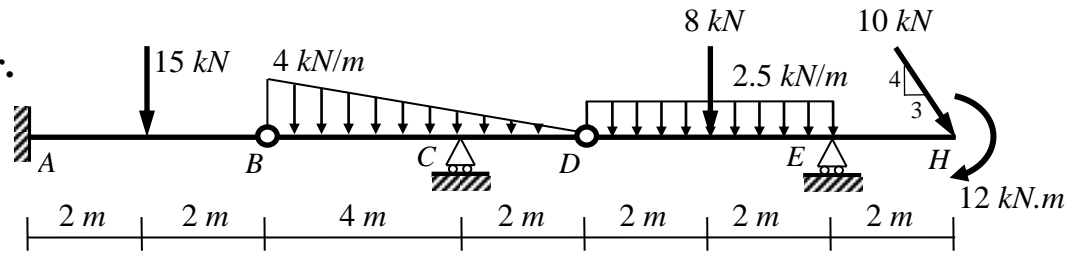


Mid-Term Exam

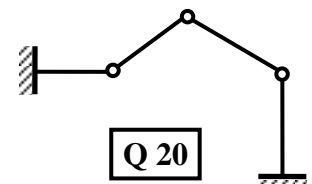
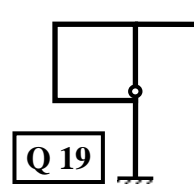
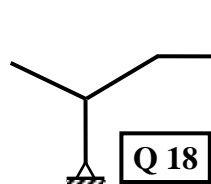
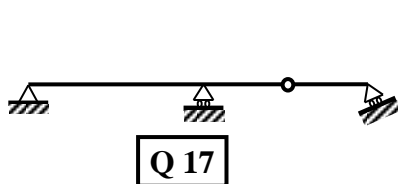
Total Marks: **30**

No. of Questions: **20** (Attempt all questions)

Choose the nearest answer.



1. The shown beam is:
 (A) Statically Indeterminate. (B) Unstable. (C) Simple beam. (D) Statically Determinate.
2. The horizontal component of the inclined force at **H** is:
 (A) $8\text{ kN} \leftarrow$ (B) $8\text{ kN} \rightarrow$ (C) $6\text{ kN} \rightarrow$ (D) $6\text{ kN} \leftarrow$
3. The vertical component of the inclined force at **H** is:
 (A) $8\text{ kN} \uparrow$ (B) $8\text{ kN} \downarrow$ (C) $6\text{ kN} \uparrow$ (D) $6\text{ kN} \downarrow$
4. The horizontal reaction at the fixed support **A** is:
 (A) $6\text{ kN} \leftarrow$ (B) $6\text{ kN} \rightarrow$ (C) $8\text{ kN} \rightarrow$ (D) $8\text{ kN} \leftarrow$
5. The vertical reaction at the roller support **E** is:
 (A) $24\text{ kN} \uparrow$ (B) $21\text{ kN} \uparrow$ (C) $20\text{ kN} \uparrow$ (D) $20\text{ kN} \downarrow$
6. The vertical reaction at the roller support **C** is:
 (A) $24\text{ kN} \uparrow$ (B) $9\text{ kN} \uparrow$ (C) $18\text{ kN} \uparrow$ (D) $18\text{ kN} \downarrow$
7. The vertical reaction at the fixed support **A** is:
 (A) $3\text{ kN} \uparrow$ (B) $9\text{ kN} \uparrow$ (C) $20\text{ kN} \uparrow$ (D) $24\text{ kN} \uparrow$
8. The moment reaction at the fixed support **A** is:
 (A) $50\text{ kN.m} \curvearrowright$ (B) $50\text{ kN.m} \curvearrowleft$ (C) $6\text{ kN.m} \curvearrowright$ (D) $18\text{ kN.m} \curvearrowleft$
9. The vertical reaction at the intermediate hinge **B** is:
 (A) 15 kN (B) 5 kN (C) 12 kN (D) 6 kN
10. The vertical reaction at the intermediate hinge **D** is:
 (A) 15 kN (B) 2 kN (C) 12 kN (D) 6 kN
11. The normal force at **B** is:
 (A) 8 kN Tension (B) 6 kN Tension (C) 10 kN Tension (D) 6 kN Compression
12. The shear force at **B** is:
 (A) 50 kN (B) 20 kN (C) 15 kN (D) 5 kN
13. The shear force just at the right of **E** is:
 (A) 6 kN (B) 24 kN (C) 32 kN (D) 8 kN
14. The bending moment at **B** is:
 (A) -15 kN.m (B) -30 kN.m (C) -50 kN.m (D) zero
15. The bending moment at **C** is:
 (A) -4.9 kN.m (B) -9.9 kN.m (C) 9.9 kN.m (D) zero
16. The bending moment at **E** is:
 (A) -20 kN.m (B) -32 kN.m (C) -28 kN.m (D) -12 kN.m



17. The shown structure is:
 (A) Unstable (B) Stat. Det. (C) Stat. Ind. to the 1st degree (D) Stat. Ind. to the 2nd degree
18. The shown structure is:
 (A) Unstable (B) Stat. Det. (C) Stat. Ind. to the 1st degree (D) Stat. Ind. to the 2nd degree
19. The shown structure is:
 (A) Unstable (B) Stat. Det. (C) Stat. Ind. to the 1st degree (D) Stat. Ind. to the 2nd degree
20. The shown structure is:
 (A) Unstable (B) Stat. Det. (C) Stat. Ind. to the 1st degree (D) Stat. Ind. to the 2nd degree

With my best wishes

Dr. M. Abdel-Kader