**RUBRIC: SSC 1st ANNUAL EXAMINATION 2022**

**SUBJECT: MATHEMATICS - II (HA) Final correction by Anwaar sb, Ali Raza sb, Moazam sb dated:04-06-22 at 12:50**

| **Q.# /Part #** | **Criteria** | **Level 1 (Marks)** | **Level 2(Marks)** | **Level 3 (Marks)** | **Level 4 (Marks)** | **Level 5 (Marks)** |
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|  | Solving the quadratic equation by completing the square | Correctly completing the square on LHS  (2) | Partially correct  (1) | Wrong answer  (0) |  |  |
| Finding correct values of  (2) | Partially correct  (1) | Wrong answer  (0) |  |  |
|  | Solving the square root equation | Correctly converting the equation in quadratic form  (2) | Partially correct  (1) | Wrong answer  (0) |  |  |
| Finding the correct roots of the equation and writing the correct solution  (2) | Finding the correct roots of the equation **OR** writing the correct solution  (1) | Partially correct  (0.5) | Wrong answer  (0) |  |
|  | Finding the unknown value involved in a quadratic equation | Correctly stating the roots and correctly finding their sum & product  (2) | Either correctly stating the roots **OR**  correctly finding the sum & product of roots  (1) | Either correctly finding sum of roots **OR** product of roots  (0.5) | Wrong answer  (0) |  |
| Correctly finding the value of q  (2) | Partially correct  (1) | Wrong answer  (0) |  |  |
|  | Finding the unknowns by inverse variation | Correctly expressing the inverse variation, writing the equation connecting and finding the value of the constant of proportionality  (2) | Either correctly expressing the inverse variation and writing the equation connecting and **OR**  finding the value of the constant of proportionality  (1) | Either correctly expressing the inverse variation **OR**  writing the equation connecting and  (0.5) | Wrong answer  (0) |  |
| Correctly finding the value of when is given and correctly finding the value of when is given  (2) | Correctly finding the value of when is given **OR** correctly finding the value of when is given  (1) | Partially correct  (0.5) | Wrong answer (0) |  |
|  | Wrong statement | Awarded full credit i.e. (04) marks if attempted. | | | | | |
|  | Resolving the expression into partial fractions | Correctly factorizing the denominator and expressing as an identity (rule 1)  (2) | Either correct factorizing the denominator OR expressing as an identity (rule 1)  (1) | Partially correct  (0.5) | Wrong answer (0) |  |
| Correctly finding the values of two unknown constants (2) | Either correctly finding the value any one unknown constant (1) | Partially correct  (0.5) | Wrong answer (0) |  |
|  | Verifying the De-Morgan’s Law | Correctly finding the values of and    (2) | Either correctly finding the value of **OR**  (1) | Partially correct (0.5) | Wrong answer (0) |  |
| Correctly finding the values of , and  (2) | Either correctly finding the values of , **OR** the value of  (1) | Either correctly finding the value of **OR**  (0.5) | Wrong answer (0) |  |
|  | Writing the given sets in tabular form and developing the relation | Correctly writing the sets and in tabular form (2) | Either correctly writing the set **OR** in tabular form (1) | Partially correct (0.5) | Wrong answer (0) |  |
| Correctly finding and writing the relation R (2) | Either correctly finding  **OR** writing the relation R (1) | Partially correct (0.5) | Wrong answer (0) |  |
| ) | Finding the H.M from the given data | Correctly finding , , and HM  (4) | Correctly finding any three values  (3) | Correctly finding any two values  (2) | Correctly finding any one value  (1) | Wrong answer  (0) |
| ) | Proving the trigonometric identity | Correctly rationalizing and formulating for  (2) | Correctly rationalizing **OR** formulating for  (1) | Wrong answer  (0) |  |  |
| Correctly simplifying to prove  (2) | Partially correct  (1) | Wrong answer  (0) |  |  |

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|  | Drawing figure and finding the angle | Correctly finding the length of  (2) | Partially correct  (1) | Wrong answer  (0) |  |  |  |
| Correctly finding the length of  (2) | Partially correct  (1) | Wrong answer  (0) |  |  |  |
|  | Proving that tangent to a circle and radial segment joining the point of contact and the centre are perpendicular to each other | Correct figure, given,  to prove, construction  (2) | Any three correctly shown aspects  (1.5) | Any two correctly shown aspects  (1) | Any one correctly shown aspect  (0.5) | Wrong answer  (0) |  |
| Correct statements and correct reasons  (2) | Correct statements with partially correct reasons (1.5) | Partially correct statements with partially correct reasons (1) | Partially correct (0.5) | Wrong answer (0) |  |
| 2(xiii) | Finding the values of and from the figure | Correctly applying the Pythagoras theorem and correctly finding the correct value of  (2) | Correctly applying the Pythagoras theorem and finding the wrong value of  (1) | Partially correct  (0.5) | Wrong answer (0) |  |  |
| Correctly applying any of the trigonometric ratios and finding the correct value of  (2) | Correctly applying any of the trigonometric ratios and finding the wrong value of  (1) | Partially correct  (0.5) | Wrong answer (0) |  |  |
|  | Constructing circle from  the given points | Correctly drawing , , two perpendicular bisectors and circle  (4) | Any three correctly shown aspects  (3) | Any two correctly shown aspects  (2) | Any one correctly shown aspect  (1) | Wrong answer  (0) |  |
|  | Finding dimensions of the rectangle | Correctly setting of equation for the area and correctly setting of equation for the perimeter  (4) | Setting of one correct and one partially correct  (3) | Correctly setting of equation for the area **OR** correctly setting of equation for the perimeter  (2) | Any Partially correct equation  (1) | Wrong answer  (0) |  |
| Correctly solving the equations and finding the correct values of and (4) | Correctly solving the equations and finding the correct value of **OR**  (3) | Correctly solving the equations and finding the incorrect values of ,  (2) | Partially correct  (1) | Wrong answer  (0) |  |
|  | Resolving the expression into partial fractions | Correctly writing the expression as an identity (2) | Partially correct (1) | Wrong answer (0) |  |  |  |
| Correctly finding the values of unknown constants (5) | Correctly finding values of any four unknown constants (4) | Correctly finding values of any three unknown constants  (3) | Correctly finding values of any two unknown constants  (2) | Correctly finding value of any one unknown constant (1) | Wrong answer  (0) |
| Correct substitution of unknown constants in the identity (1) | Wrong answer (0) |  |  |  |  |
| 5 | Finding height of the house  by using the trigonometric ratios | Correctly drawing the diagram  (2) | Partially correct (1) | Wrong (0) |  |  |  |
| Correctly applying two trigonometric ratios in the triangles with the given elevation angles and correctly setting two equations  (4) | Correctly applying two trigonometric ratios in the triangles with the given elevation angles and correctly setting one equation  (3) | Correctly applying two trigonometric ratios in the triangles with the given elevation angles and setting two wrong equations  (2) | Partially correct  (1) | Wrong answer (0) |  |
| Correctly finding the values of and  (2) | Either correctly finding the value of **OR** of  (1) | Partially correct  (0.5) | Wrong answer (0) |  |  |
| 6 | Proving that two chords which are equidistant from the center, are congruent | Correct figure, given,  to prove, construction  (4) | Any three correctly shown aspects  (3) | Any two correctly shown aspects  (2) | Any one correct shown aspect (1) | Wrong answer  (0) |  |
| Proof with correct statements and correct reasons  (4) | Proof with correct statements with partially correct reasons  (3) | Proof with correct statements without reasons (2) | Partially correct  (1) | Wrong answer  (0) |  |
| 7 | Proving that opposite angles of any quadrilateral inscribed in a circle are supplementary | Correct figure, given,  to prove, construction  (4) | Any three correctly shown aspects  (3) | Any two correctly shown aspects  (2) | Any one correct shown aspect (1) | Wrong answer (0) |  |
| Proof with correct statements and correct reasons  (4) | Proof with correct statements with partially correct reasons  (3) | Proof with correct statements but without reasons  (2) | Partially correct  (1) | Wrong answer (0) |  |