## THE INDIAN HIGH SCHOOL, DUBAI

## SUMMATIVE ASSESSMENT-2    2013

### SUBJECT: MATHEMATICS

**GRADE: 9**

**DATE: 3 .3.2013**

**TIME: 3 hours**

**Max marks: 90**

- The first 10 minutes should be devoted for reading and understanding the question paper.
- Kindly do not use unfair means at the time of examination. Zero mark will be given   to those who indulge in unfair means.
- Wish you all the best for a successful performance.

### General Instructions:

1. All questions are compulsory
2. The Question  paper consists of 34 questions divided into four sections A,B,C and D. Section A comprises of 8 questions of 1 mark each; Section B comprises of 6 questions of 2 mark each; Section C comprises of 10 questions of 3 marks each; and Section D comprises of 10 questions of 4 marks each.
3. Question numbers 1 to 8 in Section A are multiple choice questions where  you are required to select one correct option out of the given four.
4. There is no overall choice. However, internal choices have been provided  in 1 question of two marks,3 questions of  three marks each and 2 questions of four marks each. You have  to attempt  only one of the alternatives in all such questions.
5. Use of calculator is not permitted.

### SECTION-A                    (1 Mark each)

1. A chord of a circle is equal to its radius. Then the angle  subtended  by the chord at the centre of the circle  is
   a) 120 °         b) 150°         c) 60 °         d) 90°

2. In a cylinder, radius is doubled and height is halved. Then the curved surface  area will be
   a) halved         b) doubled         c) four times         d) same

3. If the point $(3, \frac{1}{3})$ lies on the graph of the equation  $3y = ax- 2$, then the value of a is
   a) -1         b) 1         c) 3         d) -3

4. A coin is tossed 100 times and head appears 64 times. The probability of getting a tail is
   a) $\frac{18}{25}$         b) $\frac{9}{25}$         c) 0         d)  1

5. For what value of x ,the mode of the following data  is 15?
   15, 16, 17, 13, 17, 16, 15, x+10, 14,  17, 16, 15
   a)15         b) 7         c) 5         d)  17

6. The graph of the equation  $y=4x$ is a straight line
   a) parallel to x- axis         b) parallel to y- axis         c)  passing through the origin
   d) intersecting both the axes

7. Volume of a cone of base radius ' r '  and slant height ' r $\sqrt{2}$ ' is
   a) $\frac{1}{3} \pi r^3$         b)  $\sqrt{2} \pi r^3$         c)$\frac{\sqrt{2}}{3} \pi r^3$         d)$\frac{\pi r^3}{2\sqrt{3}}$

8. ABCD is a rhombus. If AC= 8cm and BD =6 cm,  then the length of  the side BC is
   a) 4 cm         b) 5 cm         c) 3.5 cm         d) 7 cm

19. Give the geometric representation of $5x-7=3$ as an equation  i) In one variable.
    ii) In two variables.

20. Diagonals AC and BD of a quadrilateral ABCD intersect at O in such a way that
    Area ($\triangle AOD$) = Area($\triangle BOC$). Prove that ABCD is a trapezium.

    OR

    Diagonals AC and BD of a trapezium ABCD with AB ∥ CD intersect each other at O.
    Prove that Area (AOD) = Area ( BOC).

21. The volume of a right circular cone is 9856 $cm^3$. If the diameter of the base is 28 cm, find
    the curved surface area of the cone.   ( use $x = 22/7$)

22. If the non-parallel sides of a trapezium are equal, then prove that it is cyclic.

    OR

    Prove that a cyclic parallelogram is a rectangle.

23. A die is thrown 400 times with frequencies for the outcomes 1,2,3,4,5,and 6 as given in
    the following table.

    | outcome | 1 | 2 | 3 | 4 | 5 | 6 |
    |---------|----|----|----|----|----|----|
    | frequency | 72 | 65 | 70 | 71 | 63 | 59 |

    Find the probability of  i) getting an outcome less than 4.   ii) getting an outcome which
    is a multiple of 3.   iii) getting an outcome which is a prime number.

24. There are 3 villages A, B and C such that the distance from A to B is 7 km, from B to C is
    5 km and from C to A is 8 km. The gram pradhan wants to dig a well in such a way that
    the distance from each village to the well are equal. i) Locate the position of the well by
    taking a scale 1of km as 1cm   ii) Which value is depicted by gram pradhan?

**SECTION D        ( 4 Marks each)**

25. Prove that the angle subtended by an arc at the centre is double the angle subtended by it
    at any point on the remaining part of the circle.

26. Draw the graph of the equation $3x+y = 8$ and $x-3 = 0$ on the same graph paper and find the
    point of their intersection .

27. If two intersecting chords of a circle make equal angles with the diameter passing through
    their point of intersection, prove that the chords are equal.
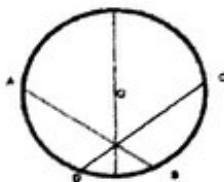


28. The length of a hall is 20 m and width is 16 m. The sum of the areas of the floor and the
    flat roof is equal to the sum of the areas of the four walls. Find the height of the hall.

29. The force exerted to pull a cart is directly proportional to the acceleration produced in the
    body. Express the statement as a linear equation in two variables and draw the same by
    taking the constant mass equal to 6 kg. Read from the graph ,the force required when the
    acceleration produced is i) 5 m/sec$^2$   ii)  6 m/sec$^2$

30. The thickness of a cylindrical wooden pipe is 1 cm. It is 7 cm long and its inner radius is
    3 cm. Find i) surface area of the pipe.. ii) Volume of the wood used to make it .
    (use $\pi = 22/7$)

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31. Construct a triangle ABC in which ∠B = 60°, ∠C = 45° and AB+BC+CA =12 cm.

32. Draw the frequency polygon for the following data.

| Classes | 25-35 | 35-45 | 45-55 | 55-65 | 65-75 | 75-85 |
|---|---|---|---|---|---|---|
| Frequency | 5 | 10 | 15 | 20 | 12 | 8 |

**OR**

Draw a histogram to represent the following frequency distribution

| Class interval | 100-150 | 150-200 | 200-300 | 300-500 | 500-800 |
|---|---|---|---|---|---|
| Frequency | 60 | 100 | 100 | 80 | 180 |

33. ABCD is trapezium in which AB ∥ CD and AD =BC. Show that i) ∠A = ∠B
ii) Δ ABC ≅ Δ BAD    iii) diagonal AC = diagonal BD.

34. In a parallelogram ABCD, E and F are the mid points of sides AB and CD respectively. Show that the line segments AF and EC trisect the diagonal BD.
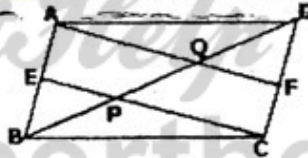
**OR**

ABC is a triangle right angled at C. A line through the mid point M of the hypotenuse AB and parallel to BC intersects AC at D. Show that     i)  D is the mid point of AC.
ii) MD  is perpendicular to AC.      iii) CM=MA =$\frac{1}{2}$ AB

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