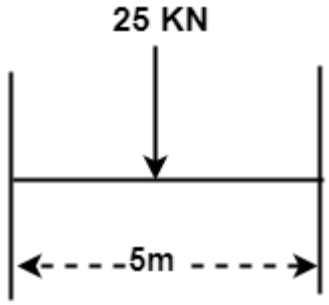
Unit – 1 Fixed beam				
1	A beam which is inbuilt in at its support is called _____			
	A.	Cantilever beam	B.	Simply supported beam
	C.	Fixed beam	D.	Continuous beam
2	Fixed beam is also known as _____			
	A.	Encaster beam	B.	Constressed beam
	C.	In built beam	D.	Constricted beam
3	In fixed beams, the slope at the supports be _____			
	A.	Minimum	B.	Zero
	C.	Maximum	D.	None of these
4	A beam 6 metres long is fixed at it ends. It carries a udl of 5 kN/m. Find the maximum bending moment in the beam.			
	A.	15 kNm	B.	20 kNm
	C.	35 kNm	D.	40 kNm
5	_____ changes induce large stresses in a fixed beam.			
	A.	Slope	B.	Deflection
	C.	Temperature	D.	None of these
6	In fixed beams, the maximum deflection at _____ is reduced.			
	A.	Centre	B.	Supports
	C.	At point of loading	D.	None of these
7	Fixing couples means _____ .			
	A.	End moments	B.	Support couples
	C.	Support moments	D.	End supports
8	Calculate the maximum bending moment in fixed beam for the following figure. 			
	A.	17 kN-m	B.	12.5 kN-m
	C.	15.625 kN-m	D.	18 kN-m
9	The maximum negative bending moment in fixed beam carrying UDL occurs at _____.			
	A.	Mid span	B.	1/3 of the span
	C.	Supports	D.	Half of the span
10	A beam is a structural member which is subjected to			
	A.	Axial tension or compression	B.	Transverse loads and couples
	C.	Twisting moment	D.	None of these

11	Which of the following are statically determinate beams?			
	A.	Only simply supported beams	B.	Cantilever, overhanging and simply supported
	C.	Fixed beams	D.	Continuous beams
12	A cantilever is a beam whose			
	A.	Both ends are supported either on rollers or hinges	B.	One end is fixed and other end is free
	C.	Both ends are fixed	D.	None of these
13	In a simply supported beam, bending moment at the end			
	A.	Is always zero if it does not carry couple at the end	B.	Is zero, if the beam has uniformly distributed load only
	C.	Is zero if the beam has concentrated loads only	D.	None of these
14	For any part of the beam, between two concentrated load Shear force diagram is a			
	A.	Horizontal straight line	B.	Vertical straight line
	C.	Line inclined to x-axis	D.	Parabola
15	For any part of a beam between two concentrated load, Bending moment diagram is a			
	A.	Horizontal straight line	B.	Vertical straight line
	C.	Line inclined to x-axis	D.	Parabola
16	For any part of a beam subjected to uniformly distributed load, Shear force diagram is			
	A.	Horizontal straight line	B.	Vertical straight line
	C.	Line inclined to x-axis	D.	Parabola
17	For any part of a beam subjected to uniformly distributed load, bending moment diagram is			
	A.	Horizontal straight line	B.	Vertical straight line
	C.	Line inclined to x-axis	D.	Parabola
18	In a simple supported beam having length = l and subjected to a concentrated load (W) at mid-point.			
	A.	Maximum Bending moment = Wl/4 at the mid-point	B.	Maximum Bending moment = Wl/4 at the end
	C.	Maximum Bending moment = Wl/8 at the mid-point	D.	Maximum Bending moment = Wl/8 at the end
19	In a simply supported beam subjected to uniformly distributed load (w) over the entire length (l), total load=W, maximum Bending moment is			
	A.	Wl/8 or $wl^2/8$ at the mid-point	B.	Wl/8 or $wl^2/8$ at the end
	C.	Wl/4 or $wl^2/4$	D.	Wl/2
20	For a beam, if fundamental equations of statics are not sufficient to determine all the reactive forces at the supports, the structure is said to be			
	A.	Determinate	B.	Statically determinate
	C.	Statically indeterminate	D.	None of these
21	For a beam, if fundamental equations of statics are sufficient to determine all the reactive forces at the supports, the structure is said to be			

	A.	Determinate	B.	Statically determinate
	C.	Statically indeterminate	D.	None of these
22	If the beam is supported so that there are only three unknown reactive elements at the supports. These can be determined by using			
	A.	$\Sigma H = 0$	B.	$\Sigma H=0$, $\Sigma V=0$
	C.	$\Sigma H=0$, $\Sigma V=0$, $\Sigma M=0$	D.	None of these
23	A beam having fixed and free ends then it is called			
	A.	Fixed	B.	Continuous
	C.	Cantilever	D.	Simply Supported
24	A beam having pinned and roller ends then it is called			
	A.	Fixed	B.	Continuous
	C.	Cantilever	D.	Simply Supported
25	Simply supported beam is _____			
	A.	Determinate	B.	Statically determinate
	C.	Statically indeterminate	D.	None of these
26	Which of the following are statically indeterminate beams?			
	A.	Only simply supported beams	B.	Cantilever, overhanging and simply supported
	C.	Fixed beams, Continuous beams and propped cantilever beam	D.	None of these
27	Deflection at the middle of simply supported beam is			
	A.	More	B.	Less
	C.	Zero	D.	None of these
28	Deflection at the middle of fixed beam is			
	A.	More	B.	Less
	C.	Zero	D.	None of these
29	Bending moment at the centre of the beam is _____ than that in case of fixed beam.			
	A.	More	B.	Less
	C.	Zero	D.	None of these
30	Bending moment at the centre of the beam is _____ than that in case of simply supported beam.			
	A.	More	B.	Less
	C.	Zero	D.	None of these
31	Strength of simply supported beam is _____ than the strength of fixed beam.			
	A.	More	B.	Less
	C.	Zero	D.	None of these
32	Strength of fixed beam is _____ than the strength of simply supported beam.			
	A.	More	B.	Less
	C.	Zero	D.	None of these
33	In simply supported beam AB, at the supports, slopes _____ are produced.			

	A.	θ_A , θ_B	B.	θ_A
	C.	θ_B	D.	None of these
34	In fixed beam AB, at the supports, slopes are _____ .			
	A.	$\theta_A = 0$, $\theta_B = 0$	B.	$\theta_A = 0$
	C.	$\theta_B = 0$	D.	None of these
35	In simply supported beam AB, at the supports, moments are _____			
	A.	$M_A = 0$, $M_B = 0$	B.	$M_A = 0$
	C.	$M_B = 0$	D.	None of these
36	In fix beam AB, at the supports, fixed end moments _____ are produced.			
	A.	M_A , M_B	B.	M_A
	C.	M_B	D.	None of these
37	Stresses are produced in the fixed beam due to change in			
	A.	Temperature	B.	Change in length
	C.	Change in cross section	D.	None of these
38	A beam 5 metres long is fixed at it ends. It carries a udl of 10 kN/m. Find the maximum bending moment in the beam.			
	A.	20.83 kN-m	B.	15 kN-m
	C.	10 kN-m	D.	12.25 kN-m
39	A beam 5 metres long is fixed at it ends. It carries a central point load of 50 kN. Find the maximum bending moment in the beam.			
	A.	17 kN-m	B.	12.5 kN-m
	C.	13.25 kN-m	D.	18 kN-m
40	A beam 6 meters long is fixed at it ends. It carries a udl of 10 kN/m. Find the maximum bending moment in the beam.			
	A.	17 kN-m	B.	12.5 kN-m
	C.	13.25 kN-m	D.	30 kN-m
41	Statically beams are			
	A.	The beams which can be analysed completely using equations of equilibrium	B.	The beam which can be analysed using static equations
	C.	Fixed beams at both ends	D.	None of the above
42	The number of reaction components at the fixed end of beam are			
	A.	1	B.	2
	C.	3	D.	4
43	One end fixed and other end roller/hinged is called as _____ beam.			
	A.	Cantilever	B.	Propped cantilever
	C.	Overhanging	D.	None of the above
44	The reaction line roller support with respect to point of contact is			
	A.	Oblique	B.	Perpendicular
	C.	Obtuse	D.	Parallel
45	When load acts at constant rate at a given length of beam is called			

	A.	UVL	B.	UDL
	C.	Point load	D.	Triangular load
46	Which of the following is determinate beam?			
	A.	Simply supported beam	B.	Continuous beam
	C.	Propped cantilever beam	D.	Fixed beam
47	A beam with three or more than three supports is called as			
	A.	Cantilever beam	B.	Fixed beam
	C.	Continuous beam D.		Fixed but
48	Roller support in the beam will have how many unknown reactions			
	A.	1	B.	2
	C.	3	D.	4
49	Which one of the following is indeterminate beam?			
	A.	Simply supported beam	B.	One end hinged, other on roller
	C.	Cantilever	D.	Both ends hinged

Unit – 5 Combine Direct and Bending stress				
1	When load is acting along the longitudinal axis of column, it is known a			
	A.	Eccentric load	B.	Axial load
	C.	Concentrated load	D.	None of these
2	A load whose line of action does not coincide with the axis of column, is known as			
	A.	Eccentric load	B.	Axial load
	C.	Concentrated load	D.	None of these
3	the horizontal distance between the longitudinal axis of column and line of action of load is known as			
	A.	Eccentricity	B.	Bending
	C.	Stress	D.	None of these
4	When short column is subject to axial compression force, only _____ is produced in column.			
	A.	Bending stress	B.	Shear stress
	C.	Direct stress	D.	None of these
5	The load at which a vertical compression member just buckle is known as			
	A.	Critical load	B.	Crippling load
	C.	Buckling load	D.	Anyone these
6	A column that fails due to direct stress is called			
	A.	Short column	B.	Long column
	C.	Medium column	D.	None of these
7	The direct stress included in a long column is _____ as compared to bending stress.			
	A.	More	B.	Less
	C.	Same	D.	Negligible
8	For long columns, the value of buckling load is _____ crushing load.			
	A.	Less than	B.	More than
	C.	Equal to	D.	None of these
9	Compression members always tend to buckle in the direction of _____.			
	A.	Vertical axis	B.	Horizontal axis
	C.	Minimum cross-section	D.	Least radius of gyration
10	A masonry dam may fail due to			
	A.	Tension in the masonry of the dam and its base	B.	Overturning of the dam
	C.	Crushing of masonry at the base of the dam	D.	Anyone of the above
11	In order to prevent crushing of masonry at the base of the dam, the maximum stress should be _____ the permissible stress of the soil.			
	A.	Equal to	B.	Less than
	C.	More than	D.	None of these
12	The limit of eccentricity is based on tension condition.			
	A.	True	B.	False

13	In order to know whether a column is long or short, we must know its slenderness ratio.			
	A.	True	B.	False
14	Compression members always tend to buckle in the direction of the			
	A.	Axis of load	B.	Perpendicular to the axis of load
	C.	Minimum cross section	D.	Least radius of gyration
15	When a column is subjected to eccentric load, the edge of column towards the eccentricity will be subjected to _____ and the opposite edge will be subjected to _____.			
	A.	Maximum stresses	B.	Minimum stress
	C.	Bothe A and B	D.	None of these
16	In case of eccentrically loaded struts _____ is preferred.			
	A.	Solid section	B.	Hollow section
	C.	Composite section	D.	Reinforced section
17	In order to avoiding sliding of masonry dam, the force of friction between the dam and soil should be at least _____total water pressure per metre length.			
	A.	Equal to	B.	1.5 times
	C.	Double	D.	2.5 times
18	Direct stress is equal to			
	A.	Force / area	B.	Force / volume
	C.	Volume / force	D.	Area / force
19	When load on column is _____, stresses at both the edges will be equal and compressive in nature.			
	A.	Axial load	B.	Tension load
	C.	Shear load	D.	Eccentric load
20	The maximum distance of load from centre of load from the centre of column, such that if load acts within this distance there is no tension in the column this maximum distance is called _____.			
	A.	Direct stress	B.	Bending stress
	C.	Limit of eccentricity	D.	Kernel of section
21	Bending stress is equal to			
	A.	Moment / section modulus	B.	Moment / eccentricity
	C.	Moment of inertia / section modulus	D.	None of the these
22	Maximum stress is equals to			
	A.	Direct stress + bending stress	B.	Direct stress - bending stress
	C.	Direct stress x bending stress	D.	Direct stress / bending stress
23	Minimum stress is equals to			
	A.	Direct stress + bending stress	B.	Direct stress - bending stress
	C.	Direct stress x bending stress	D.	Direct stress / bending stress
24	If direct stress > bending stress, minimum stress is equal to			
	A.	Compressive	B.	Tensile

	C.	Compressive and Tensile	D.	None of these
25	If direct stress < bending stress, minimum stress is equal to			
	A.	Compressive	B.	Tensile
	C.	Compressive and Tensile	D.	None of these
26	When load on column is axial, stresses at both the edges will be equal and _____ in nature.			
	A.	Compressive	B.	Tensile
	C.	Compressive and Tensile	D.	None of these
27	When load is acting at the point of limit of eccentricity, minimum stress is equal to			
	A.	Compressive	B.	Tensile
	C.	Zero	D.	None of these
28	When load is acting within limit of eccentricity, minimum stress is equal to			
	A.	Compressive	B.	Tensile
	C.	Compressive and Tensile	D.	None of these
29	When load is acting beyond the limit of eccentricity, minimum stress is equal to			
	A.	Compressive	B.	Tensile
	C.	Compressive and Tensile	D.	None of these
30	For no tension in the column, the conditions must be satisfied			
	A.	Load must not be within *e* limit	B.	Min. Stress should not be negative(tensile)
	C.	Both A and B	D.	None of these
31	For no tension condition, the eccentricity should be _____ than or equal to Z/A. Where, Z = Section modulus, A = Cross sectional area			
	A.	More	B.	Less
	C.	Zero	D.	None of these
32	Weight of dam equal to			
	A.	c/s area of dam + density of dam material	B.	c/s area of dam - density of dam material
	C.	c/s area of dam x density of dam material	D.	c/s area of dam / density of dam material
33	Density of water is equal to			
	A.	20 kN/m^3	B.	15 kN/m^3
	C.	10 kN/m^3	D.	05 kN/m^3
34	Total water pressure acts horizontally at height _____ from the base of dam.			
	A.	h/3	B.	h/4
	C.	h/2	D.	None of these
35	Maximum pressure at the base of dam is equal to			
	A.	$\frac{W}{b}\left[1+\frac{6e}{b}\right]$	B.	$\frac{W}{b}\left[1-\frac{6e}{b}\right]$
	C.	Zero	D.	None of these
36	Minimum pressure at the base of dam is equal to			

	A.	$\frac{W}{b}\left[1+\frac{6e}{b}\right]$	B.	$\frac{W}{b}\left[1-\frac{6e}{b}\right]$
	C.	Zero	D.	None of these
37	_____ is a structure used to retain soil (earth).			
	A.	Retaining wall	B.	Barrier
	C.	Dam	D.	None of these
38	_____ is a structure used to retain water.			
	A.	Weirs	B.	Barrage
	C.	Dam	D.	all of these
39	To avoid tension at the base of retaining wall/dam, minimum stress should be _____.			
	A.	Positive	B.	Negative
	C.	Zero	D.	None of these
40	For no tension at base, eccentricity should be less than _____.			
	A.	b/2	B.	b/3
	C.	b/6	D.	None of these
41	Which are the forces acting on retaining wall/dam?			
	A.	Total earth/water pressure	B.	Weight of wall/dam
	C.	Both A and B	D.	None of these
42	A dam retains water and subject to _____.			
	A.	Water pressure	B.	Earth pressure
	C.	Both A and B	D.	None of these
43	A retaining wall retains soil and subject to _____.			
	A.	Water pressure	B.	Earth pressure
	C.	Both A and B	D.	None of these
44	To avoid overturning of retaining wall/dam,			
	A.	Resisting moment > overturning moment	B.	Resisting moment < overturning moment
	C.	Resisting moment = overturning moment	D.	None of these
45	To avoid tension at the base, resultant must lie within _____.			
	A.	$1/3^{rd}$ of the base width	B.	$1/2^{rd}$ of the base width
	C.	$1/5^{rd}$ of the base width	D.	None of these
46	If retaining wall / dam are safe in tension at base, it becomes safe against _____ automatically.			
	A.	Sliding	B.	Crushing
	C.	Overturning	D.	None of these
47	To avoid crushing at base of retaining wall/dam,			
	A.	Max. Pressure at the base less than the permissible crushing stress	B.	Max. Pressure at the base greater than the permissible crushing stress
	C.	Max. Pressure at the base equal to	D.	None of these

		permissible crushing stress		
48	For no tension at base, resultant must cut the base within middle third portion, to avoid tension at base. This rule is known as			
	A.	Middle third rule	B.	Middle forth rule
	C.	Middle half rule	D.	None of these
49	Density of masonry is _____.			
	A.	20 kN/m^3	B.	15 kN/m^3
	C.	25 kN/m^3	D.	None of these
50	Density of concrete is _____.			
	A.	20 kN/m^3	B.	15 kN/m^3
	C.	25 kN/m^3	D.	None of these

Unit – 6 Principle planes and principle stresses				
1	The direct stress, across a principal plane, is known as principal stress.			
	A.	True	B.	false
2	Which principle plane carries minimum direct stress?			
	A.	Major principle plane	B.	Minor principle plane
	C.	Intermediate principle plane	D.	None of these
3	The plane on which two direct stresses (σ_1, σ_2) and, shear stress (τ) are acting on perpendicular planes, then			
	A.	$\sigma_2 = 0, \tau = 0$	B.	$\sigma_1 = 0, \tau = 0$
	C.	$\sigma_1 = 0, \sigma_2 = 0, \tau = 0$	D.	None of these
4	An element is subjected to a state of simple shear of 60 N/mm^2. Find out principal stresses.			
	A.	$\sigma_{n1} = 60$ N/mm^2 , $\sigma_{n2} = -60$ N/mm^2	B.	$\sigma_{n1} = 60$ N/mm^2 , $\sigma_{n2} = 60$ N/mm^2
	C.	$\sigma_{n1} = -60$ N/mm^2 , $\sigma_{n2} = -60$ N/mm^2	D.	None of these
5	A block is subjected to a complimentary shear stress of 10 N/mm^2. Find tangential stresses on a plane inclined at 30° with vertical plane.			
	A.	8.66 N/mm^2	B.	- 5 N/mm^2
	C.	10 N/mm^2	D.	0 N/mm^2
6	A piece of material is subjected to a tensile stress of 60 N/mm^2 and compressive stress of 20 N/mm^2 mutually perpendicular to each other. Find maximum shear stress.			
	A.	8.66 N/mm^2	B.	20 N/mm^2
	C.	10 N/mm^2	D.	0 N/mm^2
7	When a body is subjected to a direct tensile stress (σ) in one plane, then normal stress on an oblique section of the body inclined at an angle θ to the normal of the section is			
	A.	$\sigma \cos\theta$	B.	$\sigma \sin\theta$
	C.	$\sigma \cos^2\theta$	D.	$\sigma \sin^2\theta$
8	A body is subjected to a direct tensile stress (σ) in one plane. The shear stress is maximum at a section inclined at _____ to the normal of the section.			
	A.	45° and 90°	B.	45° and 135°
	C.	60° and 150°	D.	30° and 135°
9	When a body is subjected to a direct tensile stress (σ_x) in one plane accompanied by a simple shear stress (τ_{xy}), the maximum shear stress is			
	A.	$\frac{\sigma_x}{2} + \frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$	B.	$\frac{\sigma_x}{2} - \frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$
	C.	$\frac{\sigma_x}{2} + \frac{1}{2}\sqrt{\sigma_x^2 - 4\tau_{xy}^2}$	D.	$\frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$
10	A body is subjected to a tensile stress of 1200MPa on one plane and other tensile stress of 600 MPa on a plane at right angles of the former. It is also subjected a shear stress 400 MPa on the			

	same planes. The minimum normal stress will be			
	A.	400 MPa	B.	500 MPa
	C.	900 MPa	D.	1400 MPa
11	The plane, on which only direct stress (normal stress) is acting is called			
	A.	Principle plane	B.	Principle stress
	C.	Complimentary shear stress	D.	None of these
12	Principle plane may be oriented in direction of			
	A.	Vertical	B.	Horizontal
	C.	Inclined	D.	All of these
13	The plane on which only one direct stress (σ_1) is acting, then find normal stress (σ_n) on inclined plane having angle of θ°.			
	A.	$\frac{(\sigma_1 + \sigma_2)}{2} + \frac{(\sigma_1 - \sigma_2)}{2}\cos 2\theta + \tau \sin 2\theta$	B.	$\frac{(\sigma_1 + \sigma_2)}{2} - \frac{(\sigma_1 - \sigma_2)}{2}\cos 2\theta + \tau \sin 2\theta$
	C.	$\frac{(\sigma_1 - \sigma_2)}{2}\sin 2\theta - \tau \cos 2\theta$	D.	$\sqrt{{\sigma_n}^2 + {\sigma_t}^2}$
..14	At a certain point in a strained material two stresses of 100 N/mm^2 and 60 N/mm^2 both tensile are acting on plane mutually perpendicular to each other. Find out normal stress on a plane inclined at 30° with the plane carrying the stress of 100 N/mm^2			
	A.	90 N/mm^2	B.	- 90 N/mm^2
	C.	34.64 N/mm^2	D.	- 34.64 N/mm^2
15	The plane on which two direct stresses (σ_1 , σ_2) and, shear stress(τ) are acting on perpendicular planes. Find out principle stresses.			
	A.	$\sigma_{n1} = \frac{(\sigma_1 + \sigma_2)}{2} + \sqrt{(\frac{\sigma_1 - \sigma_2}{2})^2 + \tau^2}$	B.	$\sigma_{n2} = \frac{(\sigma_1 + \sigma_2)}{2} - \sqrt{(\frac{\sigma_1 - \sigma_2}{2})^2 + \tau^2}$
	C.	Both (A) and (B)	D.	None of these
16	A piece of material is subjected to a tensile stress of 100 N/mm^2 and compressive stress of 40 N/mm^2 mutually perpendicular to each other. Find maximum shear stress.			
	A.	30 N/mm^2	B.	- 90 N/mm^2
	C.	34.64 N/mm^2	D.	- 34.64 N/mm^2
17	When a body is subjected to a direct tensile stress (σ) in one plane, the normal stress on an oblique section will be maximum, when θ is equal to			
	A.	0°	B.	30°
	C.	45°	D.	90°

18	When a body is subjected to a direct tensile stress (σ) in one plane, the maximum shear stress is _____ the maximum normal stress.			
	A.	Equal to	B.	One-half
	C.	Two-third	D.	twice
19	A body is subjected to a direct tensile stress of 300MPa in one plane accompanied by a simple shear stress of 200MPa. The maximum normal stress will be			
	A.	- 100 MPa	B.	250 MPa
	C.	300 MPa	D.	400 MPa
20	A body is subjected to a tensile stress of 1200MPa on one plane and other tensile stress of 600 MPa on a plane at right angles of the former. It is also subjected a shear stress 400 MPa on the same planes. The maximum shear stress will be			
	A.	400 MPa	B.	500 MPa
	C.	900 MPa	D.	1400 MPa
21	On the principle plane, shear stress is zero.			
	A.	True	B.	False
	C.		D.	
22	The plane on which only one direct stress (σ_1) is acting, then			
	A.	$\sigma_2 = 0, \tau = 0$	B.	$\sigma_1 = 0, \tau = 0$
	C.	$\sigma_1 = 0, \sigma_2 = 0, \tau = 0$	D.	None of these
23	The plane on which only one direct stress (σ_1) is acting, then find tangential stress (σ_t) on inclined plane having angle of θ°.			
	A.	$\frac{(\sigma_1 + \sigma_2)}{2} + \frac{(\sigma_1 - \sigma_2)}{2}\cos 2\theta + \tau \sin 2\theta$	B.	$\frac{(\sigma_1 + \sigma_2)}{2} - \frac{(\sigma_1 - \sigma_2)}{2}\cos 2\theta + \tau \sin 2\theta$
	C.	$\frac{(\sigma_1 - \sigma_2)}{2}\sin 2\theta - \tau \cos 2\theta$	D.	$\sqrt{{\sigma_n}^2 + {\sigma_t}^2}$
24	At a certain point in a strained material two stresses of 100 N/mm^2 and 60 N/mm^2 both tensile are acting on plane mutually perpendicular to each other. Find out tangential stress on a plane inclined at 30° with the plane carrying the stress of 100 N/mm^2.			
	A.	90 N/mm^2	B.	- 90 N/mm^2
	C.	34.64 N/mm^2	D.	- 34.64 N/mm^2
25	A piece of material is subjected to a tensile stress of 60 N/mm^2 and compressive stress of 20 N/mm^2 mutually perpendicular to each other. Find normal stresses on plane inclined at 30° with the major principal plane.			
	A.	40 N/mm^2	B.	- 90 N/mm^2
	C.	34.64 N/mm^2	D.	- 34.64 N/mm^2
26	A piece of material is subjected to a tensile stress of 80 N/mm^2 and compressive stress of 160 N/mm^2 mutually perpendicular to each other. Find maximum shear stress.			
	A.	30 N/mm^2	B.	120 N/mm^2
	C.	34.64 N/mm^2	D.	- 34.64 N/mm^2
27	The planes, which carry no shear stress, are known as principal planes.			
	A.	True	B.	false

	C.		D.	
28	Principle plane is a plane on which the shear stress is			
	A.	Zero	B.	Minimum
	C.	Maximum	D.	None of these
29	A body is subjected to a direct tensile stress of 300MPa in one plane accompanied by a simple shear stress of 200MPa. The minimum normal stress will be			
	A.	- 100 MPa	B.	250 MPa
	C.	300 MPa	D.	400 MPa
30	For biaxial stress, the planes of maximum shear are at right angles to each other and are inclined at 45° to the principle planes.			
	A.	True	B.	False
	C.		D.	
31	The magnitude of direct stress, across a principle plane is known as			
	A.	Principle plane	B.	Principle stress
	C.	Normal stress	D.	Complimentary shear stress
32	The plane on which two direct stresses σ_1 and σ_2 are acting on perpendicular planes, then			
	A.	$\sigma_2 = 0, \tau = 0$	B.	$\sigma_1 = 0, \tau = 0$
	C.	$\sigma_1 = 0, \sigma_2 = 0, \tau = 0$	D.	$\tau = 0$
33	The plane on two direct stresses σ_1 and σ_2 are acting on perpendicular planes, then find tangential stress (σ_r) on inclined plane having angle of θ°.			
	A.	$\frac{(\sigma_1 + \sigma_2)}{2} + \frac{(\sigma_1 - \sigma_2)}{2}\cos 2\theta + \tau \sin 2\theta$	B.	$\frac{(\sigma_1 + \sigma_2)}{2} - \frac{(\sigma_1 - \sigma_2)}{2}\cos 2\theta + \tau \sin 2\theta$
	C.	$\frac{(\sigma_1 - \sigma_2)}{2}\sin 2\theta - \tau \cos 2\theta$	D.	$\sqrt{\sigma_n{}^2 + \sigma_t{}^2}$
34	At a certain point in a strained material normal stress of 90 N/mm^2 and tangential stress 34.64 N/mm^2 both tensile are acting on a plane. Find out resultant stress.			
	A.	90 N/mm^2	B.	- 90 N/mm^2
	C.	34.64 N/mm^2	D.	96.43 N/mm^2
35	A piece of material is subjected to a tensile stress of 80 N/mm^2 and a compressive stress of 40 N/mm^2 at right angles to each other. It also carries a shear stress of 30 N/mm^2. Find principal stresses.			
	A.	$\sigma_{n1} = 87.08$ N/mm^2, $\sigma_{n2} = -47.08$ N/mm	B.	$\sigma_{n1} = 60$ N/mm^2, $\sigma_{n2} = 60$ N/mm^2
	C.	$\sigma_{n1} = -60$ N/mm^2, $\sigma_{n2} = -60$ N/mm^2	D.	None of these
36	A piece of material is subjected to a tensile stress of 100 N/mm^2 and compressive stress of 60 N/mm^2 mutually perpendicular to each other. Find maximum shear stress.			
	A.	30 N/mm^2	B.	80 N/mm^2
	C.	34.64 N/mm^2	D.	- 34.64 N/mm^2
37	When a body is subjected to a direct tensile stress (σ) in one plane, then maximum normal stress occurs at a section inclined at _____ to normal of section.			

	A.	0°	B.	30°
	C.	45°	D.	90°
38	When a body is subjected to a direct tensile stress (σ_x) in one plane accompanied by a simple shear stress (τ_{xy}), the maximum normal stress is			
	A.	$\frac{\sigma_x}{2} + \frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$	B.	$\frac{\sigma_x}{2} - \frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$
	C.	$\frac{\sigma_x}{2} + \frac{1}{2}\sqrt{\sigma_x^2 - 4\tau_{xy}^2}$	D.	$\frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$
39	A body is subjected to a direct tensile stress of 300MPa in one plane accompanied by a simple shear stress of 200MPa. The maximum shear stress will be			
	A.	- 100 MPa	B.	250 MPa
	C.	300 MPa	D.	400 MPa
40	The maximum shear stress is _____ the algebraic difference of maximum and minimum normal stress.			
	A.	Equal to	B.	One-fourth
	C.	One-half	D.	twice
41	Which principle plane carries maximum direct stress?			
	A.	Major principle plane	B.	Minor principle plane
	C.	Intermediate principle plane	D.	None of these
42	The plane on which only one direct stress (σ_1) and shear stress (τ) are acting, then			
	A.	$\sigma_2 = 0$	B.	$\sigma_1 = 0, \tau = 0$
	C.	$\sigma_1 = 0, \sigma_2 = 0, \tau = 0$	D.	$\tau = 0$
43	When a body is subjected to a couple of shear stress (τ) on one plane and it is in equilibrium, it must be accompanied by another couple of shear stress (τ') opposite to the first one. These shear stress (τ') is called			
	A.	Shear stress	B.	Principle stress
	C.	Complimentary shear stress	D.	Tangential stress
44	A block is subjected to a complimentary shear stress of 10 N/mm^2. Find normal stresses on a plane inclined at 30° with vertical plane.			
	A.	8.66 N/mm^2	B.	- 5 N/mm^2
	C.	10 N/mm^2	D.	0 N/mm^2
45	A piece of material is subjected to a tensile stress of 60 N/mm^2 and compressive stress of 20 N/mm^2 mutually perpendicular to each other. Find tangential stresses on plane inclined at 30° with the major principal plane.			
	A.	90 N/mm^2	B.	- 90 N/mm^2
	C.	34.64 N/mm^2	D.	96.43 N/mm^2
46	A piece of material is subjected to a tensile stress of 120 N/mm^2 and compressive stress of 100			

	N/mm^2 mutually perpendicular to each other. Find maximum shear stress.			
	A.	30 N/mm^2	B.	110 N/mm^2
	C.	34.64 N/mm^2	D.	- 34.64 N/mm^2
47	When a body is subjected to a direct tensile (σ), the maximum normal stress is equal to the direct tensile stress.			
	A.	True	B.	false
	C.		D.	
48	When a body is subjected to a direct tensile stress (σ_x) in one plane accompanied by a simple shear stress (τ_{xy}), the minimum normal stress is			
	A.	$\frac{\sigma_x}{2} + \frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$	B.	$\frac{\sigma_x}{2} - \frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$
	C.	$\frac{\sigma_x}{2} + \frac{1}{2}\sqrt{\sigma_x^2 - 4\tau_{xy}^2}$	D.	$\frac{1}{2}\sqrt{\sigma_x^2 + 4\tau_{xy}^2}$
49	A body is subjected to a tensile stress of 1200MPa on one plane and other tensile stress of 600 MPa on a plane at right angles of the former. It is also subjected a shear stress 400 MPa on the same planes. The maximum nor mal stress will be			
	A.	400 MPa	B.	500 MPa
	C.	900 MPa	D.	1400 MPa
50	The maximum shear stress is equal to the radius of Mohr's circle.			
	A.	True	B.	False
	C.		D.	