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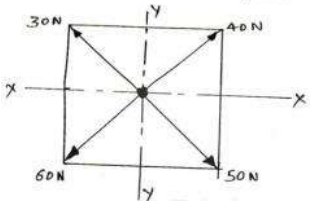
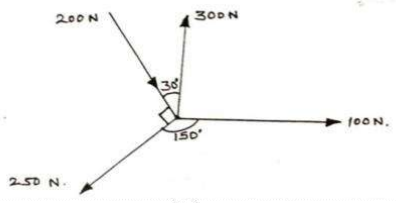
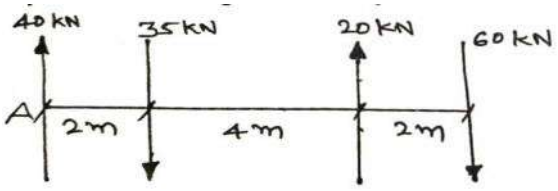
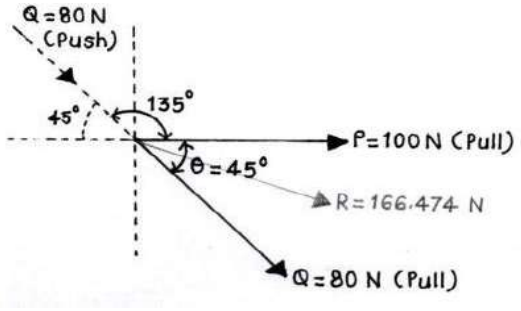
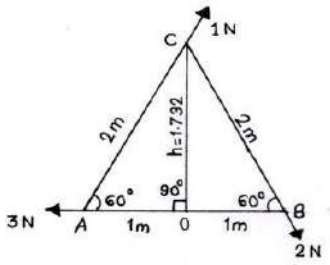
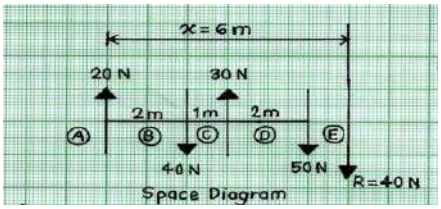
312312 - Engineering Mechanics (Sem II)

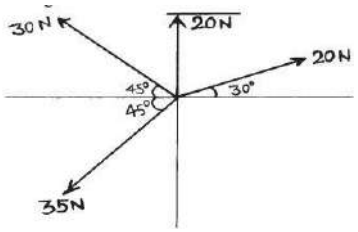
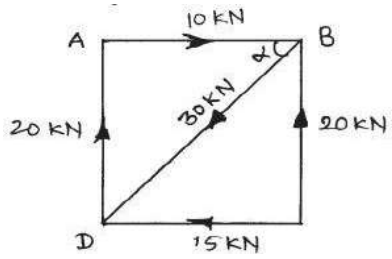
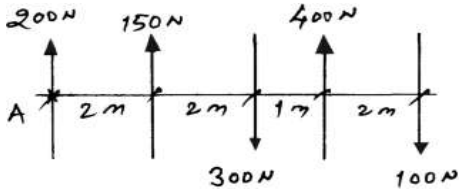
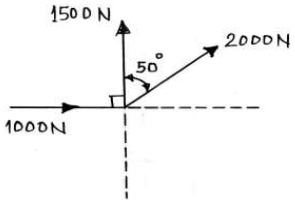
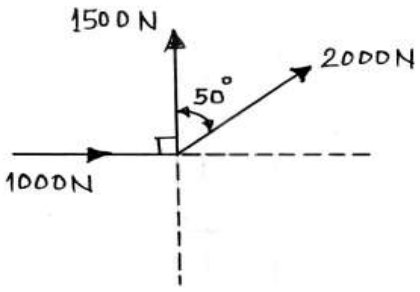
As per MSBTE's K Scheme

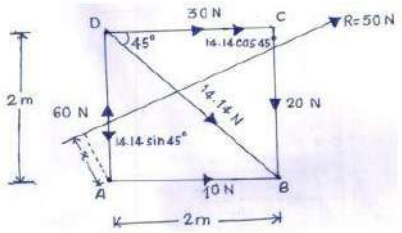
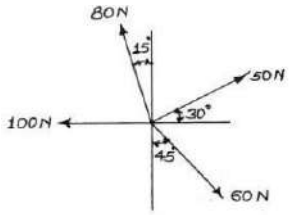
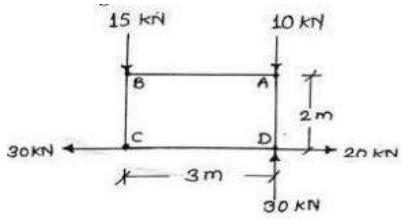
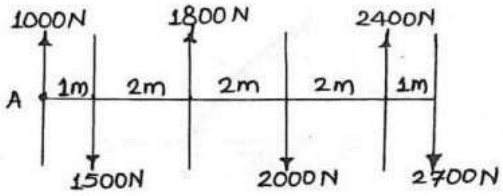
ME / AE / NK / PG

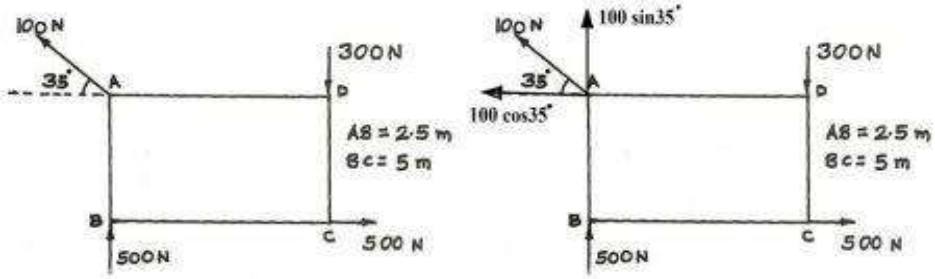
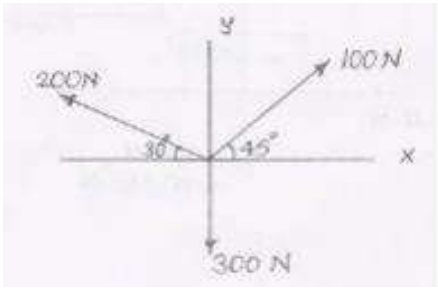
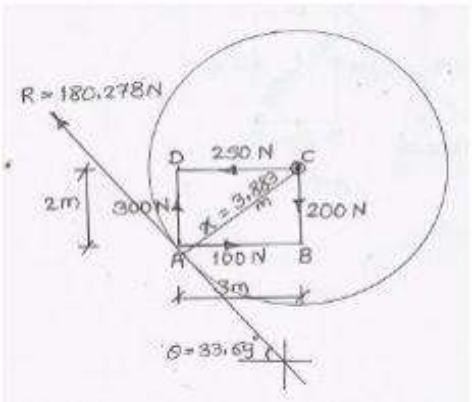
Unit II	Analysis of Forces	Marks - 18

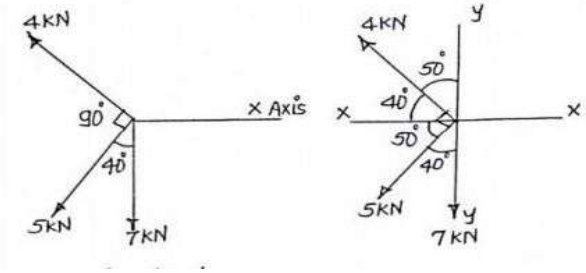
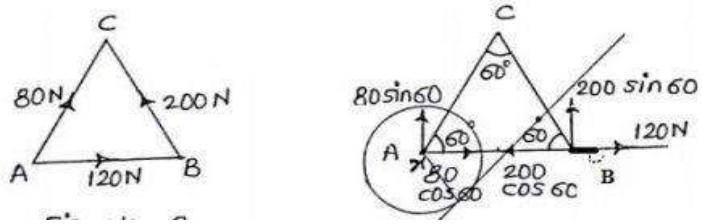
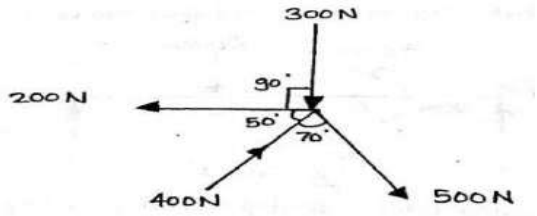
S. N.	MSBTE Board Asked Questions	Exam Year	Marks
1.	State S.I. unit of force and momentum.	W-23	2M
2.	Define funicular polygon.	W-23	2M
3.	State any two properties and effect of force.	W-23	4M
4.	Find magnitude and direction of resultant force, If 30 N, 40N,50 N and 60 N, forces are acting the line joining the center ofsquare to its vertices as shown in Fig. 	W-23	4M
5.	State any four properties of couple.	W-23	4M
6.	Find analytically the resultant of coplanar concurrent force system as shown in Fig. Also locate its position on figure. 	W-23	4M
7.	Locate the resultant with magnitude and direction for the forcesystem shown in Fig.w.r.t. pt. A. 	W-23	6M

8.	Write classification of force system.	S-23	2M
9.	Define force and state the characteristics of a force.	S-23	4M
10.	State law of parallelogram of forces with sketch and state its limitations.	S-23	4M
11.	Two forces of magnitude 100 N pull and 80 N push are acting at a point making an angle of 1350 between them. Find the resultant in magnitude and direction. 	S-23	4M
12.	Find the algebraic sum of moments of all forces as shown in Fig. about the point 'C' consider AB = BC = AC = 2m. 	S-23	4M
13.	Locate graphically the positions of resultant for the parallel force system, as shown in Fig. w.r.t. to point A. 	S-23	6M
14.	State any two effects of force on a body.	S-22	2M
15.	State Varignon's theorem of moment.	S-22	2M
16.	Define solar and vector quantities giving two examples of each.	S-22	4M

17.	Find the magnitude and direction of the resultant force as shown in Fig. 	S-22	4M
18.	State four properties of couple.	S-22	4M
19.	A square ABCD of 2m side is subjected to forces as shown in Fig. Find the magnitude, direction and position of the resultant with respect to A. 	S-22	4M
20.	Calculate the resultant and locate it's position w.r.t. point A for the force system shown in Fig. 	S-22	6M
21.	Define force system and state its classification.	W-22	2M
22.	State Polygon Law of forces.	W-22	2M
23.	Define scalar and vector quantities with two examples of each.	W-22	4M
24.	Find the resultant force in magnitude and direction for the force system shown in Fig.. Use analytical method. 	W-22	4M
25.	Find graphically the resultant force in magnitude and direction for the force system shown in Fig. 	W-22	4M

26.	Two forces 40 N and 30 N are acting at and away from the point and making an angle of 350 with each other. Calculate magnitude and direction of their resultant	W-22	4M
27.	Calculate magnitude, direction and position of the resultant w.r.t. 'A' of the forces shown in Fig. 	W-22	6M
28.	Define Statics and Dynamics.	S-19	2M
29.	State law of parallelogram of forces.	S-19	2M
30.	Define force and state its S.I unit.	S-19	2M
31.	Write classification of force system and explain any one in detail.	S-19	4M
32.	Calculate the magnitude and direction of resultant for concurrent force system as shown in Fig. 	S-19	4M
33.	State triangle law of forces with sketch and state it's use.	S-19	4M
34.	Calculate moment of all forces about point 'A' for the force system as shown in Fig. 	S-19	4M
35.	Find the resultant in magnitude and locate it on the sketch with respect to point 'A' for the force system shown in Fig. 	S-19	6M
36.	Define Scalar and Vector quantity	W-19	2M
37.	State Law of polygon of forces	W-19	2M
38.	Define force system. Explain three force systems with sketches.	W-19	4M
39.	Calculate the magnitude and direction of resultant for the concurrent force system as shown in figure Show it on the sketch. Use analytical method only.	W-19	4M

40.	State law of polygon of forces and explain it with sketch.	W-19	4M
41.	Calculate the resultant of two concurrent forces of magnitudes of 25 kN and 50 kN with included angle of 55°.	W-19	4M
42.	Calculate the magnitude and direction of a resultant force for a force system as shown in figure . Locate it with respect to point A 	W-19	6M
43.	State characteristics of force.	W-18	2M
44.	State law of Parallelogram of force.	W-18	2M
45.	Define force and state its effects.	W-18	4M
46.	Calculate resultant of a force system as shown in Figure 	W-18	4M
47.	ABCD is a rectangle such that AB = 3 m and BC = 2 m. Along side AB, CB, CD and AD, the forces of 100 N, 200 N, 250 N, 300 N are acting respectively. Find magnitude, direction and position of the resultant force from C. Use analytical method only. 	W-18	4M
48.	Locate the resultant with magnitude and direction for a parallel force system as shown in Figure	W-18	6M
49.	State principle of transmissibility of force	S-18	2M
50.	Define resultant force.	S-18	2M
5.1	Define unlike parallel force system and general force system with sketch	S-18	4M

52.	Find the angle between two equal forces of magnitude 300 N each, if their resultant is 150 N	S-18	4M
	Find analytically the resultant of the following concurrent force system. Refer to Figure 	S-18	4M
53.	Calculate the resultant and its position wrt. point A for the force system shown in Figure AB = BC = CA = 2m 	S-18	4M
54.	A concurrent force system is shown in Figure . Find graphically the resultant of this force system 	S-18	6M

Thank You

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