Important Instructions to examiners:

1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.

2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.

3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills.

4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.

5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate’s answers and model answer.

6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate’s understanding.

7) For programming language papers, credit may be given to any other program based on equivalent concept.

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<th>Q. No.</th>
<th>Sub Q. N.</th>
<th>Answer</th>
<th>Marking Scheme</th>
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<tr>
<td>1</td>
<td>A)</td>
<td>Attempt any SIX:</td>
<td>02 M for each</td>
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<tr>
<td></td>
<td>(a)</td>
<td>SPUR GEAR</td>
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<tr>
<td></td>
<td>b) Round section</td>
<td></td>
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<td></td>
<td>c) Slotted head</td>
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To Be Drawn At 45°
d) Diamond knurling

![Diamond knurling diagram]

e) Counter Sunk

![Counter Sunk diagram]

f) Union

![Union diagram]

g) Square on shaft

![Square on shaft diagram]

h) Semi-elliptic leaf spring with eyelets and centre band

![Semi-elliptic leaf spring diagram]

i) Roller bearing

![Roller bearing diagram]
(B) Attempt any TWO of the following

a) (i) Spot weld

![Spot weld diagram]

(ii) Seam weld

![Seam weld diagram]

(iii) Concave fillet weld

![Concave fillet weld diagram]

(iv) Convex double V-butt weld

![Convex double V-butt weld diagram]

b) 

Max. Hole size = 50.090 mm
Min. " " = 50.000 mm
Max. Shaft " = 50.280 mm
Min. " " = 50.120 mm

Max. Allowance = Max. Hole size - Min. Shaft "
= 50.090 - 50.120 = -0.03

Min. Allowance = Min. Hole size - Max. Shaft "
= 50.000 - 50.280 = -0.28

Both -ve values indicate that the type of fit is **Interference Fit**
c) MILLING – MANUFACTURING METHOD

- SURFACE ROUGHNESS VALUE IN MICRON METER
- MACHINING ALLOWANCE
- DIRECTION OF LENGTH LAY
- SAMPLING LENGTH

(A)

(F.V. 03 MARKS, T.V. 03 MARKS, Auxiliary T.V 06 marks)

(B) Attempt any TWO:

a) Meaning of x and y

(x) The tolerated edge is parallel with in 0.02 mm to the datum A
(y) The tolerated edge is perpendicular with in 0.03 mm to the datum A

b)
c) Draw the symbol of the following

(i) Co-axiality

(ii) Cylindricity

(iii) Profile of any subject

(iv) Concentricity

Attempt any TWO:

(F.V.= 06 MARKS, T.V.= 02 MARKS, Auxiliary T.V = 02 marks)
(b) \( \text{F.V. = 06 MARKS, T.V. = 02 MARKS, Auxiliary T.V. = 02 marks} \)

(c) \( \text{F.V. = 06 MARKS, T.V. = 02 MARKS, Auxiliary T.V. = 02 marks} \)
Attempt any ONE:

(a) (Sect. Front view = 10 Marks, Top View = 08 Marks, Bill of material = 02 marks)

(b) (Sect. Front view = 10 Marks, Top View = 08 Marks, Bill of material = 02 marks)
Attempt any ONE:

(i) Body sect. F. V & T.V = 10 Marks, (ii) Valve F. V & T.V = 04 Marks,

(iii) Valve Seat F. V & T.V = 04 Marks, (iv) Indication of tolerance, geometrical tolerance = 02 marks
b) (i) Body (two views) = 06 Marks, (ii) Remaining Components (any four) = 02 Marks each

(ii) Plate F. V & T. V = 04 Marks, (iv) Type of fit used = 02 marks