SNO	QFLAG	QTEXT	OP1	OP2	OP3	OP4
1	1	Stress is	External force	Internal resistive force	Axial force	Radial force
2	1	When tensile stress is applied axially on a circular rod its, i. diameter increases, ii. length decreases, iii. volume decreases, Which of the above are true?	Only i	Only ii	i & ii	All of them
3	1	A rigid body has Poisson's ratio equal to _____	0	1	less than 1	greater than 1

4	1	What is the bulk modulus of a material, if a cube of 100 mm changes its volume to 4000 mm^3 when subjected to compressive force of 2.5 x 10^6 N?	62.5 Gpa	65 Gpa	67.5 Gpa	70 Gpa
5	1	The slope of the stress-strain curve in the elastic deformation region is _____	Elastic modulus	Plastic modulus	Poisson's ratio	None of the mentioned

6	1	A rectangular bar has volume of 1.5 x 10^6 mm^3. What is the change in volume, if stresses in x, y and z direction are 100 Mpa, 150 Mpa and 160 Mpa respectively. (Assume K = 2 x 10^5 N/mm^2 & μ = 0.3)	1000 mm^3	1230 mm3	1500 mm3	2000 mm3
7	1	When a rectangular bar is uniaxially loaded, the volumetric strain (e_v) is given as _____	σ_x / E(1- μ)	σx / E(1+ μ)	σx / E(1- 2μ)	σx / E(1+2μ)
8	1	Bulk modulus of elasticity is	Tensile stress / Tensile strain	Shear stress / Shear strain	Tensile stress / Shear strain	Normal stress on each face of cube / Volumetric strain

9	1	Factor of safety is	Tensile stress / Permissible stress	Compressive stress / Ultimate stress	Ultimate stress / Permissible stress	Ultimate stress / Shear stress
10	1	A rod, 120cm long and of diameter 3.0 cm is subjected to an axial pull of 18 kN. The stress in N/mm2 is.	22.57	23.47	24.57	25.47
11	1	Resilience can also be termed as _____	Stress energy	Strain energy	Modulus	Tenacity
12	1	Calculate the Strain energy stored in a body of stress 0.0366 N/mm2. The cross sectional area is 60 m2and length of body is 1 m. Take E = 2×105 N/mm2.	0.2009 N.mm	0.0416 N.mm	0.0987 N.mm	0.1316 N.mm

13	1	Strain energy stored in a body to uniform stress s of volume V and modulus of elasticity E is _____	s2V/2E	sV/E	sV2/E	sV/2E
14	1	A rectangular block of size 400mm x 50mm x 50mm is subjected to a shear stress of 500kg/cm2. If the modulus of rigidity of the material is 1×106 kg/cm2, the strain energy will be _____	125 kg-cm	1000 kg-cm	500 kg-cm	100 kg-cm
15	1	Total strain energy stored in body is known as...	Proof resilience	Modulus of resilience	Resilience	Impact energy

16	1	What is the proof resilience of a square bar of 2500 mm^2 and 200 mm long, when a load of 150 kN is induced gradually? (Take E = 150 x 103 Mpa)	45 J	8 J	5.3 J	6 J
17	1	Energy stored in a body within an elastic limit is called as _____	resilience	strain energy	both a. and b.	none of the above
18	1	What is the strain energy caused due to self weight in a cylindrical bar?	$(W^2 L) / (6 AE)$	$(W L) / (8 AE)$	$(\tau^2/ 2G)V$	$(\tau^2/ G)V$
19	1	Strain energy stored in a uniform bar is given as _____	$(\sigma E/ 2A)$	$(\sigma L/ 2AE)$	$(\sigma^2 AL/ 4E)$	$(\sigma^2 AL/ 2E)$

20	1	A 1m long bar of uniform section extends 1mm under limiting axial stress of 200N/mm2. What is the modulus of resilience for the bar?	0.1 units	1 units	10units	100units
21	1	What is the bending moment at end supports of a simply supported beam?	Maximum	Minimum	Zero	Uniform
22	1	Sagging, the bending moment occurs at the _____ of the beam.	At supports	Mid span	Point of contraflexure	Point of emergence

23	1	What is the maximum bending moment for simply supported beam carrying a point load “W” kN at its centre?	W kNm	W/m kNm	W×l kNm	W×l/4 kNm
24	1	The relation between slope and maximum bending moment is _____	Directly proportion	Inversely proportion	Relative proportion	Mutual incidence
25	1	. Shear force is diagram is _____ representation of shear force plotted as ordinate.	Scalar	Aerial	Graphical	Statically

26	1	In a simply supported beam subjected to uniformly distributed load (w) over the entire length (l), total load=W, maximum Bending moment is	Wl/8 or wl2/8 at the mid-point	b. Wl/8 or wl2/8 at the end	Wl/4 or wl2/4	Wl/2
27	1	An axle is subjected to loads as shown Maximum bending moment is	Wl	b. W(l-a)	Wa	W(l+a)
28	1	Point of contraflexure is point where.....	Bending moment zero	B. Bending moment maximum	Shear force zero	Shear force maximum
29	1	On Hing pin..... number of Reaction	1	B. 2	3	4
30	1	What is the maximum shear force acting on the beam shown below.	125 N	200 N	4000 N	8000 N

31	1	In a cantilever subjected to a combination of concentrated load, uniformly distributed load and uniformly varying load, Maximum bending moment is	Where shear force=0	At the free end	At the fixed end	At the mid-point
32	1	In thin cylinders, the thickness should be _____ ____ times of internal diameter.	a) 1/20	15-Jan	1/30	1/40
33	1	Lame's theory is associated for a	Thick cylinder	Thin cylinder	Both of cylinder	None of these
34	1	Hoop stress in a thin vessel is	D/2t	p D/4t	p D/3t	None
35	1	Which stress is the least in a thin shell	Longitudinal stress	Hoop stress	Radial stress	None

36	1	Among the cylindrical and spherical thin vessels of same material, diameter and pressure which has the lesser thickness	Cylindrical shell	Spherical shell	Cylindrical shell with semi spherical heads	None
37	1	Hoop strain in a thin shell is	σh /E	σl /E	3 σh /E	None
38	1	Considering σh, σl and σr, maximum shear stress will be	(σh—σl) /2	(σl— σh) /2	(σh + σr) /2	None

39	1	A thin walled spherical shell is subjected to an internal pressure. If the radius of the shell is increased by 1% and the thickness is reduced by 1%, with the internal pressure remaining the same, the percentage change in the circumfere	0	1	1.08	20.2

40	1	A gas is stored in a cylindrical tank of inner radius 77 m and wall thickness 5050 mm. The gage pressure of the gas is 22 MPa. The maximum shear stress (in MPa) in the wall is	35	70	140	280
41	1	A thin cylindrical pressure vessel with closed-ends is subjected to internal pressure. The ratio of circumferential (hoop) stress to the longitudinal stress is	0.25	0.5	1	2

42	1	What is the SF at support B?	5 kN	3 kN	2 kN	0 kN
43	1	All welding processes require pressure along with heat.	Yes	No, fusion doesn't require	Can't be stated	None of the listed
44	1	Welding joint design is based on.....	Tension stength	Shearing strength	Compressive strength	Bending strength
45	1	The strength of solid plate per pitch length is given by	ptσt	pdσt	p (d - t) σt	2ptσt
46	1	3. Why are butt welded joints longitudinal joints ?	High strength requirements	Low strength requirements	Low as well as high strength requirements	None
47	1	Area under tension in a single transverse fillet lap weld is	0.707 tl	0.807 tl	400 tl	None
48	1	A beam is said to be of uniform strength, if _____	B.M. is same throughout the beam	Shear stress is the same through the beam	Deflection is the same throughout the beam	Bending stress is the same at every section along its longitudinal axis

49	1	Which stress comes when there is an eccentric load applied?	Shear stress	Bending stress	Tensile stress	Thermal stress
50	1	The steel plate is bent into a circular path of radius 10 metres. If the plate section be 120 mm wide and 20 mm thick, then calculate the maximum bending stress. [Consider Young's modulus = 200000 N/mm2].	350 N/mm2	400 N/mm2	200 N/mm2	500 N/mm2
51	1	Moment of Inertia of a rectangular section about any axis=	bd^3/12	db^3/12	bd^3/12 + Ax^2	πd^4/64
52	1	A beam of uniform strength has	same cross-section throughout the beam	same bending stress at every section	same bending moment at every section	same shear stress at every section

53	1	Two shafts ‘A’ and ‘B’ are made of same material. The shaft ‘A’ is solid and has diameter D. The shaft ‘B’ is hollow with outer diameter D and inner diameter D/2. The strength of hollow shaft in torsion is _____ __ as that of solid shaft.	(1/16)	(1/8)	(1/4)	(15/16)
54	1	In the bending equation r epresents	Stress at the top fibre	Stress at the bottom fibr e	Maximum stress induced in the beam	Stress in a fibre whi ch is at a distance ‘y’ from the neutral axis

55	1	Consider a 250mmx15 mmx10mm steel bar which is free to expand is heated from 15C to 40C. what will be developed ?	Compressi ve stress	Tensile stress	Shear stress	No stress
56	1	The power transmitted by shaft SI system is given by	2πNT/60	3πNT/60	NT/60	4πNT/60
57	1	The sectio n modulus (Z) is given by	opt 1	opt 2	opt 3	opt 4
58	1	In a cantilever beam, fibers above the neutral axis are in	Tension	Shear	Compressi on	None
59	1	The units of the bending stiffness are	N/m2	Nm2/kg	N m2	None

60	1	Moment of inertia acting on a semi-circle about symmetrical axes is given as _____	1.57 r^4	0.055 r^4	0.392 r^4	0.11 r^4
61	1	Magnitude of shear stress induced in a shaft due to applied torque varies from	Maximum at centre to zero at circumference.	Maximum at centre to minimum (not-zero) at circumference.	Zero at centre to maximum at circumference.	Minimum (not zero) at centre to maximum at circumference.
62	1	The angle of twist can be written as _____	TL/J	CJ/TL	TL/CJ	T/J
63	1	The power transmitted by shaft SI system is given by _____	2πNT/60	3πNT/60	2πNT/45	NT/60 W

64	1	The following option is correct	There is neither advantage nor disadvantage in transmitting power at high speed	There is advantage in transmitting power at high speeds	There is disadvantage in transmitting power at high speeds	There is advantage in transmitting power at high speed provided shafts are made of high speed steel
65	1	A shaft	Is always subjected to pure torsion	Combination of M & T but no end thrust	Combination of torque & end thrust but no bending moment	May be subjected to a combination of M, T and end thrust
66	1	Maximum shear stress of a solid shaft is given by	16T/πd	16T/πd2	16T/πd3	16T/πd4
67	1	In case of a hollow shaft the average torsional energy/unit volume is given by	(τ2/4C) x (D2+d2/D2)	(τ2/C) x (D2+d2/D2)	(τ2/4C) x (D+d/D2)	(τ/C) x (D2+d2/D2)
68	1	If diameter of a shaft is doubled the power transmitted capacity will be	Either twice or half	Four times	Eight times	Same

69	1	What is the maximum principle stress induced in a solid shaft of 40 mm diameter which is subjected to both bending moment and torque of 300 kN.mm and 150 kN.mm respectively?	21.69 N/mm2	28.1 N/mm2	50.57 N/mm2	52.32 N/mm2
70	1	A solid shaft has diameter 80 mm. It is subjected to a torque of 4 KNm. The maximum shear stress induced in the shaft would be	75/p N/mm2	250/p N/mm2	125/p N/mm2	150/p N/mm2

OP5	OP6	ANSWER	IMG_PATH	COMPREHEN	HINT	LEVEL	
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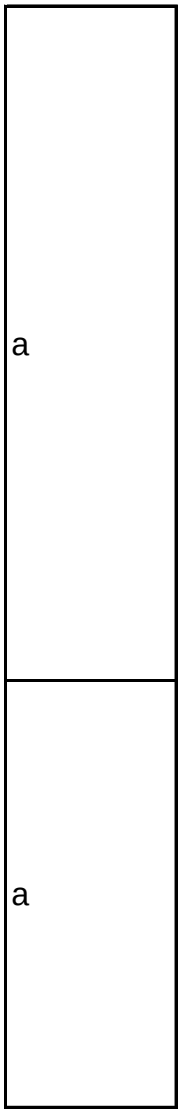
		c					1
		a					1



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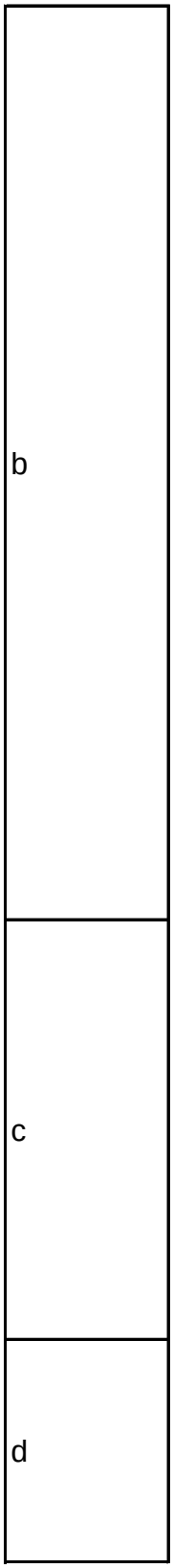

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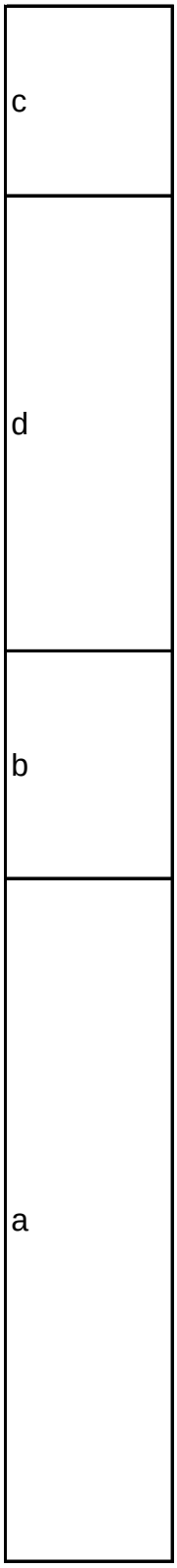

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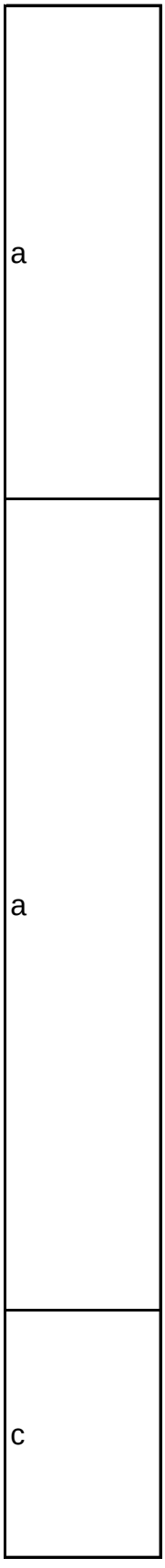

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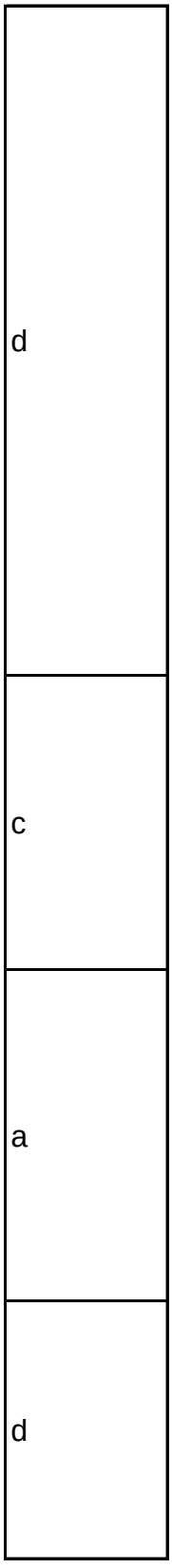

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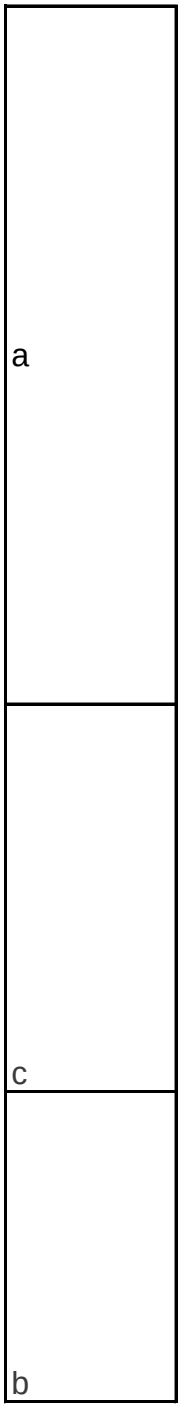

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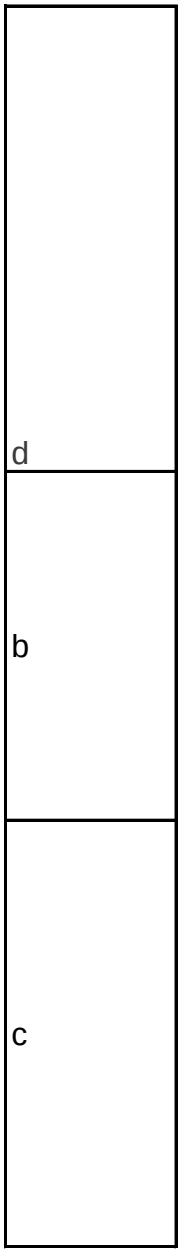

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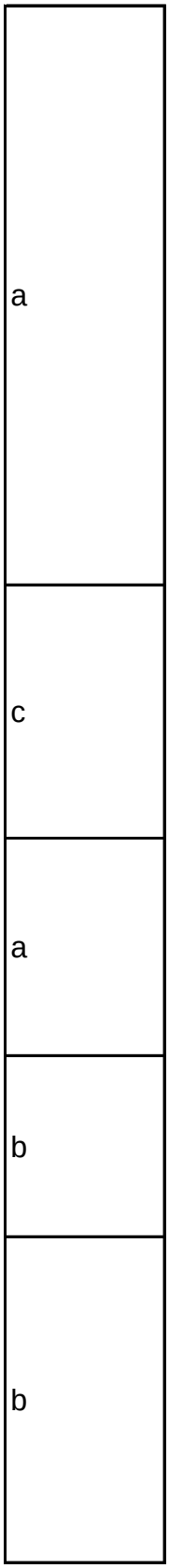

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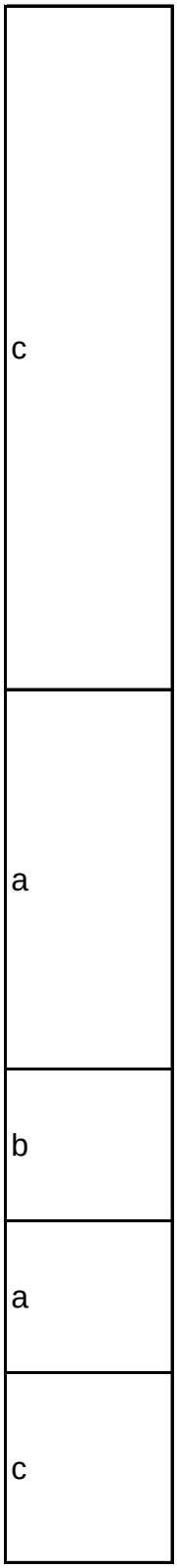

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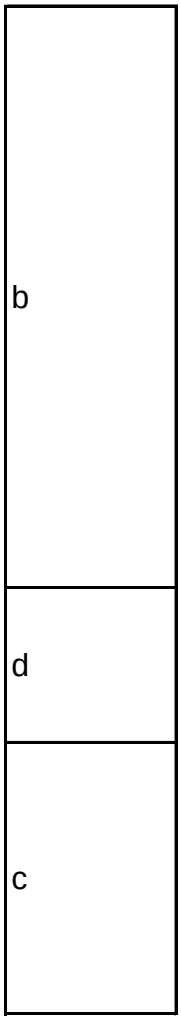

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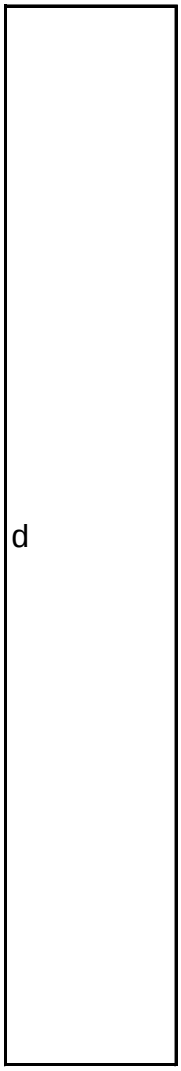

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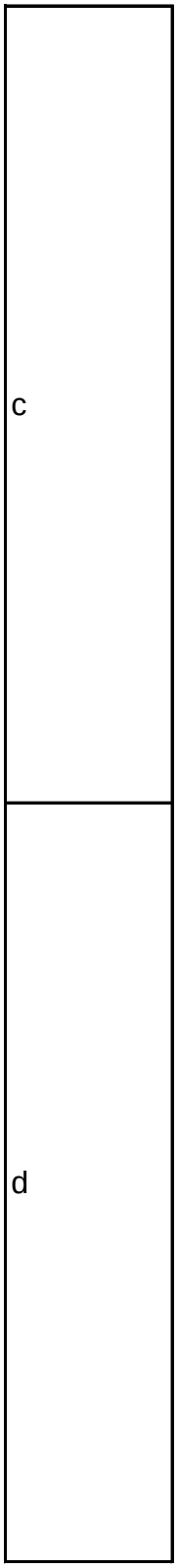

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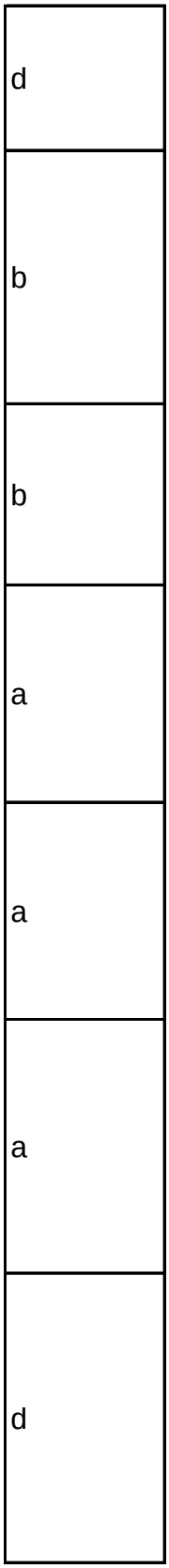

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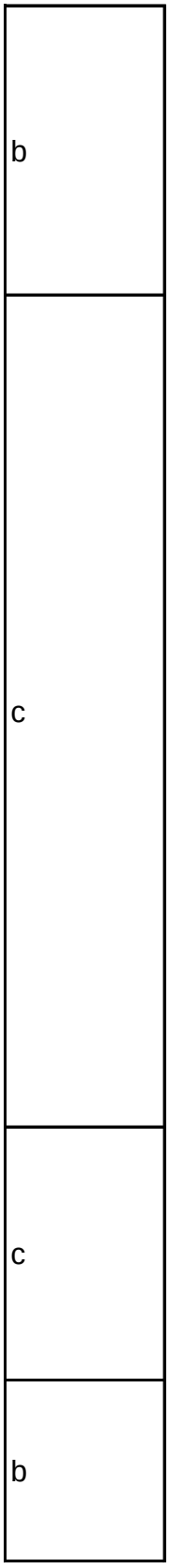

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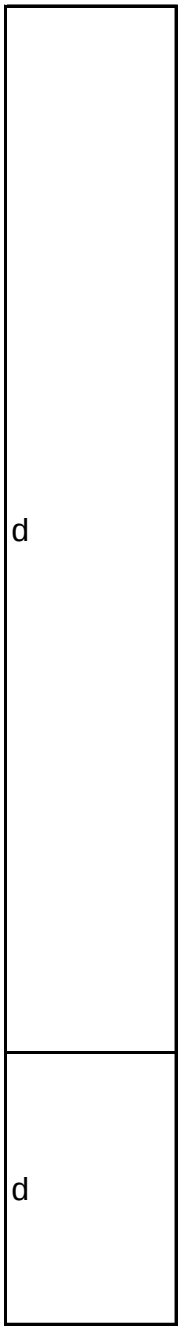

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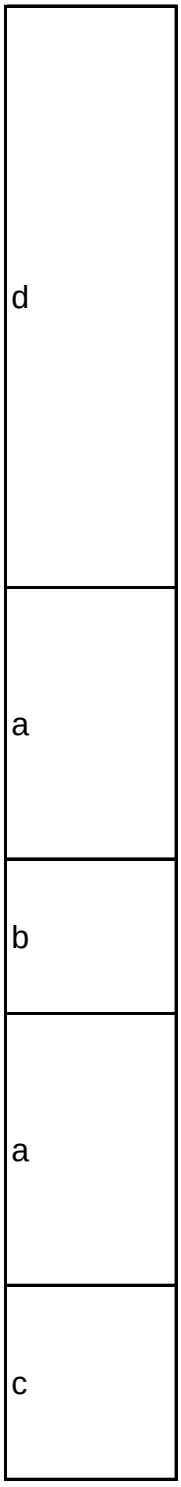

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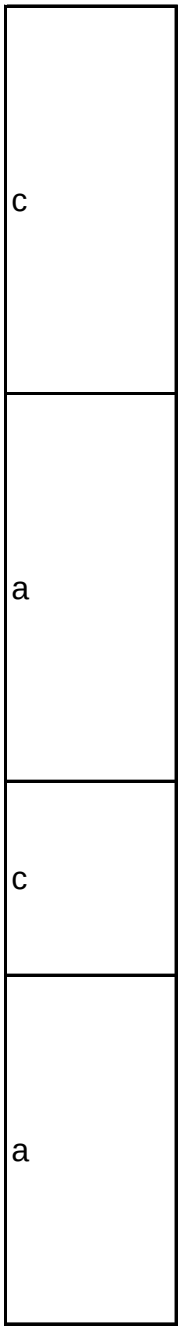

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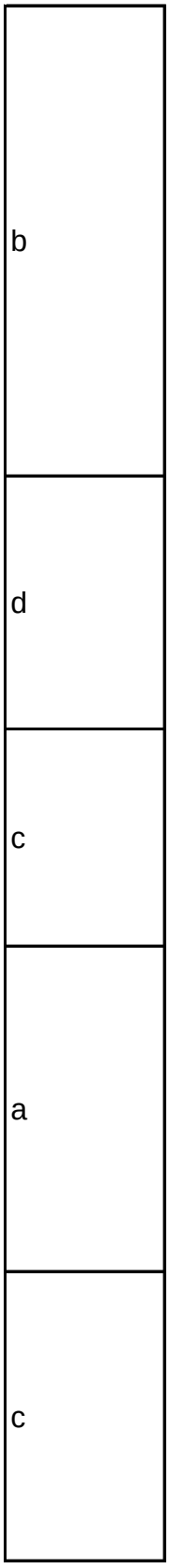

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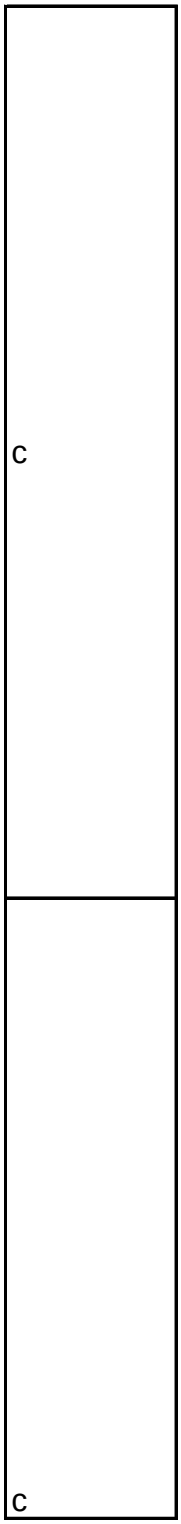

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