



Subject Code: 17305

Model Answer

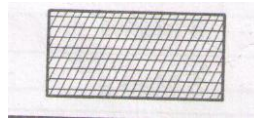
Important Instructions to examiners:

- 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.

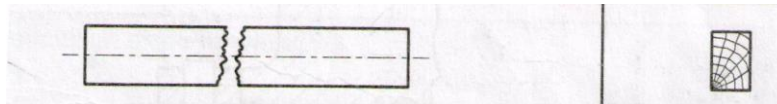
Q.1 A) any six.

02 mark each

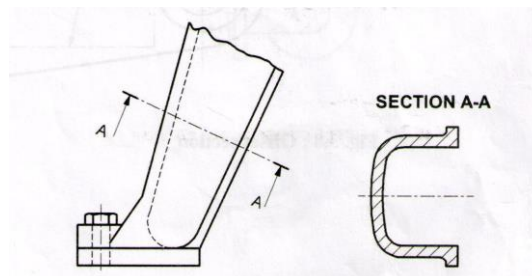
a) Rubber



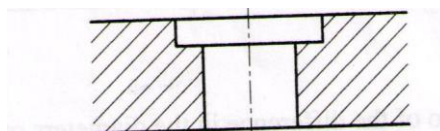
b) rectangular section (wood)



c) removed section



d) counter bore

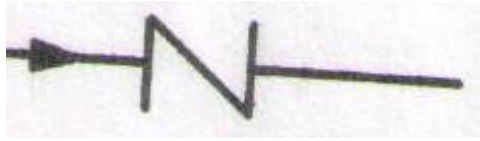




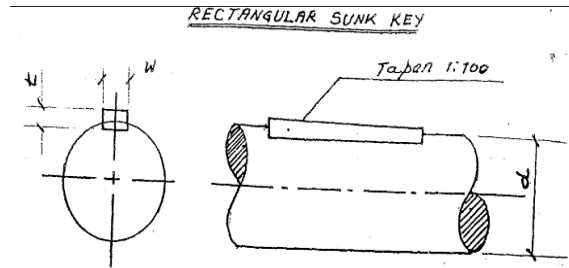
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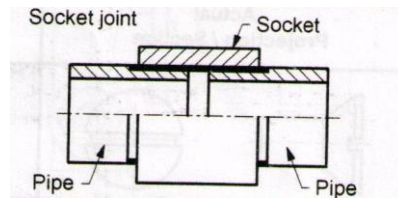
e) check valve



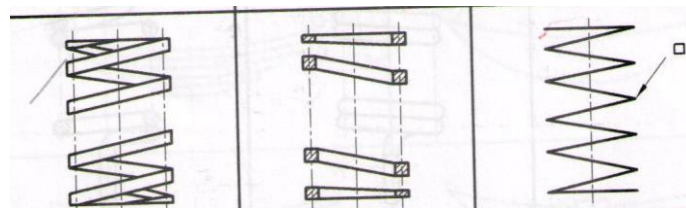
f) sunk key



g) socket pipe joint



h) helical compression spring of wire of rectangular c/s





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B) a)

[calculation 3 mark, fit 1 mark]

a)

$$\text{Hole size} = \phi 20 \begin{matrix} +0.018 \\ -0.000 \end{matrix}$$
$$\text{Shaft size} = \phi 20 \begin{matrix} +0.023 \\ +0.012 \end{matrix}$$

for shaft: Upper limit = $20.000 + 0.023$
 $= 20.023$
Lower limit = $20.000 + 0.012$
 $= 20.012$

for Hole:

$$\text{Upper limit} = 20.000 + 0.018$$
$$= 20.018$$
$$\text{Lower limit} = 20.000 - 0.000$$
$$= 20.000$$

Max. allowance = Upper limit of hole - lower limit of shaft
 $= 20.018 - 20.012$
 $= 0.006$ (+ve) max clearance

min. allowance = lower limit of hole - Upper limit of shaft
 $= 20.000 - 20.023$
 $= -0.023$ (-ve) min. clearance.

Here interference will result.
Hence type of fit is transition fit.

b) meaning of symbol

[01 for each]

	0.1	A - B
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The radial run out shall not be greater than 0.1 in any plane of measurement during one revolution about the datum axis A - B.

	0.1	A
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The median plane of the slot shall be contained between two parallel planes which are 0.1 apart and symmetrically disposed about the median plane with respect to the datum feature A.

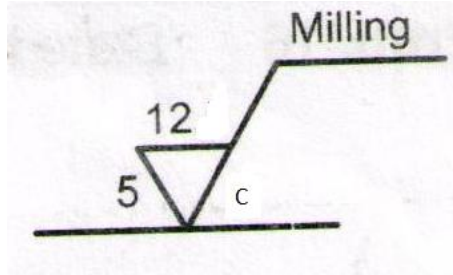


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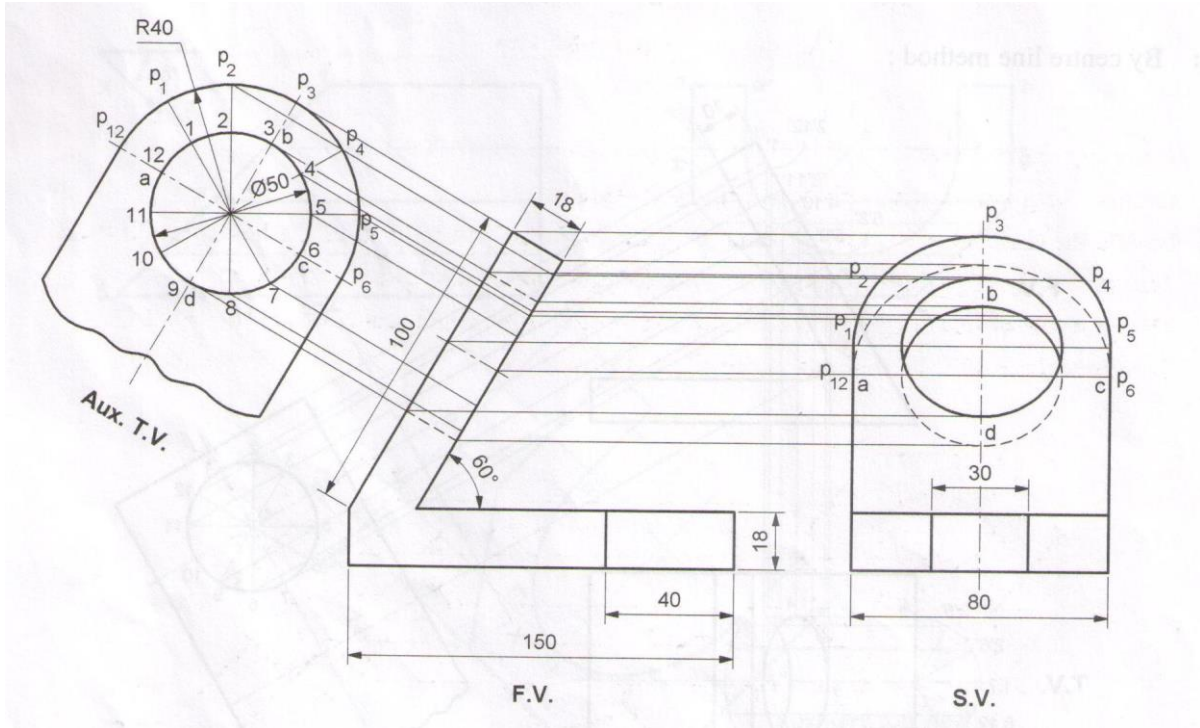
c) machining symbol

[01 for each parameter]



Q.2. A)

[FV 2 mark, Aux TV 2 mark, SV 8 mark]





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Model Answer

B)

a) i)

[1 mark each]

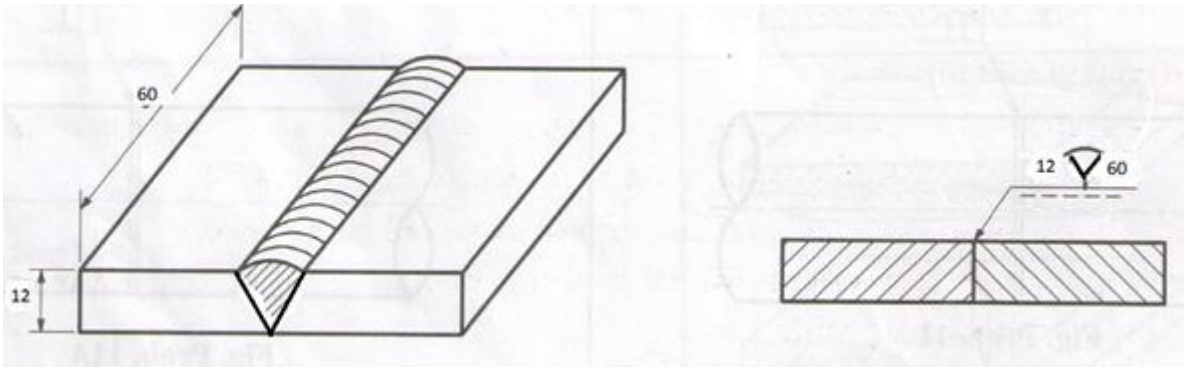


Roundness



b)

[convention 2, symbol 2 mark]



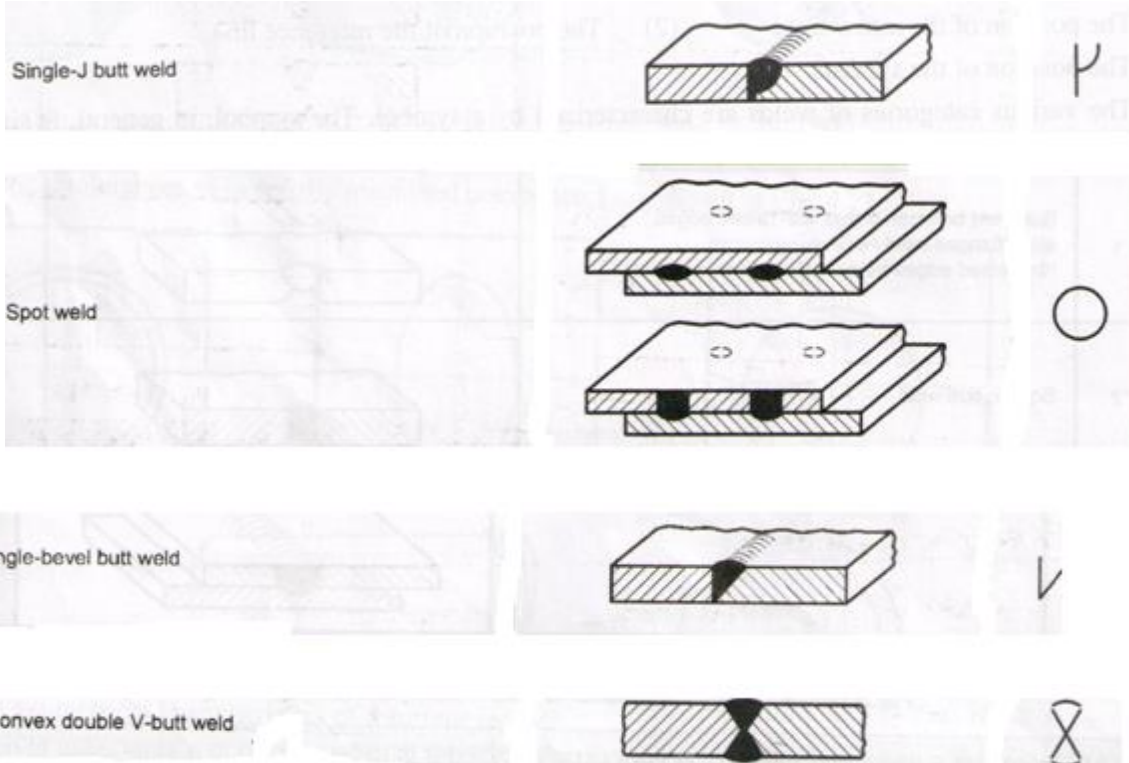


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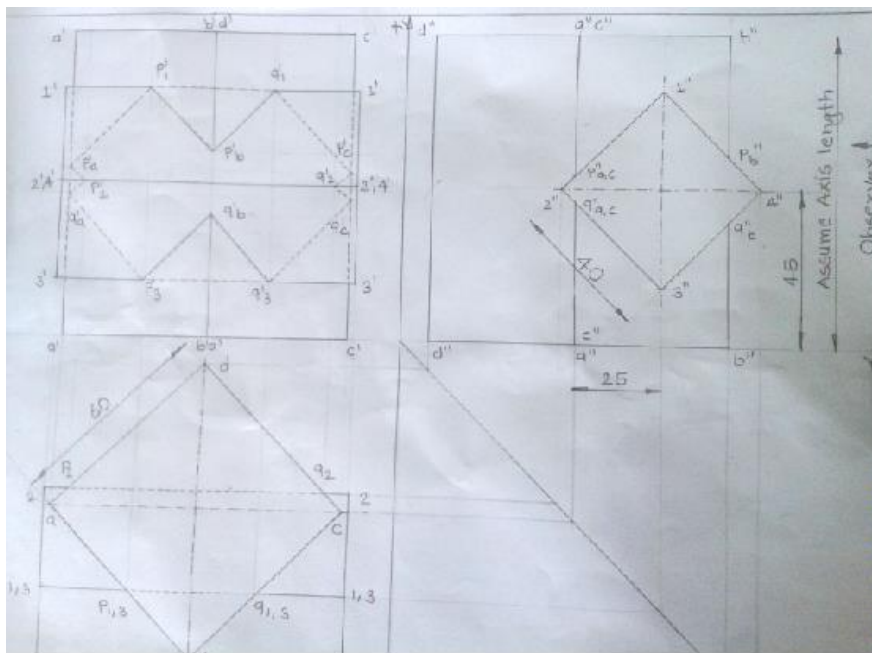
c)

[01 mark each]



Q.3 a)

[FV 6, TV 2, SV 2 mark]



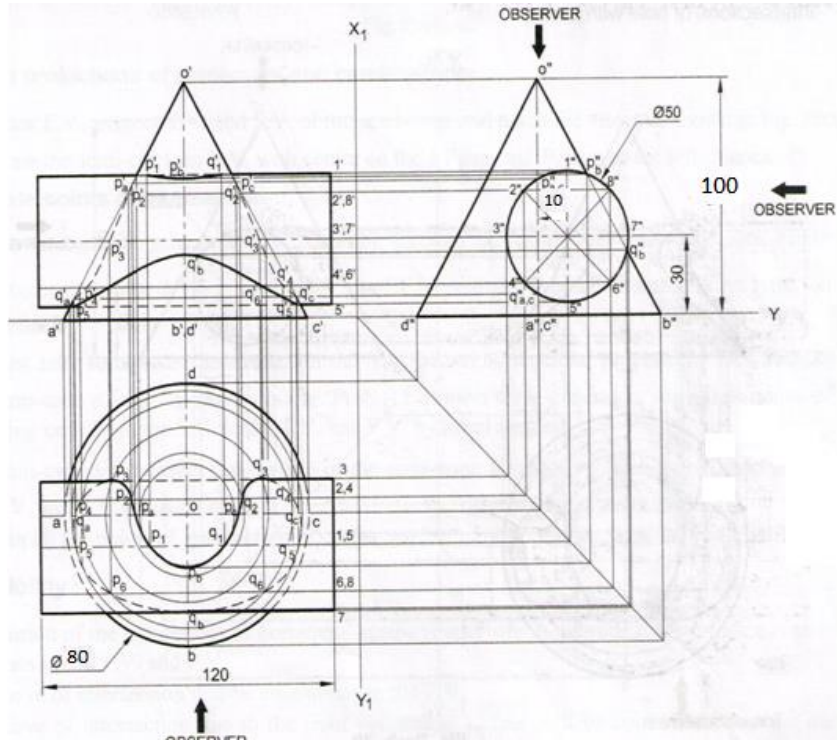


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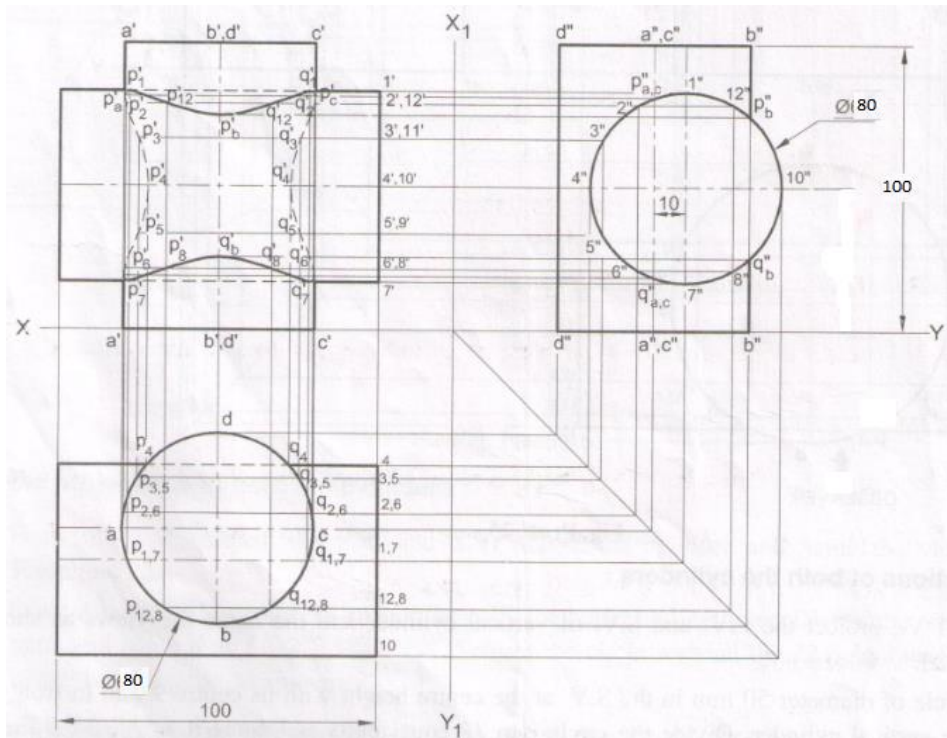
b)

[FV 4, TV 4, SV 2 mark]



c)

[FV 4, TV 4, SV 2 mark]



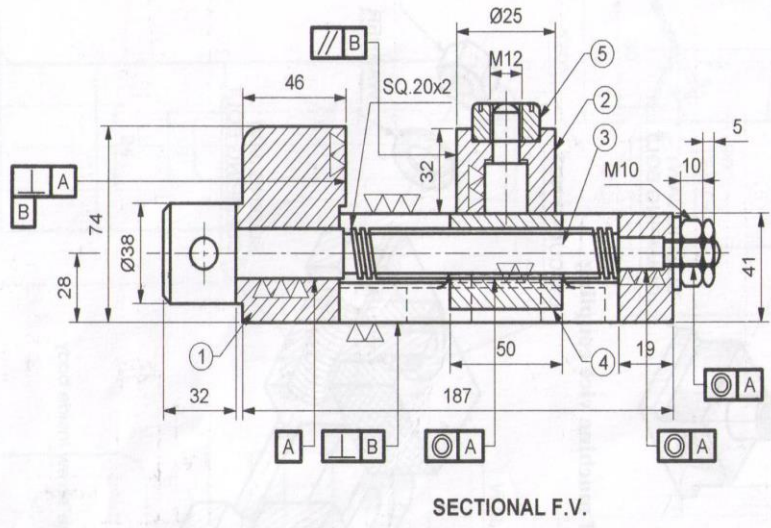


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Model Answer

Q.4 a) assembly of machine vice.

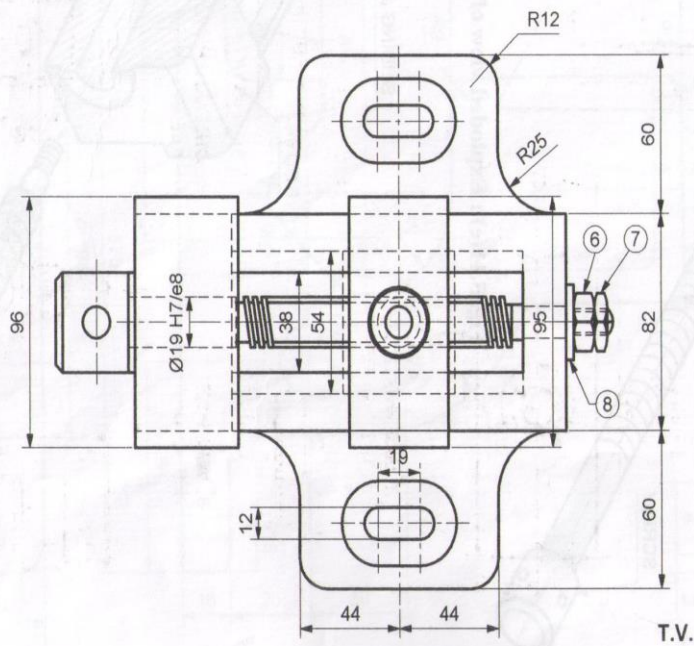
[Sectional FV 10 mark, TV 8 mark, bill of material 2 marks]



SECTIONAL F.V.

PART LIST

PART NO.	PART NAME	MATL.	QTY.
1	BODY	C.I.	1
2	SLIDING JAW	M.S.	1
3	SCREW	M.S.	1
4	SLIDING JAW CLAMPING BOLT	M.S.	1
5	CIRCULAR NUT	M.S.	1
6	NUT	M.S.	1
7	LOCK NUT	M.S.	1
8	WASHER	M.S.	1



T.V.

FIT CHART

19H7/e8	CLEARANCE FIT
12H7/e8	CLEARANCE FIT

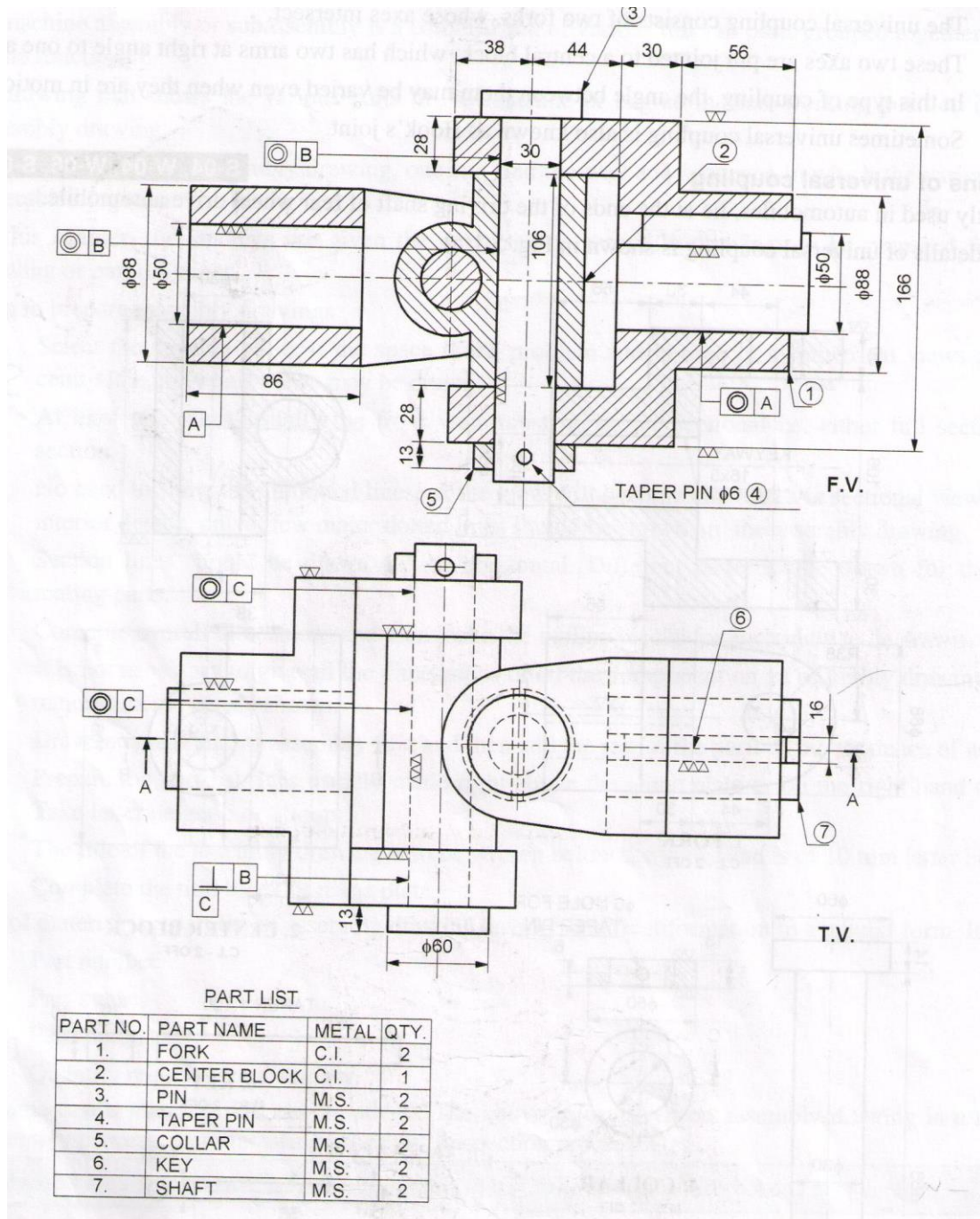


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Q.4 b) assembly of universal coupling.

[Sectional FV 10 mark, TV 8 mark, bill of material 2 marks]



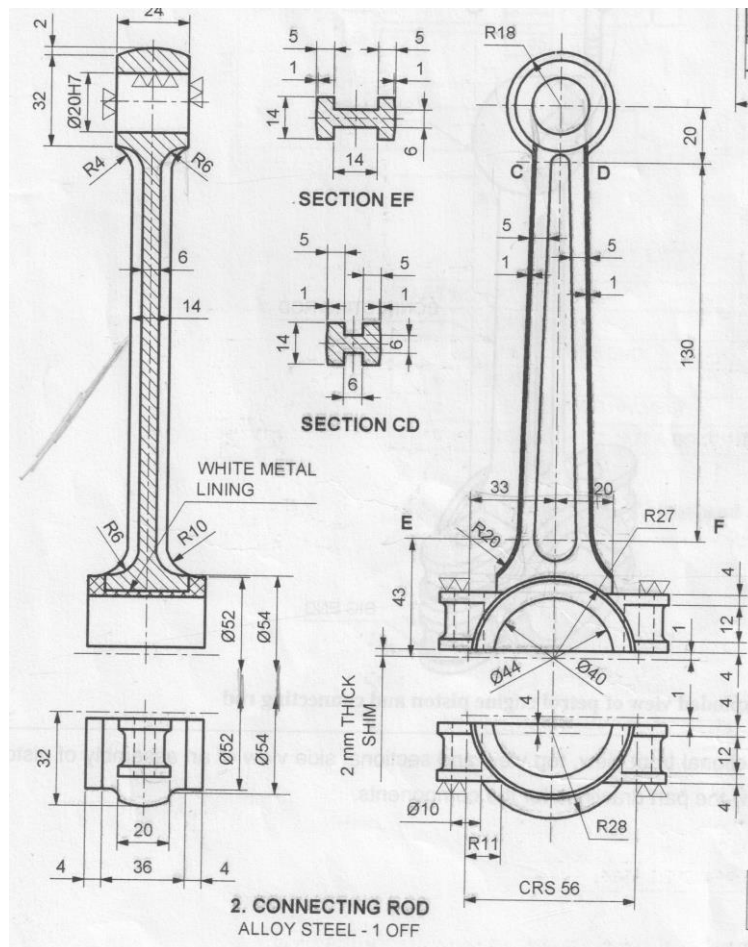
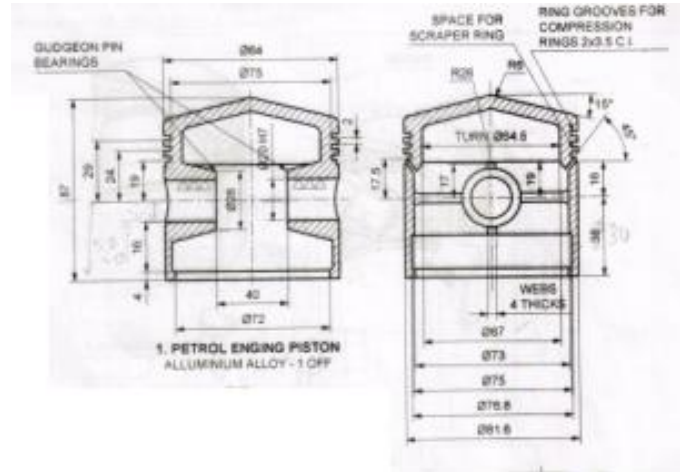


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Q.5.a) details of piston and connecting rod of IC engine i) piston- SFV and SV 10 marks,

ii) connecting rod- SFV and SV 10 marks,]





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Model Answer

Q. 5 b) Details of fast and loose pulley

- i) Loose pulley – Sect. FV and SV – 10 marks
- ii) Shaft – F. V and End View - 04 marks
- iii) Bush – F. V and Side View - 02 marks
- iv) Collar – Sect. F. V and Side View - 04 marks]

