Question Bank

Subject- Structural Design of Foundations & Retaining Structures

Question 1	Rectangular combined footing design consists in determining.....
A	Pressure distribution
B	Location of centre of gravity of column
C	Shear force
D	Safe bearing pressure
Answer	B
Marks	2

Question 2	How the load is transferred from strap to soil in strap footing
A	Transfer load to soil
B	Does not transfer load to soil
C	Partially load transferred to soil
D	None of above
Answer	B
Marks	2

Question 3	Which type of footing is used if allowable soil pressure is low
A	Raft foundation
B	Strap foundation
C	Trapezoidal combined footing
D	Rectangular combined footing
Answer	A
Marks	2

Question 4	..... should be adopted as design value in designing rectangular combined footing
A	Maximum shear force
B	Maximum load
C	Maximum bending moment
D	Safe pressure
Answer	C
Marks	2

Question 5	The value of $\bar{x}$ for a rectangular combined footing is ....
A	$\bar{x} = L/2$
B	$L/3 < \bar{x} < L/2$
C	$\bar{x} = L/3$
D	None of above
Answer	A
Marks	2

Question 6	-------- pile is used near sea to protect harbour just by absorbing the effect of floating objects
A	Anchor piles
B	Fender piles
C	Batter piles
D	Sheet piles

Answer	B
Marks	2

Question 7	-------- piles is used to compact loose granular soil.
A	Friction piles
B	End bearing piles
C	Compaction piles
D	Tension piles
Answer	C
Marks	2

Question 8	------ is a cast-in-situ type of concrete pile.
A	Under-reamed pile
B	Raymond standard pile
C	Pressure pile
D	Anchor pile
Answer	B
Marks	2

Question 9	In a pile, resistance load due to skin friction varies with
A	Length
B	Square of Length
C	Square of Diameter
D	Length & diameter
Answer	D
Marks	2

Question 10	A square pile of section of 40cm x 40cm and length 10m penetrates a deposit of clay having c=5kN/m2 and the mobilizing factor α= 0.8. What is the load carried by single pile by skin friction.
A	192kN
B	75kN
C	60kN
D	64kN
Answer	D
Marks	2

Question 11	The foundation that is used when the soil mass is sufficiently erratic?
A	Strap footing
B	Combined footing
C	Rectangular combined footing
D	Mat footing
Answer	D.
Marks	2

Question 12	Usually, rafts are designed as _____
A	Reinforced slabs
B	Reinforced concrete flat slabs

C	Ordinary concrete slab
D	Inverted flat slabs
Answer	B
Marks	2

Question 13	A foundation is called shallow foundation if
A	The depth of foundation is less than 1
B	The depth is equal to the width of foundation
C	The depth is half of the width of foundation
D	None of the above
Answer	B
Marks	2

Question 14	The penetration resistance N for designing of raft should be taken at _____ intervals.
A	50 cm
B	60 cm
C	75 cm
D	20 cm
Answer	C
Marks	2

Question 15	A raft foundation is provided if its area exceeds the plan area of the building by
A	10%
B	20%
C	40%
D	50%
Answer	D
Marks	2

Question 16	The components that are needed to be considered in designing of a well foundation is _____
A	Shape of the well
B	Sand filing
C	Bottom plug
D	Dredge hole
Answer	C
Marks	2

Question 17	When the well is sunk deeper, the skin friction is decreased by which of the following method?
A	a) Use of phawrah jhams
B	By tilting and shifting
C	By applying kentledge
D	All of the above

Answer	C
Marks	2

Question 18	An effective well curb should withstand _____
A	Maximum stress
B	Stress due to sand blows
C	Its own weight
D	Blasting
Answer	B
Marks	2

Question 19	According to Terzaghi and Peck, the ultimate bearing capacity can be determined by which of the following expression?
A	$Q_f = Q_p + 2\pi R f_s D_f$
B	$Q_p = \pi R^2 (Q_p + 2\pi R f_s D_f)$
C	$Q_p = 2\pi R f_s D_f$
D	All of the above
Answer	A
Marks	2

Question 20	Shift in the well foundation are limited to
A	1% sunk depth
B	1% diameter of the well
C	2% sunk depth
D	None of the above
Answer	A
Marks	2

Question 21	In T-shaped R C. retaining walls, the main reinforcement in the stem is provided on
A	the front face in one direction
B	the front face in both directions
C	the inner face in one direction
D	the inner face in both directions
Answer	C
Marks	2

Question 22	A T-shaped retaining wall mainly consists of
A	one cantilever
B	two cantilevers
C	three cantilevers
D	four cantilevers
Answer	C
Marks	2

Question 23	If density of soil is 18KN/m^3, safe bearing capacity is 200KN/m^2 and angle of repose is 30° in cantilever retaining wall, Minimum depth of foundation is
A	1.5m
B	1.1m
C	1.2m
D	1.5m
Answer	A
Marks	2

Question 24	Temperature and shrinkage reinforcement provided in the retaining wall is equal to
A	Ast
B	0.12%Ast
C	0.1%Ast
D	0.15%Ast
Answer	B
Marks	2

Question 25	A shear key is provided in a retaining wall to avoid
A	Sliding
B	Overturning
C	Buckling
D	Bending
Answer	A
Marks	2

Question 26	*Which of the following breakwaters gives provision to change the shape of basin if required?*
A	Rubble mound breakwater
B	Floating type breakwater
C	Hydraulic breakwater
D	Pneumatic breakwater
Answer	B
Marks	2

Question 27	*Breakwater height is kept as equivalent to _____ times the height of the waves expected.*
A	1.5 to 1.7
B	1.2 to 1.25
C	2.0 to 2.25
D	2.25 to 2.5
Answer	B
Marks	2

Question 28	The structure constructed for the purpose of forming an artificial harbour with a basin so protected from the effect of waves as to provide safe berthing for fishing vessels is known as
A	Dock
B	Breakwater
C	Jetties
D	Dwarf
Answer	B
Marks	2

Question 29	*Which method is most suitable for the construction of wall type breakwater?*
A	Staging Method
B	Low Level Method
C	Barge Method
D	All of the above
Answer	A
Marks	2

Question 30	*In deep water, the weight of armour units in the secondary cover layer below 1.5 h depth should be _____ of the weight of armour units in the primary cover layer.*
A	1/15
B	1/20
C	1/10
D	1/5
Answer	A
Marks	2