comprises of two questions of 3 marks each and 1 question of 4 marks.**(iii) There is no overall choice. (iv) Use of calculator is not permitted. |  |
|  |  |  **SECTION-A** |  |
|  |  | Question numbers **1** to **4** carry **one** mark each. |  |
|  | 1 | If one is added to numerator and 4 is subtracted from denominator, the fraction becomes 1. Represent the statement as a linear equation in two variables. | 1 |
|  | 2 | Find the value of *k* for which *x* = 0, *y* = 8 is a solution of  | 1 |
|  | 3 | Why we cannot construct a triangle of given sides as 5 cm, 5 cm and 10 cm ? | 1 |
|  | 4 | Calculate the amount of air inside a conical tent with base radius 7 m and height 12 m. | 1 |
|  |  | **SECTION-B** |  |
|  |  | Question numbers **5** to **10** carry **two** marks each. |  |
|  | 5 | PQRS is a parallelogram with diagonals PR and QS intersecting at a point E. If ar (ΔSEP) ar (QER)  12 cm2, find area of parallelogram PQRS.  | 2 |
|  | 6 | Draw any acute angle. Name as ∠XYZ. Bisect it using compass. | 2 |
|  | 7 | In the figure, ABC is a triangle in which L is the mid-point of AB and N is a point on AC such that AN2CN. A line through L, parallel to BN meets AC at M. Prove that AMCN.Untitled art 25.jpg | 2 |
|  | 8 | The length of the diagonal of a cuboid is 5cm and the sum of its length, breadth and height is 19 cm. Find its surface area. | 2 |
|  | 9 |  In a bottle there are 7 red buttons, 5 green buttons and 8 purple buttons. What is the probability that randomly drawn button from the bottle is a purple button ? If one extra green button is put inside the bottle, what will be the probability that randomly drawn button is purple ? | 2 |
|  | 10 | The blood group of students from class IX are collected and recorded as below :

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| --- | --- | --- | --- | --- |
| Blood group | **A** | **B** | **AB** | **O** |
| Number of Students | 12 | 9 | 7 | 6 |

If a student is chosen at random find the probability that it is universal donor. (O group). | 2 |
|  |  |  **SECTION-C** |  |
|  |  | Question numbers **11** to **18** carry **three** marks each.  |  |
|  | 11 | The parking charges for vehicles in Super Delhi Metro is ` 20 for the first two hours and ` 10 for subsequent hours. Assume total parking time to be x hours (where *x*≥ 2) and total parking charges as ` *y*. Write a linear equation to express the above relation and draw a graph. Find the parking charges for 5 hours from the graph. | 3 |
|  | 12 | Draw the graph of two lines whose equations are 3x – 2y + 6 = 0 and x + 2y – 6 = 0 on the same graph paper. Find the area of triangle formed by two lines and x-axis. | 3 |
|  | 13 | PQRS is a parallelogram whose diagonals meet at O. A line through O intersects PQ at A and RS at B. Show that ar (ΔAOP) ar(ΔBOR)2.jpg | 3 |
|  | 14 | 1484In the given figure, O and O' are centres of two circles and the circles intersect each other at points B and C. If AOCD is a straight line and ∠AOB110, find ∠BED and ∠BOD. | 3 |
|  | 15 | Draw an angle of 90 using protractor. Now using compass and ruler,construct angles of 45 and 22. | 3 |
|  | 16 | In a quadrilateral ABCD, ∠B∠D140, ∠B:∠D=1:3 and ∠A : ∠C 5 : 6. Find all the angles of the quadrilateral. | 3 |
|  | 17 | 50In the given figure, AB and AC are two chords of a circle whose centre is O. If OD⊥AB, OE⊥AC and AO bisects ∠DAE, prove that ΔADE is an isosceles triangle and ∠ABC∠ACB. | 3 |
|  | 18 | The ratio of the volumes of two spheres is 27 : 8. Find the ratio of their surface areas. | 3 |
|  |  | **SECTION-D** |  |
|  |  | Question numbers **19** to **28** carry **four** marks each.  |  |
|  | 19 | çAamir scored 40 marks in a test, getting 3 marks for each right answer and losing 1 mark for each wrong answer. If number of questions attempted right by him is *x* and that attempted incorrectly is *y*, then write the linear equation which satisfies this data. Also draw the graph for the same. | 4 |
|  | 20 | Write the equations of the lines p and r in following graph :3A student answered equation of line ‘q’ as *xy*1. Did he answer correctly ? Also, find the area enclosed between lines p, q and r. | 4 |
|  | 21 | ABC is an equilateral triangle with perimeter 30 cm. P, Q and R are mid-points of AO, BO and CO as shown in figure. Find ar(PQR). 005.jpg | 4 |
|  | 22 | Prove that the line joining the midpoints of two parallel chords of a circle passes through the centre of the circle. | 4 |
|  | 23 | Construct a Δ ABC, in which BC6.5 cm ABAC10 cm and ∠C60. | 4 |
|  | 24 | Diagonal AC bisects ∠A of a parallelogram ABCD. Show that : (i) It bisects ∠C also.(ii) ABCD is a rhombus. | 4 |
|  | 25 | In a women’s self-defense training camp, the soup is prepared in a cylindrical utensil of radius 10 cm. If there are 9 women in camp who take soup in hemispherical bowl of radius 5 cm then, how much soup should be made? What would be the height of cylindrical utensil of soup? What value is depicted here ? | 4 |
|  | 26 | A conical tent is made of 4.5 m wide tarpaulin. Vertical height of the conical tent is 4 m and base radius is 3 m. Find the length of the tarpaulin used, assuming that 10% extra material is required for stitching margins and wastage in cutting (Take 3.14) | 4 |
|  | 27 | The slant height and the diameter of the conical tomb are 25 m and 14 m respectively. Find the cost of constructing it at a rate of Rs. 25 per cubic metre and cost of whitewashing its curved surface area at Rs. 16 per metre square. | 4 |
|  | 28 | A recent survey found that the ages of workers in a factory is distributed as follows :

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| --- | --- | --- | --- | --- | --- |
| Ages | 14 - 23 | 24 - 33 | 34 - 43 | 44 - 53 | 54 and lbove |
| No. of Workers | 38 | 27 | 86 | 46 | 3 |

If a worker is selected at random, find the probability that the age of the worker is :(i) 44 years or more (ii) under 43 years (iii) in age group of 34-53 years.(iv) under 54 but over 34 years | 4 |
|  |  | **SECTION-E** |  |
|  | 29 | Find missing frequency ‘k’ from the following data.

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| X | 5 | 10 | 15 | 20 | 25 |
| F | 2 | 8 | k | 10 | 5 |

 | 3 |
|  | 30 | The following data have been arranged in ascending order :12,14,17,20,22,x,26,28,32,36If the median of the data is 23 find x | 3 |
|  | 31 | Construct the histogram and frequency polygon

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| Wages (in rs.) | 4 -6 | 6-8 | 8-10 | 10-12 | 12-14 | 14-16 |
| Frequency | 2 | 8 | 15 | 12 | 2 | 1 |

 | 4 |
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