

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
1	Particle size range of silt is from	2	0.02 mm to 0.075 mm	0.002 mm to 0.075 mm	0.2 mm to 0.075 mm	2.0 mm to 0.075 mm
2	Particle size of clay is	1	Below 0.002 mm	equal to 0.002 mm	equal to 0.02 mm	more than 0.002 mm
3	For major and medium project the top width of dam having height more than 30 m is provided as	3	4.5 m	3.0 m	6.5 m	5.0 m
4	For minor irrigation project free board above MWL for dam height upto 20 m is	1	1.5 m	2.0 m	2.5 m	0.5 m
5	Pore pressure in the body of earth dam is measured by	1	Piezometer	earth pressure cell	plumb bob	none
6	The minimum acceptable value of factor of safety for down stream slope for steady seepage with reservoir full condition as per IS code is	3	1.0	1.3	1.5	0.75
7	Maximum longitudinal slope of COT is	2	4H:1V	3H:1V	1H:1V	1H:0.75V
8	Normal free board is the free board above	1	FRL	MWL	TBL	MDDL
9	Minimum free board should not be less than Above MWL.	2	2 m	1.5 m	1.2 m	1.0 m
10	For drains outer layer of filter material is of	3	metal	gravel	sand	clay
11	The numerical difference between liquid limit and plastic limit of soil is known as	1	Plasticity Index	Shrinkage limit	Consolidation	ODD
12	A zone of impervious earth within zoned dam is called as ..	3	cut off	casing	core	key trench
13	Minimum top width of earth dam of major irrigation project with gated spillway as per CDO code of practice is	1	6.5 m	4.0 m	5.5 m	3.0 m
14	The width of berms should not be less than	2	3 m	5 m	4 m	6 m
15	Minimum depth of stripping of earth dam is	1	0.60 m	0.30 m	0.50 m	1.0 m
16	The length of upstream impervious blanket is provided as	2	5 H	10 H	H	12 H
17	A zone of free draining material provided at down stream toe of dam is called as	4	Rubble	Riprap	Cushion	Rock toe
18	The slope of phreatic line in hearting zone is	1	4H:1V	1H:1V	3H:1V	1H:0.5V
19	In case of shortage of hearting material, the minimum slopes of hearting shall be provided as	2	1H:1V	0.5H:1V	0.25H:1V	2H:1V
20	Rainfall is measured in	1	cm	cm/sec	cm/hr	ha.m
21	Runoff is measured in	4	m ³ /sec	day.cumec	m ³ /hr	cm
22	Centre line of hearting is of the centre line of the dam	1	on upstream side	on downstream side	same as that	coincides

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23	Height of rock toe is taken as height of water upto full reservoir level.	3	5%	10%	15%	20%
24	Soil is compacted in compaction mould in equal layers	3	1	2	3	4
25	Downstream pitching is provided where annual average rainfall is	2	less than 1000 mm	more than 2000 m	equal to 1500 mm	none
26	The thickness of inclined sand filter on d/s side of core is measured along	1	the plane perpendicular to d/s slope of hearting	the plane at 45% to down stream zone	the horizontal plane	the vertical plane
27	Well graded sand to be used in the filter should satisfy the following filter criteria with the base material immediately in contact with..... $D_{15}(\text{sand}) / D_{85}(\text{base material}) =$ should be	2	>4 or < 20	< 5	> 4	≥ 5
28	The specific gravity of sand particles used in filter should not be less than	1	2.60	1.50	1.0	2.70
29	The relative density of sand after compaction should be equal to or more than	3	90%	75%	70%	100%
30	For major and medium Irrigation project minimum thickness of inclined filter shall be measured perpendicular to the down stream slope of hearting.	1	2 m	1.50 m	1.0 m	2.50 m
31	The minimum bottom width of COT is usually Where work is to be done by machinery	3	3 m	4 m	5 m	5.5 m
32	The spacing of bores in the foundation for earth dam should be normally...	1	150 m	100 m	60 m	200 m
33	On the down stream side of earth dam relief wells can be drilled at a spacing of about....	2	50 m	60 m	90 m	75 m
34	In homogeneous porous rock, a lugen coefficient of 1 is equal to ...	2	10^{-3} cm/sec.	10^{-5} cm/sec	10^{-6} c./sec	10^{-8} cm/sec
35	Grouting is necessary, if water intake tests of foundation rock show water loss more than lugeons.	1	3	1	2	2.5
36	Terminal wells are provided / located on of earth dam	2	u/s side	d/s side	on d/s slope berm	in COT
37	Water intake tests should be carried out in rock for every section.	4	1 m	2 m	3 m	1.5 m
38	Borrow area investigation should be done for a quantity at least times of earthwork to be done	1	two	three	one	none of these
39	A line on, rainfall map of basin, joining places of equal rainfall reading is known as....	2	Iso bar	Iso hYTE	Isobath	Isotherm.
40	Which of the followings is the instrument used to measure vertical moments?	1	Surface marker	Geonor probe	earth pressure cell	cross arm
41	Instruments for measuring effects of dynamic load due to earth quake ...	4	Cross arm	Geonor probe	Surface marker	Seismograph

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42	Meteorological Department of Government of India adopted rainguage to measure rainfall,	1	Symon's	Weighing bucket	Tipping bucket	float type
43	Random zone is provided in ...	1	casing zone	hearting zone	C.O.T.	monozonetype
44	Th side slopes of excavation for COT in B.C. soil is	2	1.5H:1V	1H:1V	0.75H:1V	2H:1V
45	For drains outer layer of filter material is of	4	Gravel	rubble	metal	sand
46	The height of the rock toe shall be ... of the height of water upto FRL.	1	15%	10%	25%	10%
47	Maximum height of rock toe should not be more than ...	3	1 m	2 m	4 m	1.5 m
48	The slope of phreatic line in hearting zone is ...	1	4H:1V	2H:1V	1H:1V	3H:1V
49	For average casing material the value of cohesion lies between	2	0 to 0.50	0 to 1	1 to 2	2 to 3
50	The value of $\tan \phi$ for casing material is between	3	0.10 to 0.30	0 to 1	0.60 to 0.70	0.80 to 1.30
51	The minimum acceptable value of factor of safety for D/S for steady seepage with reservior full condition as per I.S. code is	1	1.5	1.2	1	1.3
52	The gradient of cross drains shall be	2	1 in 50	1 in 100	1 in 60	1 in 30
53	Cross drains shall be provided at an angle of inclination of	3	30°	60°	45°	90°
54	Bucket capacity of poclairn LC-80 is m ³	1	0.90	1.00	0.75	1.10
55	Area from which the materials of construction are obtained is known as	1	borrow area	command crea	catchment area	water spread area
56	The vertical distance between FRL & MWL is called as ...	3	Free board	wave lift	Flood lift	Fetch length
57	The ratio of volume of voids to the total volume of soil is known as	4	porosity	Air content	ODD	void ratio
58	A cut off trench taken upto impervious stratum is called	2	Partial COT	tve COT	slurry trench	cut of wall
59	The designed shear parameters for the materials comprising the dam shall be fixed at the value such that %	1	75	50	90	45
60	The hydrologic cylce may be expressed by equation, Precipitation (P), Evaporation(E), Runoff *	1	$P = E + R$	$P = E - R$	$E = P + R$	$R = P/E$
61	The straight line distance along the wind direction over open water surface on which wind blows is called	2	Fetch	Fetch length	free board	submergence
62	1 mm ³ = Ha.m	1	100	10	1000	10000
63	Inglis formula $R = 0.85 P - 30.5$ where R & P are in cms is applicable to ...	3	non-ghat area	plain area	ghat area	any area
64	Lacey's formula and khosla's formula are applicable to calculate	1	runoff	rainfall	infillration	evaporation
65	..... denotes the number of years in which flood cab be expected once	2	Flood frequency	Recurrence interval	Flood discharge	Flood routing
66	In storm hydrograph discharge is plotted against ...	1	Y axis	X axis	Z-axis	any axis
67	The constructed using earth materials or rock fill material are the types of Dams	2	rigid	non-rigid	overflow	non overflow

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68	The upward pressure of water as it flows or seeps through the body of the dam or its foundation, such pressure is called.....	4	pore pressure	atmospheric pressure	hydrostatic pressure	uplift pressure
69	Insufficient free board or settlement of foundation and embankment lead to	1	overtopping	toe erosion	wave topping	Gulleying
70	The D_{15} size of the filter must be at least times the D_{15} size of base material	1	4 to 5	2	3	10
71	In USBR, R stands for	3	Reconciliation	Reconstruction	Reclamation	Registration
72	In GCA, G stands for	2	Grass	Gross	Gaothan	Garbage
73	Top width of the breaching section provided to earth dam is kept	1	less than 2 m	more than 2 m	equal to 2 m	1 m
74	A low head hydro electric scheme is the one which uses head of water	2	more than 15 m	less than 15 m	more than 60 m	less than 5 m
75	A surge tank is provided to reduce	3	atmospheric pressure	uplift pressure	water hammer pressure	all of these
76	An agricultural land is said to be water logged when its fertility is affected by ...	1	high water table	excess irrigation	deep percolation	none of these
77	A process of artificially supplying water to soil for raising the crops is called ...	2	rainfed process	irrigation	harvesting	none of these.
78	Increase in the food production is the benefit of irrigation	1	direct	indirect	both a & b	non of these
79	The types of river training works are	4	Guide bank	Groynes	levees	all of these
80	When the work is to be done by manually the bottom width of COT should be ...	1	4 m	5 m	3 m	550 m
81	In case of shallow depth and exposed hard rock the minimum depth of COT should be meter	3	4 to 6	5.50 to 7.50	2.0 to 3.0	5
82	In above case, minimum bottom width shall be of the hydraulic head.	2	50%	10 to 30%	5 to 10%	non of these
83	The thickness of the upstream impervious blanket to be provided is m covered by murrum layer of 1 m thickness	3	1.0 to 1.20	0.50 to 0.90	1.50 to 2.0	less than 1
84	If the water intake test indicate the loss of water more than lugeons, the bed rock of COT shall be grouted.	1	3	1	3.50	2.50
85	A zone of free draining material provided at down stream toe of earth dam...	1	rock toe	toe drain	relief well	non of these
86	The main function of the forebay dam is store the water rejected by the plant....	2	permanently	temporarily	timely	oftenly
87	Out of total number of soil samples collected from borrow area for testing at least samples shall be tested by MERI nashik.	4	5%	10%	15%	20%
88	In MDDL, M stands for	1	minimum	maximum	major	marginal
89	How many Major River basins exists in our state?	2	4	5	6	7

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90	The project is called Major Project when its	1	CCA>10000 ha	ICA>10000ha	ICA>8000ha	non of these
91	Emergency spillway is constructed of low height	3	masonry bar	concrete bar	earth embankment	curtain wall
92	Earth dam composed of single kind of material (exclusive of the slope protection) is known as	1	monozone embankment	zoned embankment	random zone embankment	all of these
93	Factor of safety for upstream and downstream slope for construction condition with or without partial pool is	3	1.3	1.5	1	0.75
94	Horizontal filter at ground level is provided with a gradient of towards rock toe for quick disposal of seepage water	2	1:1000	1:100	1:150	1:200
95	A minimum thickness of meter is desirable for the horizontal filter	4	0.50	0.75	0.90	1.00
96	In abbreviation FRL, F stands for	1	Full	First	Fool	Formed
97	Pitching on upstream slope of earth dam is terminated at	2	ground level	1.50 m below MDDL	at MDDL	non of above
98	The phreatic line is assumed to be travelling from FRL in upstream shell.	3	liner	parabolic	straight	hyperbolic
99	The shape of longitudinal and cross drains is	1	trapezoidal	rectangular	square	half round
100	The total depth of water required by the crop during the entire period the crop is in the field is called. ...	2	kor depth	delta	root zone depth	paleo
101	It is necessary to investigate borrow areas which will yield the quantity equal to the quantity of earth work to be done.	1	turce	same	1.50 times	thrice
102	For major and medium projects, one sample per m ³ of the estimated quantity of earth work should be tested.	4	20000	50000	25000	30000
103	In zoned dam core material is of nature	1	impervious	pervious	semi pervious	all of these
104	Cracks in the core of the dam are developed when the dam is effected by	3	spontaneous liquidification of foundation	Spreading of earth dam materials	Earth quake	all of these
105	The difference between FRL and MWL is	2	free board	minimum free board	normal free board	flood lift.
106	Overtopping, to erosion are the failures of earth dam	1	hydraulic	seepage	structural	all of these
107	A cover of grass grown over an area to prevent erosion of soil particles by rain wash is known as	3	grass sodding	plantation	turfing	none of these
108	The hydrostatic pressure on phreatic line itself is	2	full	zero	-ve hydrostatic pressure	all of these

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109	Normally bores in foundation, going down to 10 meter depth in sound rock are taken at the spacing of.....meter along the centre line of the dam	1	150	100	200	60
110	Stability analysis of earth dam section for earth quake condition is done by using	3	slip circle analysis	coulomb's equation	response spectrum method	elastic wave theory
111	Particle size of clay is mm	2	more than 0.002	below 0.002	equal to 0.20	equal to 0.02
112	The thickness of the inclined sand filter on downstream side of hearting zone is measured along the	4	Plane at 45% to down stream slop	Vertical plane	the horizontal plane	plane plane perpendicular to the down stream slope of hearting
113	The value of $\tan \phi$ for casing material is between	1	0.60 to 0.70	0.80 to 1.10	0 to 1.0	non of these
114	For average casing material cohesion is in the range of	2	0 to 0.50	0 to 1.0	1.0 to 2.0	all of these
115	The co-efficient of curvature of the well graded sand to be used in the filter should be	1	>4	<20	<25	>0
116	The spacing of bores in the foundation of earth dam should be normally meter	3	100	600	150	200
117	The spacing of relief wells to be provided on down stream side side of earth dam is meter	1	60	90	75	35
118	Coefficient of lugeon 1 equal to cm/sec	3	10^{-3}	10^{-4}	10^{-5}	10^{-7}
119	Minimum height of rock toe to be provided shall be meter	4	1.0	3.0	2.0	1.0
120	A wall provided along the edge of top width of earth dam is called.	3	diaphragm wall	divided wall	parapet wall	guide wall
121	In regions prone to earth quake, the top of inclined filter to be provided is upto	1	top of hearting	FRL	MWL	none of these
122	When the expected wave height is greater than 2 m, minimum thickness of pitching to be provided on upstream slope of earth dam is cms	3	30	45	60	20
123	Cross arm installation and inclinometers are the the types of guages of instruments provided in body of earth dam.	1	horizontal movement	vertical movement	inclinometer	none of these
124	A system of open paved drains along the sloping surface of down stream slope of earth dam shall be provided at the speacing of cm centre to centre to drain rain water	4	100	120	75	90
125	All the instruments shall be strictly installed under the supervision of officials so as to avoid unnecessary complications.	1	MERI nashik	Hydrology Dept. Nashik	Meteorological dept. Pune	CDO Nashik

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126	A terminal well is located on of earth dam.	2	upstream side	downstream side	top of dam	non of these
127	Chesion for clean sand is	4	0.01	0.02	0.03	0
128	The ratio of stabilizing forces to driving forces in slip circle analysis of earth dam slope is known as	2	shearing stress	factor of safely	coefficient of curvature	cohesion
129	Bucket capacity of poclain LC-80 is m3	1	0.90	1.00	1.31	1.30
130	The MH and MH group of soils are suitable for	1	hearting zone	casing zone	randam zone	all of these
131	The SW and GW group of soils are suitable for	2	impervious zone	pervious casing zone	hamogeneous zone	none of these
132	At shrinkage limit, the soil is in State	1	saturated	unsaturated	partly saturated	none of these
133	The creep ratio at the junction of masonry and earth work is	2	3	4	1.5	1.0
134	Downstream pitching depends on	1	annual rainfall coverage	availability of stone	availability of sand and gravel	none of these
135	Higher value of lugeon indicates Foundation	1	weak	sound	both a & b	none of these
136	The minimum acceptable value of factor of safety for down stream slope for steady seepage with reservior full condition is	1	1.50	1.30	1.00	none of these
137	The duty at outlet is also called	1	outlet factor	capacity factor	safety factor	none of these
138	1 cumec day = ha.m	1	8.64	0.864	86.4	864
139	The useful life of reservior is terminated when its capacity is reduced to% of design capacity.	1	20	25	15	10
140	In flood frequency study, recurrence interval can be determined by	4	california method	Hazen method	Gumbel's method	all of these
141	Darcy's law is valid only for flow conditions	1	laminar	turbulent	transient	smooth
142	In USBR abrivation, B stands for	1	Bearue	Board	Body	Branch
143	Inglis formula of runoff is applicable only for	1	ghat area	non ghat area	plain tarrien	any area
144	During 1st filling of reservior Water levels shall be taken	1	daily	weekly	fortnightly	all of these
145	In abbrivation , GCA, G stands for	1	Gross	Great	Grass	General
146	An agricultural land is said to be water logged when its fertility is affected by	1	Higher water table	excess irrigation	deep percolation	excess rainfall
147	What are the types of river training works?	4	Guide bank	Groynes	levees	all of these
148	The main function of the forebay dam is Sote that water rejected by the plant.	2	Permanently	tempararily	timely	frequently

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149	Emergency spillway is constructed of low height	1	Earth embankment	masonry wall	concrete wall	none of these
150	Earth dam composed of single kind of material (exclusive of the slope portection) is called.	2	zoned embankment	monozone embankment	rolled fill dam	hydraulic fill dam
151	In zoned embankment type dam core material is	1	Impervious	pervious	semi-pervious	all of these
152	Overtopping, Toe erosion, wave erosion, and gulying are the Failures of earth dam.	3	Structural	seepage	hydraulic	none of these
153	The difference in elevation between TBL and MWL is called	2	Free board	minimum free board	normal free board	flood lift
154	The source of construction materials required for earth dam is known as	1	Borrow area	water logged area	command area	catchment area
155	Dams between 10 m and 15 m height may be treated as	4	Small dam	low dam	high dam	large dam
156	In MDDL, M stands for	3	maximum	major	minimum	minor
157	A zone of free draining material provided at D/S toe of earth dam.	1	rock toe	toe drain	relief well	all of these
158	A cover of grass grown over an area to prevent erosion of soil particles by rain wash.	3	D/S slope protection	grass sodding	turffing	all of these
159	The hydrostatic pressure on phreatic line itself is	1	zero	full	negative hydrostatic pressure	all of these
160	The phreatic line in dam body can be located by	4	analytical metod	graphical method	experimental method	all of these
161	The water less of one litre / minute / meter / atmosphere may be designated as	1	deci lugoen	lugoen	lugoen coeff	coefficient of permeability
162	normaly bores in foundation, going down to 10 m depth in sound rock are taken at the spacing of meter along the centre line of dam.	3	200	100	150	250
163	In the bores, water intake tests should be carried out in the rock for every meter section.	1	1.50	1.00	2.50	3.50
164	It is necessary to investiage borrow areas which will yield a quantity equal to the quanty of earth work to be done.	3	same	1.50 times	twice	none of these
165	For major and medium projects one sample per m ³ of the estimated quantity of the earth work shall be tested.	1	30000	15000	20000	10000
166	Out of the total number of soil samples collected from borrow area for testing at least samples shall be tested by MERI Nashik.	4	10%	30%	40%	20%

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167	If the water intake test indicate the loss of water more than Lugeons, the bed rock of COT bottom will have to be grouted.	1	3	1	5	2
168	The length of upstream impervious blanket is provided as where H is the height of water in the reservoir	3	15H	5H	10H	H
169	The thickness of blanket to be provided is meter covered by murum layer of 1 m thickness.	2	2.0 to 2.5	1.5 to 2.0	0.5 to 1.50	less than 2
170	When the work is to be done by machinery the bottom width of COT should be	3	4 m	3 m	5 m	6 m
171	The shear strength at failure on any surface within an earth dam is directly proportional to on that surface.	2	cohesion	normal stress	effective stress	shearing resistance
172	In absence of inclined sand filter, the phreatic line in casing is drawn with a slope of	1	2H:1V	4H:1V	2.5H:1V	1H:1V
173	For gated spillway, the phreatic line starts from	4	TBL	MWL	LWL	FRL
174	For ungated spillway, the phreatic line is assumed from mean of FRL and	1	MWL	MDDL	TBL	crest of spillway
175	For major and medium projects the top width of dam having height from 15 m to 30 m is meter.	3	3.0	6.5	4.5	none of these
176	For minor irrigation projects the top width of dam for gated spillway is meter.	2	4.5	6.5	4.5	3.0
177	On both edges of earth dam top guard stones shall be provided at a spacing of centre to centre.\	3	4 m	5 m	3 m	2 m
178	The size of the guard stone is mm	1	200x200x750	300x150x300	200x300x200	200x200x1000
179	Kerbing stones are provided on down stream edge of the dam top where the down stream slope is	2	pitched	not pitched	covered with turfing	none of these
180	The size of the kerbing stones shall be	1	300mm x 150mmx300 mm	200mmx200mm x750mm	200mmx300mmx 200mm	200mmx200mm x500mm
181	The berm width should not be less than	3	6 m	6.5 m	5.0 m	none of these
182	The vertical interval between two successive berms should not exceed meters.	1	12	10	15	8
183	The vertical distance between the crest of dam and maximum reservoir level is called.	3	flood lift	fetch length	free board	none of these
184	Normal free board is the free board above	1	FRL	MWL	TBL	all of these
185	Minimum free board is the free board above	3	FRL	TBL	MWL	none of these

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186	For the major project above 60 m height of dam, free board provided is m above MWL.	1	3.0	1.50	2.00	2.5
187	Free board, for 20 m height of dam of minor irrigation project is m above MWL	3	2	2.5	1.5	3.0
188	Minimum slope of shall be provided on upstream side od dam.	1	2.5H:1V	2H:1V	3H:1V	3.5H:1V
189	Minimum slope of shall be provided on downstream side of dam.	1	2H:1V	2.5H:1V	3.5H:1V	4H:1V
190	The dam seat shall be stripped off to the minimum depth of cms.	4	60	40	30	50
191	The centre line of COT shall be fixed at the point of intersection of sloping line starting from centre of top of hearing having upstream slope of and the stripped ground level.	1	0.25H:1V	0.50H:1V	1H:1V	0.75H:1V
192	Longitudinal slope for COT is generally provided as	1	3H:1V	1H:1V	0.75H:1V	2H:1V
193	Side slopes of excavation of COT in compact soil is	3	1:1	0.50:1	0.75:1	0.25:1
194	Berms in COT shall be provided for every vertical interval of m	2	5	6	10	12
195	COT should be taken as positive COT at least meter in the hill side for proper key in to the abutments.	1	5	6	4	8
196	Minimum top width of hearing for Major Irrigation Projects shall be provided as meter	4	3.0	4.0	5	4.5
197	If the hearing material is scare, the slopes of hearing zone can be reduced upto.....	1	0.5H:1V	1H:1V	0.2H:1V	all of these
198	The minimum top widht of randam zone shall be meter	3	4.50	6.0	3.0	2.0
199	The minimum upstream and downstream slopes of randam zone shall be	2	1H:1V	0.5H:1V	0.75H:1V	none of these
200	Inclined filter abuting the of impervious core is provided to collect the seepage.	1	down stream face	upstream face	centre	none of these
201	The thickness of the inclined filter shall be measured to the down stream slope of hearing.	3	parallel	horizontal	perpendicular	all of these
202	For minor irrigation projects having height more than 30 meter the minimum thickness of filter shall be provided as m	1	1.50	1.0	1.20	0.50
203	The top level of inclined filter should normally be kept at	2	MWL	FRL	TBL	None of these
204	In the regions prone to the inclined filters should be taken upto top of hearing zone.	1	earthquake	high rainfall	less rainfall	high floods
205	The material used for filter should be free draining having the required	3	density	transmitility	permeability	none of these
206	Longitudinal drain is laid along the downstream toe of to collect seepage.	1	hearing zone	casing zone	rock toe	berm
207	The bottom widht of the cross drains shall be provided as	2	1.50 m	1.0 m	0.50 m	0.75 m

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208	Total depth of the longitudinal and cross drain is meter	3	1.0	2.0	1.50m	2.0
209	Gradient of cross drains shall be	4	1:150	1:200	1:75	1:100
210	Cross drain shall be provided at an angle of inclination of	1	45 ⁰	60 ⁰	30 ⁰	90 ⁰
211	Specific gravity of sand to be used in filter should not be less than.....	4	2.85	2.47	2.25	2.60
212	Coefficient of uniformity of well graded sand to be used in filter should be	3	<4	<5	>4	equal to 4
213	The principal function of rock toe is to facilitate drainage of	1	seepage water	leakage through dam body	seepage through foundation	all of these
214	Height of the rock toe shall be provided as meter above peak tail water level.	1	1	2	3	4
215	When the expected wave height is more than 2 m, than the minimum thickness of pitching... cm should be provided on upstream slope of earth dam.	4	30	45	50	60
216	Thickness of filter material below upstream pitching shall not be less than cm	1	25	15	20	50
217	Where the average annual rainfall is less than cm turfing shall be provided and maintained on the entire down stream surface.	2	150	200	250	300
218	A system of open paved drains along the sloping surface of down stream slope shall be provided at cm centre to centre to drain the rain water.	1	90	120	60	150
219	For dams below height generally no instruments are provided except for seepage, rainfall, and reservoir water levels.	2	20 m	30 m	35 m	15 m
220	..... are installed to measure pore pressure.	1	piezometers	surface markers	Geonor probe	cross arm installation
221	Cross arm installation and inclinometers are the types of gauges of instruments provided in earth dam.	3	vertical movement	inclined movement	horizontal movement	all of these
222	All instruments shall be strictly installed under the supervision of official so as to avoid unnecessary complications.	1	MERI Nashik	CDO Nashik	META Nashik	MERI Nagpur
223	A terminal well is located just of rock toe	2	upstream side	downstream side	down stream casing	none of these
224	The gauges of instruments located in dam body are housed in	1	terminal well	relief well	head regulator well	all of these
225	Measurements of rainfall at the dam site is made by installing	3	V notch	SWF	rainguage	water stage recorder

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
226	The effects of dynamic load due to earthquake are recorded by installing	1	seismograph	accelerographs	structural respons & recorder	all of these
227	Excavation of soft strata below ground level is done by	1	JCB	Dozer	poclain	none of these
228	Compaction of hearting material is done by	1	Roller	Dozer	loader	all of these
229	The total time required to perform the activities assigned to a perticular earth moving machine is called	2	performance	cycle time	turnover of machine	all of these
230	Maintenance of records for earth dam at investigation stage.	4	Geological reports of all bore holes	Test results of undisturbed samples collected from foundation	Test results of soil samples of hearting and casing material	all of these
231	Methods of controlling the passage of water through the foundation of earth dam	1	USCM	Piping	seepage	all of these
232	The rate of stabilizing forces to driving forces in slip circle analysis of earth dam slope is called	2	unit cohesion	factor of safety	shearing stress	shearing strength
233	The difference between FRL and MWL is called	3	free board	fetch board	flood lift	none of these
234	Cohesion for clean sand is	1	0	0.10	1	0.2
235	The designed shear parameters for the materials comprising the dam shall be fixed at the value such that % results are above design value.	2	70	75	80	90
236	Bucket capacity of poclain LC-80 is	3	1 m ³	1.50 m ³	0.90 m ³	1.2 m ³
237	One lugeon is equal to	1	10 ⁻⁵ cm/se	10 ⁻⁴ cm/se	10 ⁻⁶ cm/se	10 ⁻² cm/se
238	The MH and CH group of soils are suitable for	3	random zone	casing zone	hearting zone	none of these
239	The SW and GW group of soil are suitable for	1	pervious casing	impervious core	homogeneous section	all of these
240	In compaction mould, each layer is given blows	1	15	20	25	30
241	Tan ϕ value for good sand is	4	0.60	0.35	0.50	0
242	Commonly used rainguage is	4	weighing bucket type	tipping bucket type	float type	none of these
243	At shrinkage limit, the soil is in condition	1	saturated	dry	partially saturated	all of these
244	The creep ratio required to be kept at a junction of masonary and earth dam is normally kept as	4	3	2.5	8	4

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
245	Down stream pitching depends upon	1	annual rainfall coverage	availability of stone	availability of gravel and sand	none of these
246	Sand mat in earth dam is provided at ground level on .....in a zoned embankment.	2	upstream side	on down stream of hearting	at intermediate level on d/s	all of these
247	Higher lugeon value indicates foundation	1	poor	sound	partially sound	none of these
248	The total depth of water required by the crop during the entire period the crop is in the field is known as	3	duty	kor depth	delta	all of these
249	The minimum acceptable value of factor of safety for d/s slope for steady seepage with reservoir full condition as per IS code is	2	1.0	1.5	1.3	none of these
250	The duty at outlet is defined as	1	Outlet factor	capacity factor	time factor	none of these
251	1 cumec day = ha.m	3	0.4047	14.30	8.64	0.864
252	The useful life of reservoir is terminated when its capacity is reduced to % of the design capacity.	1	20	15	10	5
253	Trap efficiency is a measure of in reservoir	2	Capacity	sedimentation	dead storage	none of these
254	In mass-inflow curve, cumulative inflow in the reservoir is plotted against axis.	1	Y axis	X axis	Z axis	all of these
255	In flood frequency study, recurrence interval can be determined by	4	California method	Hazen method	Gumbel's method	all of these
256	..... is the graphical representation of average rainfall and rainfall excess.	2	Hydrograph	Hyetograph	Storm hydrograph	Unit hydrograph
257	In S-hydrograph S stands for	1	Summation	subtraction	seismic	simple
258	Coefficient of permeability for clean sand ranges between	3	0.10 to 0.01	0.01 to 0.005	1 to 0.01	> 10
259	Darcy's law is valid only for flow condition.	4	turbulent	transient	smooth	laminar
260	A Reservoir is that which serves more than one purpose.	1	multipurpose	storage	flood control	distribution
261	Types of failures of earth dam are	4	Hydraulic failures	seepage failures	structural failures	all of these
262	In USBR B stands for	1	Bureau	Board	Branch	none of these
263	The empirical expression for the top width b of the earth dam in terms of height Z is given as $b = Z / 5 + 3$ is applicable for	2	Dam height lower than 30 m	very low dam	higher than 30 m	none of these
264	The shear strength of hearting material is always than the casing material.	2	Same	less	more	all of these

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
265	The top level of the core should be at least m above MWL.	1	1	0.5	1.20	1.5
266	Power shovels, draglines, scrapers etc. are grouped as	3	Hauling equipment	compacting equipment	excavating equipment	spreading equipments
267	For average casing material cohesion lies in betwee the range of	1	0 to 1	0 to 0.50	1 to 2	1.50 to 1.80
268	Tan for casing material is in the range of	2	0 to 1	0.60 to 0.70	0.80 to 1.0	1 to 1.50
269	Factor of safety for downstream slope with steady seepage for earthquake conditions is	1	1	1.30	1.50	none of these
270	The gradient of cross drains shall be	2	1 in 60	1 in 100	1 in 30	1 in 150
271	Laying of cross drain is at an angle of inclination of	4	90 ⁰	30 ⁰	60 ⁰	450 ⁰
272	The compaction equipment used in construction of earth dam	4	Vibrators	rammers	Rollers	all of these
273	Bucket capacity of poclain LC-80 is subic meter	1	0.90	0.50	1.50	2.10
274	Area from which materials of construction are borrowed is known as	3	Catchment area	command area	borrow area	submergence area
275	The numeral difference between full tank level and maximum water level is	2	Wave height	flood lift	free board	fetch length
276	The ratio of volume of voids to the total volume of soil is known as	1	Void ratio	porosity	Dry density	Air content
277	A cutoff trench which does not go down to the impervious stratum	4	Cut off	full cut off	positive cut off	partial COT
278	A surge tank is provided to reduce pressure	1	Warer hammer	uplift pressure	at mospheric	all of these
279	A hight head hydel scheme used a water head of more than	2	15 to 30 m	60 m	100 m	none of these
280	The width of breaching section provided to earth dam is	1	Less than 2 m	more than 2 m	less tha n3 m	none of these
281	Inglis formula for finding runoff is applicable only for	3	Plain tarrien	non-ghat area	ghat area	any area
282	Reccrebcce interwal denote the number of years in which flood can be expected.	1	Once	Thwice	Thrice	all of these
283	Partical size range of 0.002 m to 0.075 m is of	2	Sand	Silt	Clay	Gravel
284	The essential condition for interflow is that the surface soil is	3	Impermeable	Semi permeable	Permeable	all of these
285	The relative density of sand after compaction should be equal to or more than.....	1	70%	75%	100%	90%
286	The maximum size of sand used for filter should not be more than M	4	0.002	0.02	0.2	2.0
287	Specific gravity of clean sand should be	3	2.10	2.20	2.60	2.50
288	In filter criteria co-efficient of uniformity should be greater than	1	4	5	1	20
289	Precipitation is measured in	1	cms	cm/sec	cm/sec ²	m/hr.
290	Generally the inner slope of rock toe shall be provided at	3	1.5:1	1.25:1	01:01	none of these
291	During first filling of reservior water level shall be taken.	1	Daily	Fortnightly	After one how	twice in a day

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
292	Measurement of rainfall at dam site is made by installing.....	3	V notch	Parashall flume	vainguage	non of these
293	Thiessen polygon method is used when a basin on catchment area contains rainguage station.	1	More thane one	only one	rainguages installed out of catchment	non of these
294	The rainfall records of Years are required for a reliable estimate of mean annual rainfall at any place.	4	10	20	25	35
295	In abbrivation META, A stand for	1	Acedamy	Authority	Agency	None of these
296	Particle size range of silt is from	2	0.02 mm to 0.075 mm	0.002 mm to 0.075 mm	0.2 mm to 0.075 mm	2.0 mm to 0.075 mm
297	Particle size of clay is	1	Below 0.002 mm	equal to 0.002 mm	equal to 0.02 mm	more than 0.002 mm
298	For major and medium project the top width of dam having height more than 30 m is provided as	3	4.5 m	3.0 m	6.5 m	5.0 m
299	For minor irrigation project free board above MWL for dam height upto 20 m is	1	1.5 m	2.0 m	2.5 m	0.5 m \
300	Pore pressure in the body of earth dam is measured by	1	Piezometer	earth pressure cell	plumb bob	none
301	The minimum acceptable value of factor of safety for down stream slope for steady seepage with reservior full condition as per IS code is	3	1.0	1.3	1.5	0.75
302	Maximum longitudinal slop of COT is	2	4H:1V	3H:1V	1H:1V	1H:0.75V
303	Normal free board is the free board aboe	1	FRL	MWL	TBL	MDDL
304	Minimum free board should not be less than Above MWL.	2	2 m	1.5 m	1.2 m	1.0 m
305	For drains outer layer of filter material is of	3	metal	gravel	sand	clay
306	The numerical difference between liquid limit and plastic limit of soil is known as	1	Plasticity Index	Shrinkage limit	Consolidation	ODD
307	A zone of impervious earth within zoned dam is called as ..	3	cut off	casing	core	key trench
308	Minimum top width of earth dam of major irrigatin project with gated spillway as per CDO code of practise is	1	6.5 m	4.0 m	5.5 m	3.0 m
309	The width of berms should not be less than	2	3 m	5 m	4 m	6 m
310	Minimum depth of stripping of earth dam is	1	0.60 m	0.30 m	0.50 m	1.0 m
311	The length of upstream impervious blanket is provided as	2	5 H	10 H	H	12 H
312	A zone of free draining material provided at down stream toe of dam is called as	4	Ruble	Riprap	Cushion	Rock toe
313	The slope of phreatic line in hearting zone is	1	4H:1V	1H:1V	3H:1V	1H:0.5V

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
314	In case of shortage of hearting maerial, the minimum slopes of hearting shall be provided as	2	1H:1V	0.5H:1V	0.25H:1V	2H:1V
315	Rainfall is measured in	1	cm	cm/sec	cm/hr	ha.m
316	Runoff is measured in	4	m ³ /sec	day.cumec	m ³ /hr	cm
317	Centre line of hearting is of the centre line of the dam	1	on upstream side	on downstream side	same as that	coincides
318	Height of rock toe is taken as height of water upto full reservior level.	3	5%	10%	15%	20%
319	Soil is compacted in compaction mould in equal layers	3	1	2	3	4
320	Downstream pitching is provided where annual average rainfall is	2	less than 1000 mm	more than 2000 m	equal to 1500 mm	none
321	The thickness of inclined sand filter on d/s side of core is measured along	1	the plane perpendicular to d/s slope of hearting	the plane at 45% to down stream zone	the horizontal plane	the vertical plane
322	Well graded sand to be used in the filter shold satisfy the following filter criteria with the base material immediatly in contact with.....	2	>4 or < 20	< 5	> 4	≥ 5
323	$D_{15}(\text{sand}) / D_{85}(\text{base material}) =$ should be					
324	The specific gravity of sand particles used in filter should not be less than	1	2.60	1.50	1.0	2.70
325	The relative density of sand after compaction should be equal to or more than	3	90%	75%	70%	100%
326	For major and medium Irrigation project minimum thickness of inclined filter shall be measured perpendicular to the down stream slope of hearting.	1	2 m	1.50 m	1.0 m	2.50 m
327	The minimum bottom widht of COT is usually Where work is to be done by machinary	3	3 m	4 m	5 m	5.5 m
328	The spacing of bores in the foundation for earth dam should be normally...	1	150 m	100 m	60 m	200 m
329	On the down stream side of earth dam relief wells can be drilled at a spacing of about....	2	50 m	60 m	90 m	75 m
330	In homogeneous porous rock, a lugeon coefficient of 1 is equal to ...	2	10 ⁻³ cm/sec.	10 ⁻⁵ cm/sec	10 ⁻⁶ c _l /sec	10 ⁻⁸ cm/sec
331	Grouting is necessary, if water intake tests of foundation rock show water loss more than lugeons.	1	3	1	2	2.5
332	Terminal wells are provided / located on of earth dam	2	u/s side	d/s side	on d/s slope berm	in COT
333	Water intake tests should be carried out in rock for every section.	4	1 m	2 m	3 m	1.5 m

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
334	Borrow area investigation should be done for a quantity at least times of earthwork to be done	1	two	three	one	none of these
335	A line on rainfall map of basin, joining places of equal rainfall reading is known as....	2	Iso bar	Iso hyte	Isobath	Isotherm.
336	Which of the followings is the instrument used to measure vertical moments?	1	Surface marker	Geonor probe	earth pressure cell	cross arm
337	Instruments for measuring effects of dynamic load due to earth quake ...	4	Cross arm	Geonor probe	Surface marker	Seismograph
338	Meteorological Department of Government of India adopted rainguage to measure rainfall,	1	Symon's	Weighing bucket	Tipping bucket	float type
339	Random zone is provided in ...	1	casing zone	hearting zone	C.O.T.	monozonetype
340	Th side slopes of excavation for COT in B.C. soil is	2	1.5H:1V	1H:1V	0.75H:1V	2H:1V
341	For drains outer layer of filter material is of	4	Gravel	rubble	metal	sand
342	The height of the rock toe shall be ... of the height of water upto FRL.	1	15%	10%	25%	10%
343	Maximum height of rock toe should not be more than ...	3	1 m	2 m	4 m	1.5 m
344	The slope of phreatic line in hearting zone is ...	1	4H:1V	2H:1V	1H:1V	3H:1V
345	For average casing material the value of cohesion lies between	2	0 to 0.50	0 to 1	1 to 2	2 to 3
346	The value of tan ϕ for casing material is between	3	0.10 to 0.30	0 to 1	0.60 to 0.70	0.80 to 1.30
347	The minimum acceptable value of factor of safety for D/S for steady seepage with reservior full condition as per I.S. code is	1	1.5	1.2	1	1.3
348	The gradient of cross drains shall be	2	1 in 50	1 in 100	1 in 60	1 in 30
349	Cross drains shall be provided at an angle of inclination of	3	30 ⁰	60 ⁰	45 ⁰	90 ⁰
350	Bucket capacity of poclain LC-80 is m ³	1	0.90	1.00	0.75	1.10
351	Area from which the materials of construction are obtained is known as	1	borrow area	command crea	catchment area	water spread area
352	The vertical distance between FRL & MWL is called as ...	3	Free board	wave lift	Flood lift	Fetch length
353	The ratio of volume of voids to the total volume of soil is known as	4	porosity	Air content	ODD	void ratio
354	A cut off trench taken upto impervious stratum is called	2	Partial COT	tve COT	slurry trench	cut of wall
355	The designed shear parameters for the materials comprising the dam shall be fixed at the value such that %	1	75	50	90	45
356	The hydrologic cylce may be expressed by equation	1	(a) precipitation = Ecaporation + Runoff			
357			(b) P = E - R	(c) E = P + R	(d) R = P/E	
358	The straight line distance along the wind direction over open water surface on which wind blows is called	2	Fetch	Fetch length	free board	submergence
359	1 mm ³ = Ha.m	1	100	10	1000	10000

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
360	Inglis formula $R = 0.85 P - 30.5$ where R & P are in cms is applicable to ...	3	non-ghat area	plain area	ghat area	any area
361	Lacey's formula and khosla's formula are applicable to calculate	1	runoff	rainfall	infiltration	evaporation
362	..... denotes the number of years in which flood cab be expected once	2	Flood frequency	Recurrence interval	Flood discharge	Flood routing.\
363	In storm hydrograph discharge is plotted against ...	1	Y axis	X axis	Z-axis	any axis
364	The constructed using earth materials or rock fill material are the types of Dams	2	rigid	non-rigid	overflow	non overflow
365	The upward pressure of water as it flows or seeps through the body of the dam or its foundation, such pressure is called.....	4	pore pressure	atmospheric pressure	hydrostatic pressure	uplift pressure
366	Insufficient free board or settlement of foundation and embankment lead to	1	overtopping	toe erosion	wave topping	Gulleying
367	The D_{15} size of the filter must be at least times the D_{15} size of base material	1	4 to 5	2	3	10
368	In USBR, R stands for	3	Reconciliation	Reconstruction	Reclamation	Ragistration
369	In GCA, G stands for	2	Grass	Gross	Gaothan	Garbage
370	Top widht of the breaching section provided to earth dam is kept	1	less than 2 m	more than 2 m	equal to 2 m	1 m
371	A low head hydro electric scheme is the one which uses head of water	2	more than 15 m	less than 15 m	more than 60 m	less than 5 m
372	A surge tank is provided to reduce	3	atmospheric pressure	uplift pressure	water hammer pressure	all of these
373	An agricultural land is said to be water logged when its fertility is affected by ...	1	hight water table	excess irrigation	deep percolation	none of these
374	A process of artificially supplying water to soil for raising the crops is called ...	2	rainfed process	irrigation	harvesting	none of these.
375	Increase in the food production is the benefit of irrigation	1	direct	indirect	both a & b	non of these
376	The types of river training works are	4	Guide bank	Groynes	levees	all of these
377	When the work is to be done by manually the bottom width of COT should be ...	1	4 m	5 m	3 m	550 m
378	In case of shallow depth and exposed hard rock the minimum depth of COT should be meter	3	4 to 6	5.50 to 7.50	2.0 to 3.0	5
379	In above case, minimum bottom width shall be of the hydraulic head.	2	50%	10 to 30%	5 to 10%	non of these
380	The thickness of the upstream impervious blanket to be provided is m covered by murum layer of 1 m thickness	3	1.0 to 1.20	0.50 to 0.90	1.50 to 2.0	less than 1
381	If the water intake test indicate the loss of water more than lugeons, the bed rock of COT shall be grouted.	1	3	1	3.50	2.50

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
382	A zone of free draining material provided at down stream toe of earth dam...	1	rock toe	toe drain	relief well	non of these
383	The main function of the forebay dam is store the water rejected by the plant....	2	permanently	tempararily	timely	oftenly
384	Out of total number of soil samples collected from borrow area for testing at least samples shall be tested by MERI nashik.	4	5%	10%	15%	20%
385	In MDDL, M stands for	1	minimum	maximum	major	marginal
386	How many Major River basins exists in our state?	2	4	5	6	7
387	The project is called Major Project when its	1	CCA>10000 ha	ICA>10000ha	ICA>8000ha	non of these
388	Emergency spillway is constructed of low height	3	masonary bar	concrete bar	earth embankment	curtain wall
389	Earth dam composed of single kind of material (exclusive of the slope protection) is known as	1	monozone embankment	zoned embankment	random zone embankment	all of these
390	Factor of safety for upstream and downstream slope for construction condition with or without partial pool is	3	1.3	1.5	1	0.75
391	Horizontal filter at ground level is provided with a gradient of towards rock toe for quick disposal of seepage water	2	1:1000	1:100	1:150	1:200
392	A minimum thickness of meter is desirable for the horizontal filter	4	0.50	0.75	0.90	1.00
393	In abbrivation FRL, F stands for	1	Full	First	Fool	Formed
394	Pitching on upstream slope of earth dam is terminated at	2	ground level	1.50 m below MDDL	at MDDL	non of above
395	The phreatic line is assumed to be travelling from FRL in upstream shell.	3	liner	parabolic	straight	hyperbolic
396	The shape of longitudinal and cross drains is	1	trapezoidal	rectangular	square	half round
397	The total depth of water required by the crop during the entire period the crop is in the field is called. ...	2	kor depth	delta	root zone depth	paleo
398	It is necessary to investigate borrow areas which will yield the quantity equal to the quantity of earth work to be done.	1	turce	same	1.50 times	thrice
399	For major and medium projects, one sample per m ³ of the estimated quantity of earth work should be tested.	4	20000	50000	25000	30000
400	In zoned dam core material is of nature	1	impervious	pervious	semi pervious	all of these
401	Cracks in the core of the dam are developed when the dam is effected by	3	spontaneous liquidification of foundation	Spreading of earth dam materials	Earth quake	all of these

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
402	The difference between FRL and MWL is	2	free board	minimum free board	normal free board	flood lift.
403	Overtopping, to erosion are the failures of earth dam	1	hydraulic	seepage	structural	all of these
404	A cover of grass grown over an area to prevent erosion of soil particles by rain wash is known as	3	grass sodding	plantation	turfing	none of these
405	The hydrostatic pressure on phreatic line itself is	2	full	zero	-ve hydrostatic pressure	all of these
406	Normally bores in foundation, going down to 10 meter depth in sound rock are taken at the spacing of....meter along the centre line of the dam	1	150	100	200	60
407	Stability analysis of earth dam section for earth quake condition is done by using	3	slip circle analysis	coulomb's equation	response spectrum method	elastic wave theory
408	Particle size of clay is mm	2	more than 0.002	below 0.002	equal to 0.20	equal to 0.02
409	The thickness of the inclined sand filter on downstream side of hearting zone is measured along the	4	Plane at 45% to down stream slop	Vertical plane	the horizontal plane	plane plane perpendicular to the down stream slope of hearting
410	The value of tan ϕ for casing material is between	1	0.60 to 0.70	0.80 to 1.10	0 to 1.0	non of these
411	For average casing material cohesion is in the range of	2	0 to 0.50	0 to 1.0	1.0 to 2.0	all of these
412	The co-efficient of curvature of the well graded sand to be used in the filter should be	1	>4	<20	<25	>0
413	The spacing of bores in the foundation of earth dam should be normally meter	3	100	600	150	200
414	The spacing of relief wells to be provided on down stream side side of earth dam is meter	1	60	90	75	35
415	Coefficient of lugeon 1 equal to cm/sec	3	10^{-3}	10^{-4}	10^{-5}	10^{-7}
416	Minimum height of rock toe to be provided shall be meter	4	1.0	3.0	2.0	1.0
417	A wall provided along the edge of top width of earth dam is called.	3	diaphragm wall	divided wall	parapet wall	guide wall
418	In regions prone to earth quake, the top of inclined filter to be provided is upto	1	top of hearting	FRL	MWL	none of these
419	When the expected wave height is greater than 2 m, minimum thickness of pitching to be provided on upstream slope of earth dam is cms	3	30	45	60	20

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
420	Cross arm installation and inclinometers are the the types of guages of instruments provided in body of earth dam.	1	horizontal movement	vertical movement	inclinometer	none of these
421	A system of open paved drains along the sloping surface of down stream slope of earth dam shall be provided at the speacing of cm centre to centre to drain rain water	4	100	120	75	90
422	All the instruments shall be strictly installed under the supervision of officials so as to avoid unnecessary complications.	1	MERI nashik	Hydrology Dept. Nashik	Meteorological dept. Pune	CDO Nashik
423	A terminal well is located on of earth dam.	2	upstream side	downstream side	top of dam	non of these
424	Chesion for clean sand is	4	0.01	0.02	0.03	0
425	The ratio of stabilizing forces to driving forces in slip circle analysis of earth dam slope is known as	2	shearing stress	factor of safely	coefficient of curvature	cohesion
426	Bucket capacity of poclain LC-80 is m3	1	0.90	1.00	1.31	1.30
427	The MH and MH group of soils are suitable for	1	hearting zone	casing zone	randam zone	all of these
428	The SW and GW group of soils are suitable for	2	impervious zone	pervious casing zone	hamogeneous zone	none of these
429	At shrinkage limit, the soil is in State	1	saturated	unsaturated	partly saturated	none of these
430	The creep ratio at the junction of masonry and earth work is	2	3	4	1.5	1.0
431	Downstream pitching depends on	1	annual rainfall coverage	availability of stone	availability of sand and gravel	none of these
432	Higher value of lugeon indicates Foundation	1	weak	sound	both a & b	none of these
433	The minimum acceptable value of factor of safety for down stream slope for steady seepage with reserivior full condition is	1	1.50	1.30	1.00	none of these
434	The duty at outlet is also called	1	outlet factor	capacity factor	safety factor	none of these
435	1 cumec day = ha.m	1	8.64	0.864	86.4	864
436	The useful life of reserivior is terminated when its capacity is reduced to% of design capacity.	1	20	25	15	10
437	In flood frequency study, recurrence interval can be determined by	4	california method	Hazen method	Gumbel's method	all of these
438	Darcy's law is valid only for flow conditions	1	laminar	turbulent	transient	smooth
439	In USBR abrivation, B stands for	1	Bearue	Board	Body	Branch
440	Inglis formula of runoff is applicable only for	1	ghat area	non ghat area	plain tarrien	any area
441	During 1st filling of reserivior Water levels shall be taken	1	daily	weekly	fortnightly	all of these

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
442	In abbreviation, GCA, G stands for	1	Gross	Great	Grass	General
443	An agricultural land is said to be water logged when its fertility is affected by	1	Higher water table	excess irrigation	deep percolation	excess rainfall
444	What are the types of river training works?	4	Guide bank	Groynes	levees	all of these
445	The main function of the forebay dam is Note that water rejected by the plant.	2	Permanently	temporarily	timely	frequently
446	Emergency spillway is constructed of low height	1	Earth embankment	masonry wall	concrete wall	none of these
447	Earth dam composed of single kind of material (exclusive of the slope protection) is called.	2	zoned embankment	monozone embankment	rolled fill dam	hydraulic fill dam
448	In zoned embankment type dam core material is	1	Impervious	pervious	semi-pervious	all of these
449	Overtopping, Toe erosion, wave erosion, and gulying are the Failures of earth dam.	3	Structural	seepage	hydraulic	none of these
450	The difference in elevation between TBL and MWL is called	2	Free board	minimum free board	normal free board	flood lift
451	The source of construction materials required for earth dam is known as	1	Borrow area	water logged area	command area	catchment area
452	Dams between 10 m and 15 m height may be treated as	4	Small dam	low dam	high dam	large dam
453	In MDDL, M stands for	3	maximum	major	minimum	minor
454	A zone of free draining material provided at D/S toe of earth dam.	1	rock toe	toe drain	relief well	all of these
455	A cover of grass grown over an area to prevent erosion of soil particles by rain wash.	3	D/S slope protection	grass sodding	turfing	all of these
456	The hydrostatic pressure on phreatic line itself is	1	zero	full	negative hydrostatic pressure	all of these
457	The phreatic line in dam body can be located by	4	analytical method	graphical method	experimental method	all of these
458	The water less of one litre / minute / meter / atmosphere may be designated as	1	decilugon	lugon	lugon coeff	coefficient of permeability
459	Normally bores in foundation, going down to 10 m depth in sound rock are taken at the spacing of meter along the centre line of dam.	3	200	100	150	250
460	In the bores, water intake tests should be carried out in the rock for every meter section.	1	1.50	1.00	2.50	3.50
461	It is necessary to investigate borrow areas which will yield a quantity equal to the quantity of earth work to be done.	3	same	1.50 times	twice	none of these

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
462	For major and medium projects one sample per m ³ of the estimated quantity of the earth work shall be tested.	1	30000	15000	20000	10000
463	Out of the total number of soil samples collected from borrow area for testing at least samples shall be tested by MERI Nashik.	4	10%	30%	40%	20%
464	If the water intake test indicate the loss of water more than Lugeons, the bed rock of COT bottom will have to be grouted.	1	3	1	5	2
465	The length of upstream impervious blanket is provided as where H is the height of water in the reservoir	3	15H	5H	10H	H
466	The thickness of blanket to be provided is meter covered by murum layer of 1 m thickness.	2	2.0 to 2.5	1.5 to 2.0	0.5 to 1.50	less than 2
467	When the work is to be done by machinery the bottom width of COT should be	3	4 m	3 m	5 m	6 m
468	The shear strength at failure on any surface within an earth dam is directly proportional to on that surface.	2	cohesion	normal stress	effective stress	shearing resistance
469	In absence of inclined sand filter, the phreatic line in casing is drawn with a slope of	1	2H:1V	4H:1V	2.5H:1V	1H:1V
470	For gated spillway, the phreatic line starts from	4	TBL	MWL	LWL	FRL
471	For ungated spillway, the phreatic line is assumed from mean of FRL and	1	MWL	MDDL	TBL	crest of spillway
472	For major and medium projects the top width of dam having height from 15 m to 30 m is meter.	3	3.0	6.5	4.5	none of these
473	For minor irrigation projects the top width of dam for gated spillway is meter.	2	4.5	6.5	4.5	3.0
474	On both edges of earth dam top guard stones shall be provided at a spacing of centre to centre.\	3	4 m	5 m	3 m	2 m
475	The size of the guard stone is mm	1	200x200x750	300x150x300	200x300x200	200x200x1000
476	Kerbing stones are provided on down stream edge of the dam top where the down stream slope is	2	pitched	not pitched	covered with turfing	none of these
477	The size of the kerbing stones shall be	1	300mm x 150mmx300 mm	200mmx200mm x750mm	200mmx300mmx 200mm	200mmx200mm x500mm
478	The berm width should not be less than	3	6 m	6.5 m	5.0 m	none of these
479	The vertical interval between two successive berms should not exceed meters.	1	12	10	15	8

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
480	The vertical distance between the crest of dam and maximum reservoir level is called.	3	flood lift	fetch length	free board	none of these
481	Normal free board is the free board above	1	FRL	MWL	TBL	all of these
482	Minimum free board is the free board above	3	FRL	TBL	MWL	none of these
483	For the major project above 60 m height of dam, free board provided is m above MWL.	1	3.0	1.50	2.00	2.5
484	Free board, for 20 m height of dam of minor irrigation project is m above MWL	3	2	2.5	1.5	3.0
485	Minimum slope of shall be provided on upstream side of dam.	1	2.5H:1V	2H:1V	3H:1V	3.5H:1V
486	Minimum slope of shall be provided on downstream side of dam.	1	2H:1V	2.5H:1V	3.5H:1V	4H:1V
487	The dam seat shall be stripped off to the minimum depth of cms.	4	60	40	30	50
488	The centre line of COT shall be fixed at the point of intersection of sloping line starting from centre of top of hearting having upstream slope of and the stripped ground level.	1	0.25H:1V	0.50H:1V	1H:1V	0.75H:1V
489	Longitudinal slope for COT is generally provided as	1	3H:1V	1H:1V	0.75H:1V	2H:1V
490	Side slopes of excavation of COT in compact soil is	3	1:1	0.50:1	0.75:1	0.25:1
491	Berms in COT shall be provided for every vertical interval of m	2	5	6	10	12
492	COT should be taken as positive COT at least meter in the hill side for proper key in to the abutments.	1	5	6	4	8
493	Minimum top width of hearting for Major Irrigation Projects shall be provided as meter	4	3.0	4.0	5	4.5
494	If the hearting material is scare, the slopes of hearting zone can be reduced upto.....	1	0.5H:1V	1H:1V	0.2H:1V	all of these
495	The minimum top width of random zone shall be meter	3	4.50	6.0	3.0	2.0
496	The minimum upstream and downstream slopes of random zone shall be	2	1H:1V	0.5H:1V	0.75H:1V	none of these
497	Inclined filter abutting the of impervious core is provided to collect the seepage.	1	down stream face	upstream face	centre	none of these
498	The thickness of the inclined filter shall be measured to the down stream slope of hearting.	3	parallel	horizontal	perpendicular	all of these
499	For minor irrigation projects having height more than 30 meter the minimum thickness of filter shall be provided as m	1	1.50	1.0	1.20	0.50
500	The top level of inclined filter should normally be kept at	2	MWL	FRL	TBL	None of these
501	In the regions prone to the inclined filters should be taken upto top of hearting zone.	1	earthquake	high rainfall	less rainfall	high floods

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
502	The material used for filter should be free draining having the required	3	density	transmitility	permeability	none of these
503	Longitudinal drain is laid along the downstream toe of to collect seepage.	1	hearting zone	casing zone	rock toe	berm
504	The bottom widht of the cross drains shall be provided as	2	1.50 m	1.0 m	0.50 m	0.75 m
505	Total depth of the longitudinal and cross drain is meter	3	1.0	2.0	1.50m	2.0
506	Gradient of cross drains shall be	4	1:150	1:200	1:75	1:100
507	Cross drain shall be provided at an angle of inclination of	1	45 ⁰	60 ⁰	30 ⁰	90 ⁰
508	Specific gravivy of sand to be used in filter should not be less than.....	4	2.85	2.47	2.25	2.60
509	Coefficient of uniformity of well graded sand to be used in filter should be	3	<4	<5	>4	eual to 4
510	The principal function of rock toe is to facilitate drainage of	1	seepage water	leakage through dam body	pipng through foundation	all of these
511	Height of the rock toe shall be provided as meter above peak tail water level.	1	1	2	3	4
512	When the expected wave height is more than 2 m, than the minimum thickness of pitching... cm should be provided on upstream slope of earth dam.	4	30	45	50	60
513	Thickness of filter material below upstream pitching shall not be less than cm	1	25	15	20	50
514	Where the average annual rainfall is less than cm turfing shall be provided and maintained on the entire down stream surface.	2	150	200	250	300
515	A system of open paved drains along the sloping surface of down stream slope shall be provided at cm centre to centre to drain the rain water.	1	90	120	60	150
516	For dams below height generally no instruments are provided except for seepage, rainfall, and reservoir water levels.	2	20 m	30 m	35 m	15 m
517	..... are installed to measure pore pressure.	1	piezometers	surface markers	Geonor probe	cross arm installation
518	Cross arm installation and inclinometers are the types of guages of instruments provided in earth dam.	3	vertical movement	inclined movement	horizontal movement	all of these
519	All instruments shall be strictly installed under the supervision of official so as to avoid unnecessary complications.	1	MERI Nashik	CDO Nashik	META Nashik	MERI Nagpur
520	A terminal well is located just of rock toe	2	upstream side	downstream side	down stream casing	none of these

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
521	The gauges of instruments located in dam body are housed in	1	terminal well	relief well	head regulator well	all of these
522	Measurements of rainfall at the dam site is made by installing	3	V notch	SWF	rainguage	water stage recorder
523	The effects of dynamic load due to earthquake are recorded by installing	1	seismograph	accelerographs	structural respons & recorder	all of these
524	Excavation of soft strata below ground level is done by	1	JCB	Dozer	poclain	none of these
525	Compaction of hearting material is done by	1	Roller	Dozer	loader	all of these
526	The total time required to perform the activities assigned to a perticular earth moving machine is called	2	performance	cycle time	turnover of machine	all of these
527	Maintenance of records for earth dam at investigation stage.	4	Geological reports of all bore holes	Test results of undisturbed samples collected from foundation	Test results of soil samples of hearting and casing material	all of these
528	Methods of controlling the passage of water through the foundation of earth dam	1	USCM	Piping	seepage	all of these
529	The rate of stabilizing forces to driving forces in slip circle analysis of earth dam slope is called	2	unit cohesion	factor of safety	shearing stress	shearing strength
530	The difference between FRL and MWL is called	3	free board	fetch board	flood lift	none of these
531	Cohesion for clean sand is	1	0	0.10	1	0.2
532	The designed shear parameters for the materials comprising the dam shall be fixed at the value such that % results are above design value.	2	70	75	80	90
533	Bucket capacity of poclain LC-80 is	3	1 m ³	1.50 m ³	0.90 m ³	1.2 m ³
534	One lugeon is equal to	1	10 ⁻⁵ cm/se	10 ⁻⁴ cm/se	10 ⁻⁶ cm/se	10 ⁻² cm/se
535	The MH and CH group of soils are suitable for	3	random zone	casing zone	hearting zone	none of these
536	The SW and GW group of soil are suitable for	1	pervious casing	impervious core	homogeneous section	all of these
537	In compaction mould, each layer is given blows	1	15	20	25	30
538	Tan ϕ' value for good sand is	4	0.60	0.35	0.50	0
539	Commonly used rainguage is	4	weighing bucket type	tipping bucket type	float type	none of these

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
540	At shrinkage limit, the soil is in condition	1	saturated	dry	partially saturated	all of these
541	The creep ratio required to be kept at a junction of masonry and earth dam is normally kept as	4	3	2.5	8	4
542	Down stream pitching depends upon	1	annual rainfall coverage	availability of stone	availability of gravel and sand	none of these
543	Sand mat in earth dam is provided at ground level on .....in a zoned embankment.	2	upstream side	on down stream of hearting	at intermediate level on d/s	all of these
544	Higher lugon value indicates foundation	1	poor	sound	partially sound	none of these
545	The total depth of water required by the crop during the entire period the crop is in the field is known as	3	duty	kor depth	delta	all of these
546	The minimum acceptable value of factor of safety for d/s slope for steady seepage with reservoir full condition as per IS code is	2	1.0	1.5	1.3	none of these
547	The duty at outlet is defined as	1	Outlet factor	capacity factor	time factor	none of these
548	1 cumec day = ha.m	3	0.4047	14.30	8.64	0.864
549	The useful life of reservoir is terminated when its capacity is reduced to % of the design capacity.	1	20	15	10	5
550	Trap efficiency is a measure of in reservoir	2	Capacity	sedimentation	dead storage	none of these
551	In mass-inflow curve, cumulative inflow in the reservoir is plotted against axis.	1	Y axis	X axis	Z axis	all of these
552	In flood frequency study, recurrence interval can be determined by	4	California method	Hazen method	Gumbel's method	all of these
553	..... is the graphical representation of average rainfall and rainfall excess.	2	Hydrograph	Hyetograph	Storm hydrograph	Unit hydrograph
554	In S-hydrograph S stands for	1	Summation	subtraction	seismic	simple
555	Coefficient of permeability for clean sand ranges between	3	0.10 to 0.01	0.01 to 0.005	1 to 0.01	> 10
556	Darcy's law is valid only for flow condition.	4	turbulent	transient	smooth	laminar
557	A Reservoir is that which serves more than one purpose.	1	multipurpose	storage	flood control	distribution
558	Types of failures of earth dam are	4	Hydraulic failures	seepage failures	structural failures	all of these
559	In USBR B stands for	1	Bureau	Board	Branch	none of these

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
560	The imperial expression for the top width b of the earth dam in terms of height Z is given as $b = Z / 5 + 3$ is applicable for	2	Dam height lower than 30 m	very low dam	higher than 30 m	none of these
561	The shear strength of hearting material is always than the casing material.	2	Same	less	more	all of these
562	The top level of the core should be at least m above MWL.	1	1	0.5	1.20	1.5
563	Power shovels, draglines, scrapers etc. are grouped as	3	Hauling equipment	compacting equipment	excavating equipment	spreading equipments
564	For average casing material cohesion lies in between the range of	1	0 to 1	0 to 0.50	1 to 2	1.50 to 1.80
565	Tan for casing material is in the range of	2	0 to 1	0.60 to 0.70	0.80 to 1.0	1 to 1.50
566	Factor of safety for downstream slope with steady seepage for earthquake conditions is	1	1	1.30	1.50	none of these
567	The gradient of cross drains shall be	2	1 in 60	1 in 100	1 in 30	1 in 150
568	Laying of cross drain is at an angle of inclination of	4	90°	30°	60°	450°
569	The compaction equipment used in construction of earth dam	4	Vibrators	rammers	Rollers	all of these
570	Bucket capacity of poclairn LC-80 is subic meter	1	0.90	0.50	1.50	2.10
571	Area from which materials of construction are borrowed is known as	3	Catchment area	command area	borrow area	submergence area
572	The numeral difference between full tank level and maximum water level is	2	Wave height	flood lift	free board	fetch length
573	The ratio of volume of voids to the total volume of soil is known as	1	Void ratio	porosity	Dry density	Air content
574	A cutoff trench which does not go down to the impervious stratum	4	Cut off	full cut off	positive cut off	partial COT
575	A surge tank is provided to reduce pressure	1	Warer hammer	uplift pressure	at mospheric	all of these
576	A hight head hydel scheme used a water head of more than	2	15 to 30 m	60 m	100 m	none of these
577	The width of breaching section provided to earth dam is	1	Less than 2 m	more than 2 m	less tha n3 m	none of these
578	Inglis formula for finding runoff is applicable only for	3	Plain tarrien	non-ghat area	ghat area	any area
579	Reccrebce interwal denote the number of years in which flood can be expected.	1	Once	Thwice	Thrice	all of these
580	Partical size range of 0.002 m to 0.075 m is of	2	Sand	Silt	Clay	Gravel
581	The essential condition for interflow is that the surface soil is	3	Impermeable	Semi permeable	Permeable	all of these
582	The relative density of sand after compaction should be equal to or more than.....	1	70%	75%	100%	90%
583	The maximum size of sand used for filter should not be more than M	4	0.002	0.02	0.2	2.0

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
584	Specific gravity of clean sand should be	3	2.10	2.20	2.60	2.50
585	In filter criteria co-efficient of uniformity should be greater than	1	4	5	1	20
586	Precipitation is measured in	1	cms	cm/sec	cm/sec ²	m/hr.
587	Generally the inner slope of rock toe shall be provided at	3	1.5:1	1.25:1	01:01	none of these
588	During first filling of reservoir water level shall be taken.	1	Daily	Fortnightly	After one how	twice in a day
589	Measurement of rainfall at dam site is made by installing.....	3	V notch	Parashall flume	vainguage	non of these
590	Thiessen polygon method is used when a basin on catchment area contains rainguage station.	1	More thane one	only one	rainguages installed out of catchment	non of these
591	The rainfall records of Years are required for a reliable estimate of mean annual rainfall at any place.	4	10	20	25	35
592	In abbrivation META, A stand for	1	Acedamy	Authority	Agency	None of these
593	Borrow pits should preferably be located in	4	field on the left side of the canal	field on the right side of the canal	fields on both sides of the canal	central half width of the section of the canal.
594	Irrigation canals are generally aligned along	1	ridge line	contour line	valley line	straight line.
595	Pick up the incorrect statement from the following	4	Side walls of a venturi head flume are splayed out from the end of the throat at 1 : 10 for a length of 4.5 m	Length of side walls should be such that the width of the flume is made equal to 2/3rd the bed width of the distributary	Once the width of the flume becomes 2/3rd of the width of the distributary, the splayed walls are increased to 1 in 3 to get full bed width	None of these.
596	The difference in level between the top of a bank and supply level in a canal, is called	2	berm	free board	height of bank	none of these.

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
597	The measure to remove water logging of land, is	3	to reduce percolation from canals and water courses	to increase outflow from the ground water reservoir	both (a) and (b)	neither (a) nor (b)
598	Retrogression of the bed level of a river downstream a weir, occurs due to	3	heavy impact of water	increase of the bed level	less percentage of silt	soft soil strata.
599	In a canal syphon, the flow is	2	under atmospheric pressure	pipe flow	with critical velocity	under negative pressure.
600	A water-logged land is found suitable for cultivation due to	4	ease of tillage for preparation of the field for optimum condition of germination	absence of aeration of soil from root zone of the plant	regular supply of water to plants from the water table by capillary action	none of these
601	When a canal and a drainage approach each other at the same level, the structure so provided, is	3	an aqueduct	a syphon	a level crossing	inlet and outlet.
602	For smooth entry of water in a canal, the angle between head regulator and water is generally kept	3	80°	90°	110°	120°
603	Pick up the incorrect statement from the following:	4	In free flooding irrigation, water is admitted at one corner of a field and is allowed to spread over the entire area	In check method of irrigation, the field is divided into smaller compartments and water is admitted to each in turn	In furrow irrigation water is admitted between the rows of plants in the field	None of these.
604	For the stability of a structure against seepage pressure according to Khosla's creep theory, the critical gradient is	4	zero	0.5	0.75	1
605	Groynes are generally built	2	perpendicular to the bank	inclined up stream up to 30°	inclined down stream upto 30°	all the above

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
606	For the design of major hydraulic structures on the canals, the method generally preferred to, is based on	4	Bligh's theory	Electrical analogy method	The relaxation method	Khosla's method of independent variables
607	The main function of a diversion head works of a canal from a river, is	3	to control floods	to store water	to raise water level	all the above.
608	Side slopes generally kept for canals in loam soil, are :	4	1 : 1 in cutting and 1.5: 1 in filling	1.5: 1 in cutting and 2 : 1 in filling	Neither (a) nor (b)	Both (a) and (b)
609	The crest level of a canal diversion head work, depends upon	4	F.S.L. of the canal	discharge perimeters	pond level	all the above
610	The intensity of irrigation means	1	percentage of culturable commanded area to be irrigated annually	percentage of gross commanded area to be irrigated annually	percentage of the mean of culturable commanded area and the gross commanded area to be irrigated annually	total depth of water supplied by the number of waterings.
611	The saturation line is the line up to which banks get saturated after the canal runs for some time. The saturation gradient in ordinary loam soil, is generally	3	2:1	3:1	4:1	5:1
612	The depth of the crest of a scouring sluice below the crest of a head regulator, is generally kept	2	0.20 m	1.20 m	2.20 m	3.20 m
613	A river training work is generally required when the river is	1	meandering	aggrading	degrading	all the above.

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
614	Pick up the correct statement from the following:	4	The full supply level of a canal should be above ground level	According to Lacey, regime conditions require a particular slope for a given discharge and silt factor	In case the ground slope is less than the required bed slope, the silt factor must be reduced by permitting the entry of coarse silt	All the above
615	The consumptive use of water for a crop	4	is measured as the volume of water per unit area	is measured as depth of water on irrigated area	may be supplied partly by precipitation and partly by irrigation	all the above.
616	A fall in a canal bed is generally provided, if	1	ground slope exceeds the designed bed slope	designed bed slope exceeds the ground slope	ground slope is practically the same as the designed bed slope	none of these.
617	The consumptive use of water for a crop	4	is measured as the volume of water per unit area	is measured as depth of water on irrigated area	may be supplied partly by precipitation and partly by irrigation	all the above
618	The main cause of silting up a channel,	4	non-regime section	inadequate slope	defective outlets	all the above
619	A hydraulic structure is designed to withstand	4	seepage forces	hydraulic jump	hydraulic pressure	all the above.
620	Regime conditions in a channel may occur if	4	discharge is constant	channel flows uniformly in incoherent alluvium as that transported in suspension	silt grade and silt charge are constant	all the above.

Earthen Dam Design

Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
621	An outlet which maintains a constant discharge irrespective of fluctuation in the water levels of the supplying channel or water course, is known as	2	non-modular outlet	rigid modular outlet.	flexible modular outlet	semi-modular outlet
622	The uplift pressure on the roof of an inverted syphon, is maximum when	4	drain in running dry	canal is running dry	canal is running with F.S.L.	drain is running with H.F.L.
623	Cross regulators in main canals are provided	2	to regulate water supply in the distributaries	to increase water head upstream when a main canal is running with low supplies	to overflow excessive flow water	none of these.
624	Disposal of extra excavated earth of canals, is utilised to provide a spoil bank on	4	left side	right side	both sides	all the above.
625	Pick up the correct statement from the following	4	Escapes are essential safety valves in a canal system	The capacity of escapes should not be less than the capacity of the canal at its location	The escapes must lead the surplus water to natural drainages	All the above.
626	An outlet is said to be proportional if its flexibility, is	4	zero	less than one	more than one	one
627	A current meter measures the velocity of flow, if it is held	3	on the surface of water	at the bottom of channel	at any point within the cross-section	none of these.
628	For cereal crops the most commonly adopted method of irrigation, is	2	free flowing method	check method	furrow method	sprinkling method.
629	The most suitable section of a lined canal, is	4	triangular/trapezoidal section with circular bottom for small canals	trapezoidal section with rounded corners for large canals	rectangular section with rounded corners for large canals	both (a) and (b)
630	Economic height of a dam is the height corresponding to which	1	cost of the dam per unit of storage is minimum	amount of silting is less	cost of dam per unit of storage is maximum	free board provided is least

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
631	Pick up the correct statement from the following: 1) Duty of canal water is defined as the total area irrigated by the discharge averaging one unit during the base period of the duty 2) Duty of canal water is usually calculated at the head discharge of a channel 3) Duty of canal water at the head of a channel and at the outlet of a distributary, differ considerably due to progressive losses of water 4) Duty of canal water at the outlet of a distributary, is generally known as outlet factor or outlet discharge factor	4	Only 1	1 and 2	1,2 and 4	allof the above
632	PIP stands for	4	Primary Irrigation Programme	Preliminary Introduction Programme	Partly Irrigation Programme	Preliminary Irrigation Programme
633	PIP is prepared before start of 1)Kharif Season 2) Rabbi Season 3) Hot weather Season	2	Only 1	Only2	Only 3	All of above
634	PIP depeonds upon	4	Storage/availability of water	Crop pattern	Non Irrigation reservation	All the above.
635	Zero setting of gauge chamber of SWF means	2	Zero of gauge must coincide with canal bed	Zero of gauge must coincide with bottom of throat	Zero of gauge must coincide with U/S slope of SWF	Zero of gauge must coincide with D/S slope of SWF
636	Scarcity year means	#N/A	Storage less than 80 %	Storage less than 50 %	Storage less than 30 %	None of these
637	Non conventional method of flow measurement in canal are 1) Falls/drop 2)Aqueduct 3) SWF 4) Canal Syphon	4	1,2,3	2,3,4	1,3,4	1,2,4
638	_____ is use when discharge is less than 300 lps	2	SWF	CTF	Parshall flume	Broad crested weir
639	When hydraulic jump is formed at D/S of flume is known as	2	Submerged condition	Free flow condition	Both A and B	None of these
640	Contour canals can Irrigate on	1	One side	Both side	Both A and B	None of these

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
641	Duty of crop will go on	3	Increasing from field head to canal head	Increasing from canal head to field head	Decreasing from field head to canal head	Decreasing from canal head to field head
642	Base period for Kharif, Rabbi and Hot weather season respectively for Konkn and Vidhrabha region is	3	106,137,122	107,137,123	137,13,791	140,137,123
643	CIP is prepared	3	Before Start of HW season	Before Start of Rabbi Season	After Irrigation Season is over	Before Start of Irrigation Year
644	The officer of Irrigatio Dept. sect. officer, deputy Engineer, Executive Engineer resp have to Exercise minimum % check on measurement of irrigated area done by measurer	4	8,5,4	8,4,2	7,3,2	7,2,1
645	Water level in dam is maintained generally according to	2	G.O.S	R.O.S	Both A and B	None of these
646	Total indicator in bench marking for Major and Medium project are	4	1	3	5	11
647	The horizontal hump in SWF I provided at	4	Bell mouth Section	Converging Inlet section	Diverging outlet Section	Throat section
648	The throat width B2 in SWF must be at least	1	1.5 Hmax	3 Hmax	5 Hmax	10 Hmax
649	Minimum head required for self regulated outlet is	4	10 lit/sec	15 lit/sec	25 lit/sec	30 lit/sec
650	For Unlined canal having discharge between 3 and 0.6 Cumecs value of 'n' for soil and rock as per GR dated 1 st sept 2015.	1	0.03 and 0.035	0.035 and 0.04	0.04 and 0.03	0.03 and 0.02
651	Which method is use for gate operation in Maharashtra	1	Rigid operation method	Flexible operation method	Both A and B	None of these
652	For WUA at minor level sequence of activity for formation of WUA is in this manner 1) Registration 2) Constitution 3) Election 4) Delineation 5) Agreement	4	1,2,3,5,4	2,1,3,5,4	4,1,3,2,5	4,2,1,3,5
653	Power of delination of CLA, DLA, MLA, LIWUA except PLA is reserved with	4	Executive Director	Chief Engineer	Superintending Engineer	Executive Engineer
654	For compounding of offences under MMISF act 2005, special section is	1	Section 61	Section 62	Section 63	Section 64
655	Total number of sections in MMISF act 2005 is	2	32	81	131	140

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
656	Total number of sections in MWRRA act 2005 is	1	32	81	131	140
657	Total number of sections in MIA act 1976 is	3	32	81	131	140
658	Section of MIA act 1976 empors the appropriate canal officer to the gates in the flood situation to release water in river when damage to dam is apprehended	4	Section 13	Section 14	Section 15	Section 16
659	In MIA 1976 cultivators have no freedom of cropping like MMISF act 2005 under section	1	Section 24	Section 25	Section 26	Section 27
660	In water scarcity situation water can be release from U/S side of dam to D/S dam to balance water sub basin wise under MWRRA act 2005 1) Section 9 2) Section 10 3) Section 11 4) Section 12	3	1 and 2	2 and 3	3 and 4	all of above
661	MIA 1976 canal officer is empowered to stop the water in different situation when user contravening the provisions of act under section	4	Section 26	Section 27	Section 48 (1 to 5)	Section 49 (A to M)
662	Water supply b regulated through private agency appointed by canal officer under section	2	Section 72	Section 74 (C and D)	Section 48 (1 to 5)	Section 49 (A to M)
663	MWRRA dispute settlement under jurisdiction of the authority is done by dispute resolution officers under section	3	Section 72	Section 74 (C and D)	Section 22 (1)	Section 49 (A to M)
664	MWRRA -Which section in this act impowers the state Government to make the rules for implmentation of this act	3	Section 27	Section 28 (C and D)	Section 30	Section 31
665	MMISF- Which rules empower WUA to appoint secretary and deciding his salary allownces and service conditions	1	Rule 9	Rule 10	Rule 11	Rule 12
666	In the election of Minor level WUA, chairman is elected from	2	Head reach	Tail reach	any of above	none of these
667	The baillot papers and all other important documents regarding the election of WUA after declaration of result are kept safely in the coustody of Election officer for the period of months if no dispute relating this arrises	2	One	Three	Six	Tweleve
668	MMISF act 2005 is registered in the official Gazette on dated	4	20 th Feb 2005	19 th Feb 2005	20 th May 2005	19 th May 2005
669	The meeting of the managing committee is held	2	Weekly	Monthly	Quarterly	Half Yearly
670	Aim and objective of constituting WUA are elaborated in section..... of MMISF act 2005	4	Section 1	Section 2	Section 3	Section 4
671	The emoluments and allowances of secretary of WUA are decided and paid by	3	State Government	Irrigation office	WUA	all of the these

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
672	Canal officer is empowered to postpone the election of director for one year stating the reason under section of MMISF act 2005	1	Section 9	Section 10	Section 11	Section 12
673	Upto the election of management committee the canal officer is empowered to constitute a tempory management committee of director under section of MMISF act 2005	1	Section 9	Section 10	Section 11	Section 12
674	Canal officer having rank not less than Executve Engineer is empowred to delineate the area of WUA at Distributory level under section of MMISF act 2005	2	Section 9	Section 10	Section 11	Section 12
675	Form used in Irrigation management used for two seasonal water demand for block is	1	Form 1	Form 1(A)	Form 1(B)	Form 1(C)
676	What is the validity of block approved for two seasonal water demand	4	3 years	4 years	5 years	6 years
677	Form used in Irrigation management used for water demand of rabbi block	3	Form 1	Form 1(A)	Form 1(B)	Form 1(C)
678	For demand of water for 1:4 sugarcace block form use is	4	Form 1	Form 1(A)	Form 2	Form 3
679	For demand of water for fruit block form use is	4	Form 1	Form 2	Form 3	Form 4
680	What is the validity of block approved for fruit block	3	4 years	8 years	12 years	16 years
681	For demand of water after validity is over form use is	3	Form 5A	Form 5B	Form 6	Form 7
682	For demand of water in any season (temporary) form use is	1	Form 7	Form 10	Form 11	Form 11A
683	Form use for refund of cash payement for wrong assessment is	2	Form 11	Form 11A	Form 12	Form 13
684	Form use for water assesment (Demand statement) is	3	Form 11	Form 11A	Form 12	Form 13
685	Form use for abstract of long term approved block is	4	Form 11A	Form 12	Form 13	Form 18
686	Registor for taking note of form No 7 received is	1	Form 161M	Form 448M	Form 153 M	Form 463 M
687	Registor for taking note of application received for eight monthly block is	3	Form 161M	Form 448M	Form 464 M	Form 463 M
688	Form use for notice of panchanama is	2	Form 161M	Form 448M	Form 464 M	Form 463 M
689	Form use for panchanama is	1	Form 155 M	Form 26 M	Form 352 M	Form 311 E
690	Form use for registor of panchanama is	4	Form 161M	Form 448M	Form 464 M	Form 349 M
691	Form use for taking note water release from dam canal etc. (Gauge registor) is	1	Form 311 E	Form 126 E	Form 26 M	Form 349 M
692	Form use for AI/DC chart is	2	Form 350 E	Form 126 E	Form 350 M	Form 349 M
693	In MIA 1976 Section used for procedure of obaining labour for works or repairs urgently required is	2	Section 88	Section 90	Section 93	Section 103
694	In MIA 1976 Section used for penalty for damage of canal etc is	1	Section 93	Section 96	Section 100	Section 103
695	In MIA 1976 if the informant informs canal officer in writing about unauthorised use of canal water then reward to informant is given under section	3	Section 80	Section 86	Section 100	Section 105

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
696	A canal head work has nothing to do with the	4	weir	guide bank	head regulator	safety ladder
697	The main cause of silting up a channel,	4	Non-regime section	Inadequate slope	Defective head regulator	All the above
698	Pick up the correct statement from the following:	3	Gravity water is harmful to crops	Hygroscopic water remains attached to soil molecules by chemical bond	Capillary moisture held in the soil pores against gravity by surface tension, is utilized by plants	All the above
699	Pick up the correct statement from the following:	4	If the flexibility is more than one, the outlet is hyper-proportional	If the setting of an outlet is higher than that required for proportionality, the outlet is hyper-proportional	If the flexibility is zero, it is a rigid module	All the above
700	According to Khosla, the exits gradient of surface flow	1	Depends upon the b/d ratio	Is independent of the b/d ratio	Is independent of the depths of d/s cut off walls	None of these
701	Canals taken off from ice-fed perennial rivers, are known	3	Permanent canals	Ridge canals	Perennial canals	Inundation canals
702	The most suitable section of a lined canal, is	3	Triangular section with circular bottom for small canals	Trapezoidal section with rounded corners for large canals	Both (a) and (b)	None of these
703	According to Bligh's creep theory, percolating water flows along	4	Straight path under the foundation of the dam	Circular path under the foundation of the dam	The outline of the base of the foundation of the dam	None of these
704	1 TMC = _____ Mm ³	4	1000	0.035	35.287	28.338

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
705	1 unit of water = _____ m ³	4	1	10	100	1000
706	Local cess on water assesment is	2	10%	20%	30%	40%
707	Long form of DIRD is	1	District officer of Irrigation Research and Development	Due Irrigation Remain after Demand	Dam Inside Region in Danger	Directorate of irrigation research and development
708	Long form of ISCB is	2	International society for canal	Interstate control board	Irrigation society of canal board	Interstate canal board
709	Long form of DTHRS is	1	Director general design, training hydrology research and safety	Dam Tariff for Housing Residence & Stay	Dam Time in Hours	Directorate of Theory Howard univercity in River Sub-Basin development
710	If for Non Irrigation Customer electronic water meter is not fixed then additional fine charge is	2	10%	25%	50%	100%
711	Water rate per Mm ³ for non Irrigation water released through river is	3	158000	264000	315000	132000
712	The CNS material shall be nin sweling with maximum swelling pressure of	1	0.1 kg/cm ²	0.2 kg/cm ³	0.3 kg/cm ⁴	0.4 kg/cm ⁵
713	CNS shal be provided only when sub grade soil is having swelling pressure	2	< 0.5 kg/cm ²	> 5 kg/cm ²	< 5 kg/cm ²	>5 kg/cm ²
714	The thickness of CNS layer in channal having discharge between 1.4 to 2 cumecs is	1	30 cm to 40 cm	40 cm to 50 cm	50 cm to 60 cm	60 cm to 75 cm
715	Frequency of test of subgrade (earthwork) shall be atleast 1 test for	3	100 cum	200 Cum	300 Cum	1000 Cum
716	Thickness of concrete lining for canal lining having capacity 5 to 50 cumecs is	2	50 to 60 mm	60 to 75 mm	75 to 100 mm	90 to 100 mm
717	Top width of key to canal lining shall not be less than	4	10 cm	20 cm	25 cm	30 cm
718	Allotment of tank bed lands shall be given in following orders 1) Local land holder 2) outside land holder 3) Local land less backward class people 4) Person whose land has been acquired for constuction of tank	1	4,3,1,2	4,3,2,1	3,4,1,2	3,4,2,1
719	Sunflower and cotton are Crops	3	Kharif crop	Rabbi crop	Two seasonal crop	Hot weather crop

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
720	Minimum bank top of inspection bank for canal having discharge 10 to 15 cumecs is	3	3 m	5 m	6 m	7 m
721	For inspection roads upto .....m width dowel is not required	1	1.5	2	2.5	3
722	when the depth of cutting is more than 3 m, Berms of following widths are provided as 1) In partial cut & fill when F.S.L is above ground level = 2 x Full Supply Depth 2) In filling = 3 x Full Supply Depth 3) In complete cutting = 2 x Full Supply Depth	4	Only 1	1 and 3	2 and 3	All off above
723	Consider the following terms relating to irrigation requirements 1) Consumptive Irrigation requirement 2) Net Irrigation Requirement 3) Field Irrigation Requirement 4) Gross Irrigation Requirement	2	$1 > 2 > 3 > 4$	$1 < 2 < 3 < 4$	$(1=2) < 3 < 4$	$1 < (2=3) < 4$
724	Duty on capacity is also called	3	Outlet duty	Capacity factor	Full supply coefficient	Guarantee duty
725	A ridge canal is also called	1	Water shed canal	contour canal	side slope canal	none of the above
726	The canal fall involving parabolic glacial is called	4	Straight glacis fall	Glacis fall	English fall	Montage fall
727	The canal regulator which is constructed at diversion headworks is called	4	Cross regulator	Distributory head regulator	Escape	None of the above
728	Aggrading river are	1	Silting Rivers	Scouring river	River in regime	Meandering river
729	The drainage water sometimes allowed to join the canal water to augment canal supplies through a hydraulic structure is called	2	Canal outlet	canal inlet	module	level crossing
730	The most economical method of soil conservation is to	4	Construct check dams	Construct contour borrow	Drain the soil	Afforest the area
731	Stamp duty rate for Non irrigation water reservation upto 10 Mm ³ use for industrial purpose is	3	100	500	1000	5000
732	In MIA 1976 liability when a person using water unauthorisedly is under section	4	Section 49	Section 50	Section 51	Section 52

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Question No.	Question Text	Correct Option	Option 1	Option 2	Option 3	Option 4
733	In MIA 1976 All the charges for unauthorised use or for waste of water may be recovered under Section	4	51	52	53	54
734	In MIA 1976 Penalty for endangering stability of canal under section	2	93	94	95	96
735	In MIA 1976 Penalty in respect of machine, apparatus with which canal water is used unauthorisedly included under section	4	94	95	96	97
736	In MIA 1976 appropriate authority may prohibit formation of obstruction of rivers etc. within certain limits included under section	2	18	19	20	21
737	As per Government directives responsibility of chief engineer in water recovery is	4	1%	2%	5%	10%
738	As per Government directives responsibility of superintending engineer in water recovery is	3	2%	5%	15%	20%
739	As per Government directives responsibility of executive engineer in water recovery is	3	5%	10%	25%	50%
740	As per Government directives responsibility of deputy engineer in water recovery is	2	10%	25%	50%	100%
741	As per Government directives responsibility of sectional engineer in water recovery is	1	25%	50%	75%	100%
742	Which of the following is not canal officer.	4	Chief Engineer	Superintending Engineer	Executive Engineer	None of options given