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Subject Code

- Any -

Question Type

- Any -

marks

- Any -

Question Number

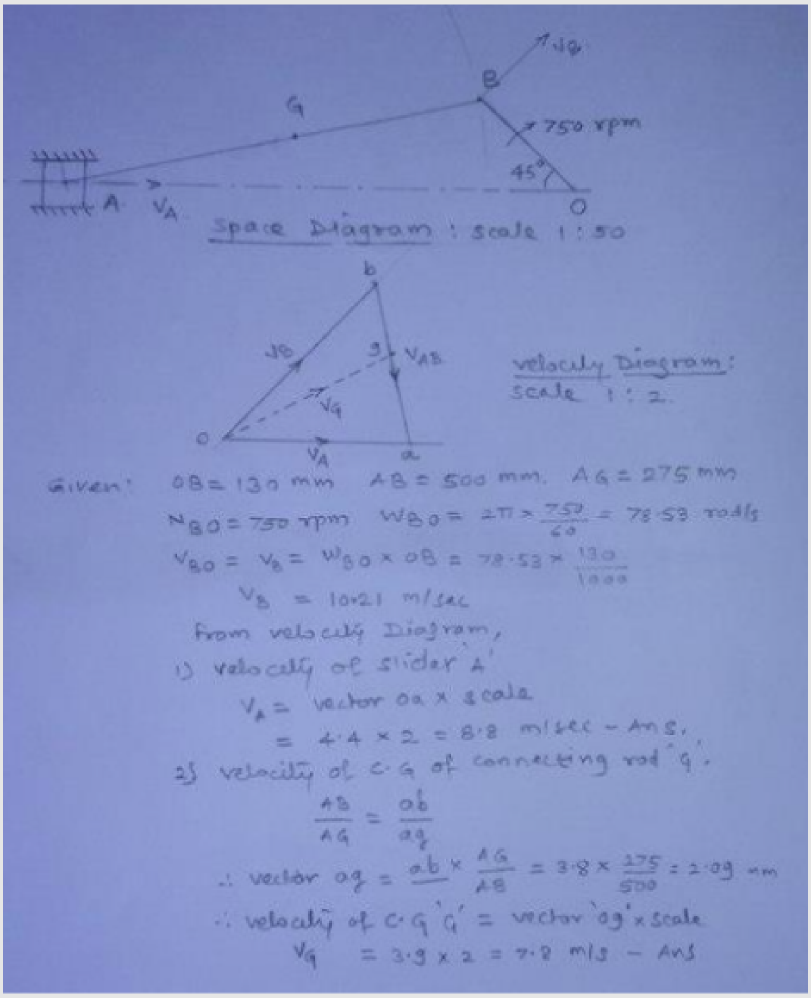
- Any -

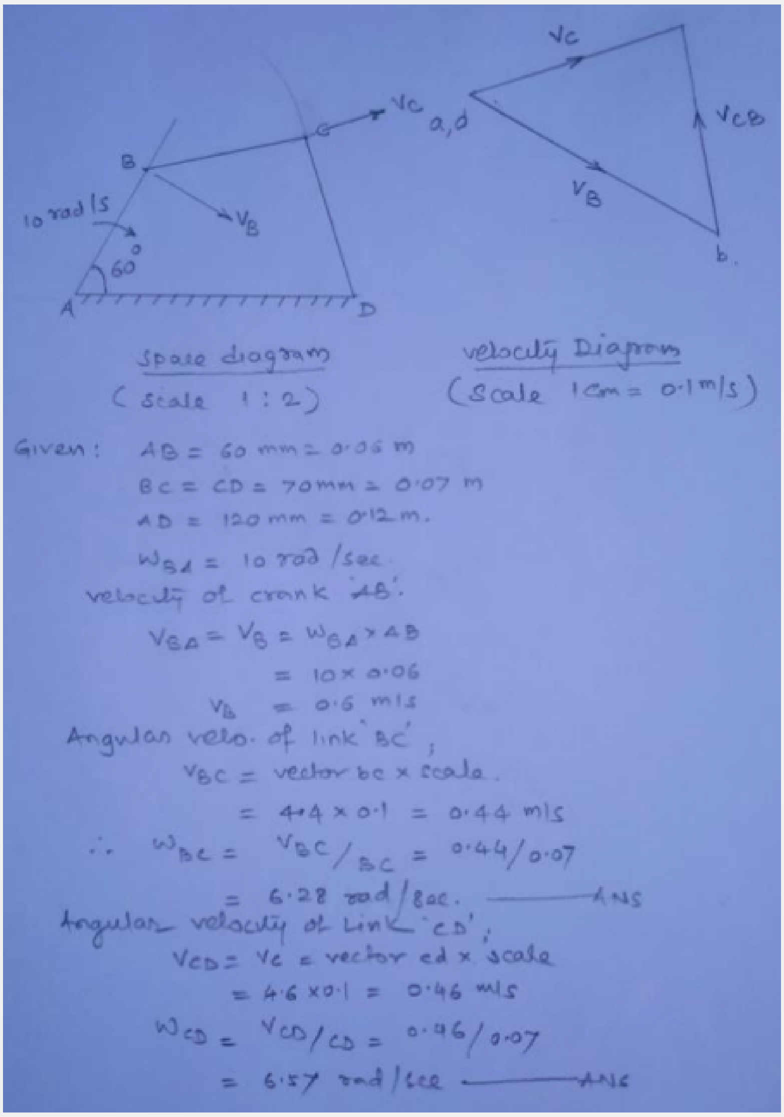
Sub Number

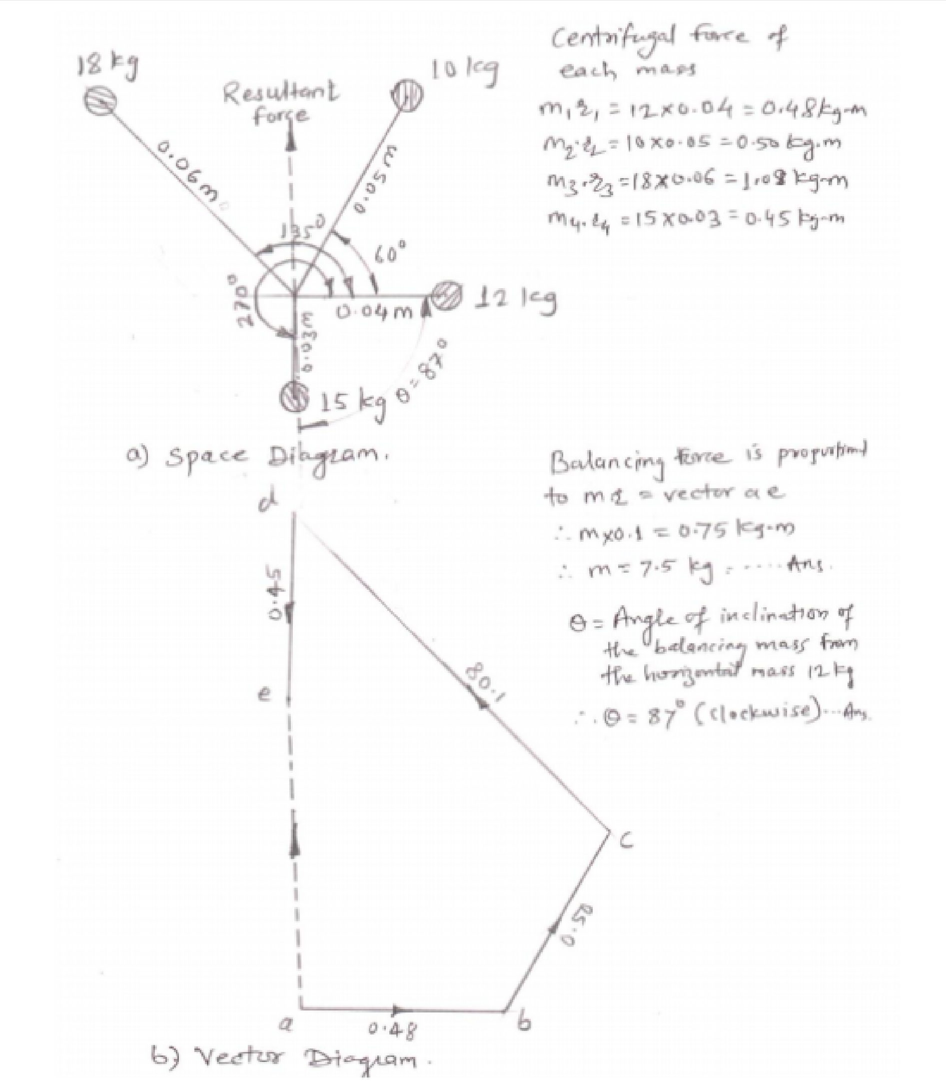
- Any -

Apply

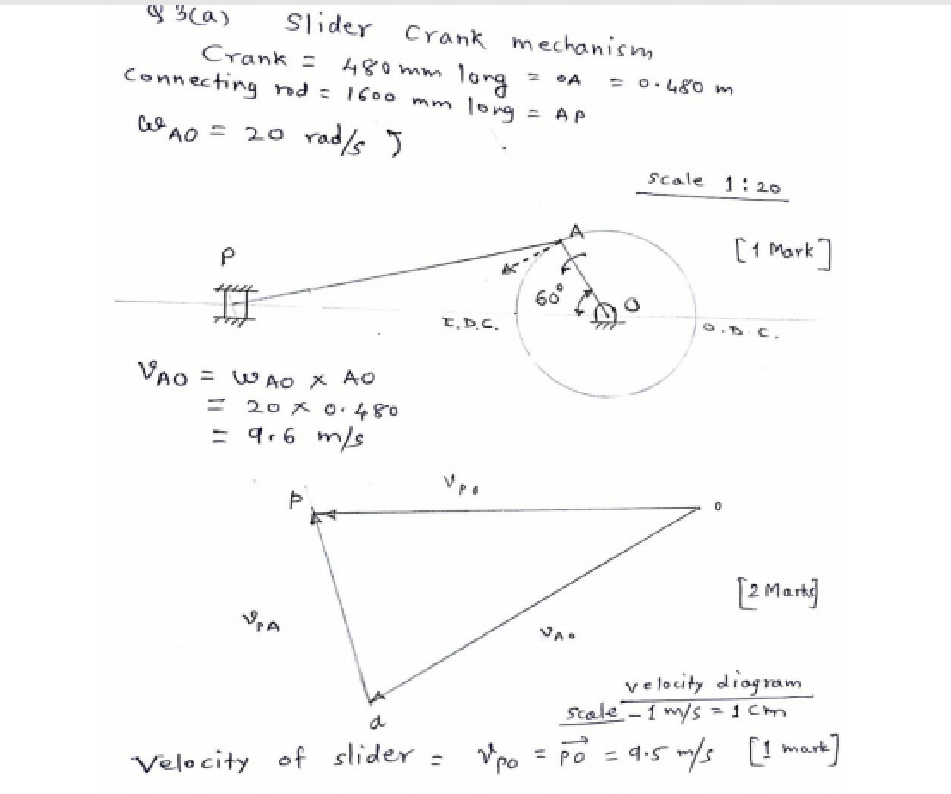
Examination: 2017 SUMMER

Que.No	Question/Problem	marks	Link
Q 3 c)	Question: **In slider crank mechanism, the length of crank OB and connecting rod AB are 130 mm and 500 mm respectively. The centre of gravity G of the connecting rod is 275 mm from slider A. The crank speed is 750 rpm in clockwise. When crank has turned 45 from inner dead centre position determine (i) velocity of slider ‘A’ (ii) velocity of centre of gravity of connecting rod ‘G’.** **Answer:** 	4	view

Que.No	Question/Problem	marks	Link
Q 4 b)	Question: **In a four bar mechanism ABCD link AD is fixed and the crank AB rotates at 10 radians per second in clockwise, lengths of the links are AB = 60 mm, BC = CD = 70 mm, DA = 120 mm, when angle DAB = 60 and both B and C lie on the same side of AB, find angular velocities of BC and CD link.** **Answer:**  	4	view

Que.No	Question/Problem	marks	Link
Q 6 f)	Question: **Four masses A, B, C and D are attached to a shaft and revolve in the same plane. The masses are 12 kg, 10 kg, 18 kg and 15 kg respectively and their radii of rotations are 40 mm, 50 mm, 60 mm and 30 mm. The angular position of the masses B, C and D are 60O, 135O ,and 270O from the mass 'A'. Find the magnitude and position of the balancing mass at a radius of 100 mm. Use graphical method only.** **Answer:** 	4	view

Examination: 2016 SUMMER

Que.No	Question/Problem	marks	Link
Q 3 a)	Question: **In a slider-crank mechanism, the crank is 480 mm long and rotates at 20 rad/sec in the counter-clockwise direction. The length of the connecting rod is 1600 mm. when the crank turns 60 from the inner-dead centre. Determine the velocity of the slider by relative velocity method.** **Answer:** 	4	view

Examination: 2015 SUMMER

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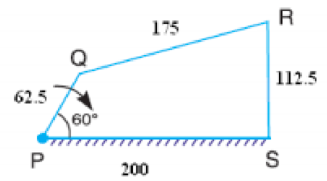
<tr><th>Que.No</th><th>Question/Problem</th><th>marks</th><th>Link</th></tr>
<tr><td>Q 3 e)</td><td>

Question:

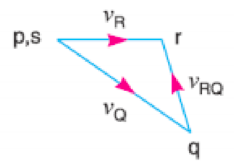
PQRS is a four bar chain with PS fixed length of links are PQ = 62.5 mm, QR =175 mm, RS = 112.5 mm, PS = 200 mm. The crank PQ rotate at 10 rad/sec. in clockwise direction. Determine the angular velocity of point R, graphically by using relative velocity method.

Answer:

Assume angle QPS = 60^0



(*a*) Space diagram.



(*b*) Velocity diagram.

V_{QP} = PQ x ω_{pq} = 0.0625 x 10 rad / sec = 0.625 m/s

First of all, draw the space diagram to some suitable scale, as shown in Fig. Now the velocity diagram, as shown in Fig. is drawn as discussed below :

1. Since the link PS is fixed, therefore points p and s are taken as one point in the velocity diagram. Draw vector pq perpendicular to QP to some suitable scale, to represent the velocity of Q with respect to P or simply velocity of Q (*i.e* V_{qp} or V_q) such that

vector pq = V_{qp} = V_q = 0.625 m/s

2. Now from point q, draw vector qr perpendicular to RQ to represent the velocity of R with respect to Q (*i.e.* V_{rq}) and from point s, draw vector sr perpendicular to RS to represent the velocity of R with respect to S or simply velocity of R (*i.e.* V_{rs}, or V_r). The vectors qr and sr intersect at r

By measurement, we find that

$V_{rs} = V_r$ = vector sr = 0.43 m/s

We know that RS = 112.5 mm = 0.1125 m

∴ Angular velocity of R = Ang. Velo. of link RS (clockwise about S)

$$\omega_{RS} = \frac{V_{rs}}{RS} = \frac{0.43}{0.1125} = 3.82 \text{ rad/s}$$ **Ans.**

</td><td>4</td><td>view</td></tr>
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