1. Possible application areas of MRAFF process are
   (a) Aerospace
   (b) Medical
   (c) Automotive
   (d) All of the above
   Ans. (d)

2. Which property of MR fluid can be controlled using externally applied magnetic field
   (a) Temperature
   (b) Viscosity
   (c) Pressure
   (d) Specific weight
   Ans. (b)

3. During finishing of stainless steel in R-MRAFF process the most significant process parameter is
   (a) Rotational speed of the magnet
   (b) Hydraulic extrusion pressure
   (c) Number of finishing cycle
   (d) Volume ratio of CIP/SiC
   Ans. (a)

4. During internal polishing of cylindrical workpiece in R-MRAFF process the out of roundness of the workpiece varies with the increase in abrasive mesh size as
   (a) Increasing and then decreasing
   (b) Decreasing and then increasing
   (c) Increasing
   (d) Decreasing
   Ans. (d)

5. Indentation by the abrasive particle on the workpiece surface by R-MRAFF process process is due to the combined effect of
   (a) Magnetic force and centrifugal force
   (b) Magnetic force and radial force
   (c) Centrifugal force and radial force
   Ans. (a)

6. In R-MRAFF process, the path followed by active abrasive grain at the internal surface of the cylindrical workpiece surface is
   (a) Hexagonal path
   (b) Helical path
   (c) Spiral path
   (d) Vertical path
   Ans. (b)
7. In which one of the following process cross-hatch patterns on the workpiece surface like in R-MRAFF is generated
   (a) Honing process
   (b) Lapping process
   (c) Buffing process
   Ans. (a)

8. What are the advantages of R-MRAFF process
   (a) Uniform finishing
   (b) Controllable finishing force
   (c) All of the above
   Ans. (c)

9. The percentage change in surface roughness varies with the increase in abrasive mesh size in R-MRAFF process as
   (a) Increasing and then decreasing
   (b) Decreasing and then increasing
   (c) Increasing
   (d) Decreasing
   Ans. (d)

10. Yield strength of MR fluid is in the range of
    (a) 100-200 kPa
    (b) 0-100 kPa
    (c) 200-300 kPa
    Ans. (b)

11. Surfactants is added in MR fluid to
    (a) reduce agglomeration
    (b) reduce sedimentation
    (c) increase magnetic field in the finishing zone
    (d) increase sedimentation
    Ans. (a), (b)

12. The percentage change in surface roughness varies with the increase in rotational speed of the magnet in R-MRAFF as
    (a) Increasing and then decreasing
    (b) Decreasing and then increasing
    (c) Increasing
    (d) Decreasing
    Ans. (a)

13. The out of roundness varies with the increase in rotational speed of the magnet in R-MRAFF
    (a) Increasing and then decreasing
14. If the abrasive mesh size is 120 then how does the percentage change in surface roughness varies with the increase in extrusion pressure in R-MRAFF
(a) Increasing
(b) Decreasing
(c) Increasing and then show decreasing pattern
(d) Decreasing and then show increasing pattern

Ans. (c)

15. Which one of the following viscosity models better fits the experimental yield stress data obtained from the rheometer
(a) Bingham plastic model
(b) Herschel-Bulkley model
(c) Casson Fluid model

Ans. (b)

16. There is a decrease in yield stress when the total solid contents (CIP + abrasive) of the MRP fluid reaches
(a) More than 35%
(b) Less than 20%
(c) Less than 35%
(d) More than 10%

Ans. (a)

17. In R-MRAFF process surface finish of the workpiece reaches as low as
(a) 5 nm
(b) 2 nm
(c) 16 nm
(d) 10 nm

Ans. (c)

18. From numerical simulation of MR polishing fluid inside a cylinder at a given magnetic field, higher extrusion pressure gives rise to
(a) Larger plug flow region
(b) Smaller plug flow region

Ans. (b)

19. The chain formation by CIPs in MR fluid is not continuous due to the presence of
(a) Stabilizer
(b) Additive
(c) Abrasive particles
Ans. (c)

20. R-MRAFF gives higher polishing rate than MRAFF process due to
(a) Centrifugal force
(b) Tangential cutting force
(c) Magnetic force
(d) All of the above

Ans. (a), (b)