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| **Scheme of Valuation/Answer Key**(Scheme of evaluation (marks in brackets) and answers of problems/key) |
| **APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018 |
| **Course Code: ME303** |
| **Course Name: MACHINE TOOLS AND DIGITAL MANUFACTURING** |
| Max. Marks: 100 |  | Duration: 3 Hours |
| **PART A** |
|  |  | ***Answer any three full questions, each carries 10marks.*** | Marks |
| 1 | a) | Neat diagram – Give 2 marksIdentifying the primary, secondary and tertiary regions of heat generation – Give 3 marks  | (5) |
|  | b) | List 5 differences – Give 5 marks | (5) |
| 2 | a) | Explanation of crater & flank wear – Give 3 marks | (3) |
|  | b) | For appropriate steps - Give 4 marksSol: Shear angle = 38.77° Shear force = 654.1 N Kinetic coefficient of friction = 0.497 | (7) |
| 3 | a) | Give two reasons – 4 marks | (4) |
|  | b) | Neat diagram – 2 marksExplanation – 4 marks | (6) |
| 4 | a) | 3 differences – Give 3 marksNeat diagrams – 2 marks | (5) |
|  | b) | Diagram – 2 marksExplanation of different parts – 3 marks | (5) |
| **PART B** |
| ***Answer any three full questions, each carries 10marks.*** |
| 5 | a) | Any 2 advantages – Give 4 marks | (4) |
|  | b) | List any 4 differences- Give 6 marks | (6) |
| 6 | a) | Appropriate steps – 3 marksSol: 15.93m/min | (5) |
|  | b) | Any 5 operations – 5 marks | (5) |
| 7 | a) |  sketches for up milling and down milling – 3 marks 2 advantages – 2 marks2 disadvanatages – 2 marks | (7) |
|  | b) | Any 3 milling attachment – Give 3 marks | (3) |
| 8 | a) | Diagram – 2 marksExplanation – 3 marks | (5) |
|  | b) | Neat sketch – 2.5 marksExplanation of each part – 2.5 marks | (5) |
| **PART C** |
| ***Answer any four full questions, each carries 10marks.*** |
| 9 | a) | Explanation – 2.5 marksDiagram – 2.5 marks | (5) |
|  | b) | Diagrams- 2Nos. - 3 marks Explanation – 2 marks | (5) |
| 10 | a) | Explanation of glazing – 2 marksExplanation of loading of wheels – 2 marks | (4) |
|  | b) | Importance of super finishing process – 3 marksValues of surface roughness of various super finishing process – 3 marks | (6) |
| 11 | a) | Sketch – 2 marksExplanation –2 marksApplication – 1 mark | (5) |
|  | b) | Neat diagram – 2 marksExplanation – 3 marks | (5) |
| 12 | a) | Points related to IT Technologies used in DM scenario with examples – give 7 marks | (7) |
|  | b) | Explanation of organizational sciences used in DM – Give 3 marks | (3) |
| 13 | a) | Any 4 differences - Give 4 marks | (4) |
|  | b) | Diagram – 2 marksExplanation of each elements of flow chart – 4 marks | (6) |
| 14 | a) | Any four benefits – Give 6 marks | (6) |
|  | b) | Explanation of IDEF modelling method with references to its different versions – Give 4 marks | (4) |
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