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SUMMATIVE ASSESSMENT - II MARCH (2013-2014)
Class: IX
SUB: MATHEMATICS Max Marks:100
Time: $3 \frac{1}{2}$ hours
General Instructions:

1. All questions are Compulsory.
2. The question paper consists of 32 questions divided into 5 sections, $A, B, C, D$ and E . Section $\mathbf{A}$ comprises of 4 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 10 questions of 3 marks each and Section D comprises of 11 questions of 4 marks each.
3. Question numbers 1 to 4 in Section-A are multiple choice questions where you are to select one correct option out of the given four.
4. Use of calculators is not permitted.
5. The question paper contains Value Based Questions to the extent of (3-5) marks.
6. The question paper contains open Text Based Assessment (sectionE) Questions for 10 Marks.

## SECTION A

Question numbers 1 to 4carry 1 mark each. For each questions four alternative choices have been provided of which only one is correct. You have to select the correct choice.

1) The linear equation $2 x-5 y=7$ has
(A) A unique solution
(B) Two solutions
(C)Infinitely many solutions
(D) No solution
2) Three angles of a quadrilateral are $75^{\circ}, 90^{\circ}$, and $75^{\circ}$. The fourth angle is
(A) $90^{\circ}$
(B) $95^{\circ}$
(C) $105^{\circ}$
(D) $120^{\circ}$
3) The radius of a sphere is $2 r$, then its volume will be
(A) $\frac{4}{3} \pi r^{3}$
(B) $4 \pi r^{3}$
(C) $\frac{8 \pi r^{3}}{3}$
(D) $\frac{32 \pi r^{3}}{3}$
4) Sum of the probability of happening and not happening of an event is:
(A) 1
(B) 2
(C) 0
(D) None of these

## SECTION: B

5) Find two solutions for the given equation $4 x+3 y=12$
6) The cost of a notebook is twice the cost of a pen. Write a linear equation in two variables to represent this statement.
(Take the cost of a notebook to be Rs $x$ and that of a pen to be Rs $y$ ).
7) $A B C D$ is a rectangle in which diagonal $A C$ bisects LA as well as LC. Show that
(i) $A B C D$ is a square (ii) diagonal BD bisects $L B$ as well as LD.
8) If a line intersects two concentric circles with centre o at A B C and D, Prove that $A B=C D$

9) Prove that a cyclic parallelogram is a rectangle.
10) Savitri had to make a model of a cylindrical kaleidoscope for her science project. She wanted to use chart paper to make the curved surface of the kaleidoscope. What would be the area of chart paper required by her, if she wanted to make a kaleidoscope of length 25 cm with a 3.5 cm radius? You may take $\pi=22 / 7$

## SECTION C

11) Give the equations of two lines passing through $(2,14)$. How many more such lines are there, and why?
12) $A B C D$ is a parallelogram and $A P$ and $C Q$ are perpendiculars from vertices $A$ and $C$ on diagonal $B D$. Show that
(i) $\triangle \mathrm{APB} \cong \triangle C Q D$
(ii) $\quad \mathrm{AP}=\mathrm{CQ}$

13) $A B C D$ is a trapezium in which $A B \| D C, B D$ is a diagonal and $E$ is the midpoint of $A D$. A line is drawn through $E$ parallel to $A B$ intersecting $B C$ at $F$.Show that $F$ is the mid-point of $B C$.

14) In the given figure, $B D I I C A, E$ is the mid-point of $C A$ and $B D=\frac{1}{2} C A$. Prove That $\operatorname{ar}(\mathrm{ABC})=2 \operatorname{ar}(\mathrm{DBC})$

15) Prove that Equal chords of a circle subtend equal angles at the centre.
16) Construct a triangle $A B C$ in which $B C=7 \mathrm{~cm}, \angle B=75^{\circ}$ and $A B+A C=13 \mathrm{~cm}$.
17) The resident of society decided to paint the hall of cancer detective centre in their premises. If the floor of the cuboidal hall has a perimeter equal to 260 m and height 6 m then
(i) Find the cost of painting of its four walls (including doors etc.) at the rate of Rs 9 per $\mathrm{m}^{2}$.
(ii) Which value is depicted by the residents?
18) The following observations have been arranged in ascending order. If the median of the data is 63, find the value of $x$.
$29,32,48,50, x, x+2,72,78,84,95$
19) The following data gives marks out of 60 obtained by 30 students of a Class in a test:
$50,22,56,47,27,37,40,16,12,33,29,49,35,15,43,29,31,22,51,27,29,27,22,18,20$, 11,19,31,23,58 .
Arrange them in ascending order and present it as a grouped data taking the first class interval 11-20.
20) Fifty seeds were selected at random from each of 5 bags of seeds, and were kept under standardised conditions favourable to germination. After 20 days, the number of seeds which had germinated in each collection were counted and recorded as follows:

| Bag | 1 | 2 | 3 | 4 | 5 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Number of seeds <br> germinated | 40 | 48 | 42 | 39 | 41 |

What is the probability of germination of
(i) more than 40 seeds in a bag(ii) 49 seeds in a bag?
(iii) more that 35 seeds in a bag?

## SECTION D

21) Draw the graph of the linear equation $2 x+3 y=12$. What points, the graph of the equation cuts the $x$-axis and $y$-axis?
22) Give the geometric representations of $2 x+9=0$ as an equation
(i) in one variable
(ii) in two variables
23) Prove that a diagonal of a parallelogram divides it into two congruent triangles.
24) $D, E$ and $F$ are respectively the mid-points of the sides $B C, C A$ and $A B$ of a $\Delta$ $A B C$. Show that
(i) BDEF is a parallelogram. (ii) $\operatorname{ar}$ (DEF) $=\frac{1}{4} \operatorname{ar}(\mathrm{ABC})$
25) In the given figure, $A, B, C$ and $D$ are four points on a circle. $A C$ and $B D$ Intersect at a point $E$ such that $\angle B E C=130^{\circ}$ and $\angle E C D=20^{\circ}$. FindLBAC

26) Construct a triangle $A B C$, in which $\angle B=60^{\circ}, L C=45^{\circ}$ and $A B+B C+C A=1 \mathrm{~cm}$.
27) $A$ heap of wheat is in the form of a cone whose diameter is 10.5 m and height is 3 m . Find its volume. The heap is to be covered by canvas to protect it from rain. Find the area of the canvas required.
28) A person donates cylindrical bowls of diameter 7 cm to a charitable hospital in which soup is served to patients. If the bowl is filled with soup to a height of 4 cm , how much soup needs to be prepared daily to serve 250 patients ? Which values of the person are depicted here ?
29) Rain water which falls on a flat rectangular surface of length 6 m and breadth 4 m is transferred into a cylindrical vessel of internal radius 20 cm . What will be the height of water in the cylindrical vessel if the rain fall is 1 cm . Give your answer to the nearest integer. ( Take $\pi=3.14$ )
30) The following table gives the distribution of students of two sections according to the marks obtained by them:

| Section A |  | Section B |  |
| :---: | :---: | :---: | :---: |
| Marks | Frequency | Marks | Frequency |
| $0-10$ | 3 | $0-10$ | 5 |
| $10-20$ | 9 | $10-20$ | 19 |
| $20-30$ | 17 | $20-30$ | 15 |
| $30-40$ | 12 | $30-40$ | 10 |
| $40-50$ | 9 | $40-50$ | 1 |

Represent the marks of the students of both the sections on the same graph by two frequency polygons.
31) The mean weight of 180 students in a school is 50 kg . The mean weight of boys is 60 kg while that of the girls is 45 kg . Find the number of boys and that of the girls in the school.

## SECTION E(OTBA)

Theme -1 (Planning a garden) $(4+4+2)$
32) a) Calculate the cost of pots required to cover the boundary of garden given in layout plan. Also give cost of plantings plant it the pots.
b) Give coordinates of the corners of the ground which is available for gardening. c) Which climatic condition is necessary for healthy growth of plants?

