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TSPSC AEE

Previous Year Paper
2018

S.No	Questions	Space For Solution
1	**Question: 24637** identify the incorrect statement **(TSPSC-AEE-2018)** In a Lacey regime, channel carrying a discharge Q in an alluvium of silt factor f (a) the area of flow is function of Q only (b) the wetted perimeter is a function of Q only (c) the side slopes are independent of Q and f (d) the longitudinal slope is a function of Q and f Correct Answer: A	
2	**Question: 24636** match the followings **(TSPSC-AEE-2018)** I.ratio of long chord to tangent length of a simple circular curve of radius R and deflection angle Δ° II.ratio of long chord length to the simple circular curve of radius R and deflection angle Δ° A.$\sin(\Delta^\circ/2)$ B.$\cos(\Delta^\circ/2)$ C. $2\cos(\Delta^\circ/2)$ D. $360^\circ \sin(\Delta^\circ/2)/\Delta\,\pi$ E. $360^\circ \cos(\Delta^\circ/2)/\Delta\,\pi$ (a) I-A, II-D (b) I-C, II-E (c)I-D, II-C (d) I-C, II-D Correct Answer: D	
3	**Question: 24635** ratio of bearing capacity of double under reamed pile to that of single reamed pile is nearly, for sandy soils **(TSPSC-AEE-2018)**	

	(a) 1.5	
	(b) 2.0	
	(c) 1.7	
	(d) 1.2	
	Correct Answer: A	
4	**Question: 24634** shear center is a point through which the load should act in a member such that **(TSPSC-AEE-2018)** (a) shear and bending acts but no twisting (b) onle shear acts and no bending and twisting (c) bending and twisting act (d) only twisting acts no bending Correct Answer: A	
5	**Question: 24633** an overflow spillway is 10 m long, between two square abutments and has two piers of 0.25 m width on its crest, when the head over the weir is 0.6 cm. the effective lengths of spillway for calculation of the discharge by the weir formula is **(TSPSC-AEE-2018)** (a) 9.40 m (b) 9.14 m (c) 9.50 m (d) 9.26 m Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.	
6	**Question: 24632** the tellurometer which is used for EDM uses **(TSPSC-AEE-2018)** (a) modulated infer-red waves (b) micro waves	

	(c) modulated light waves (d) light waves	
	Correct Answer: B	
7	**Question: 24631** temperature stresses in a bar are **(TSPSC-AEE-2018)** (a) the stress resulted in it when its temperature is maintained constant (b) the stresses in it when the strains due to temperature changes are prevented (c) the stresses resulted in it when the temperature is increased (d) the tresses resulted in it when the temperature is decreased Correct Answer: B	
8	**Question: 24629** what is the value of gradient of the line RS, if the horizontal distance between the two points R and S is 200.0 m and the reduce level of the point R = 103.0 m and the reduced level of the point S = 99.0 m **(TSPSC-AEE-2018)** (a) 1 in 25 (b) 1 in 10 (c) 1 in 50 (d) 1 in 15 Correct Answer: C	
9	**Question: 24628** the dimensions storage coefficient 'S'are**(TSPSC-AEE-2018)** (a) L^3 (b)L^2/T (c) L^3/T (d) dimensionless Correct Answer: D	

10	**Question: 24627** choose the option in which the items of list I are correctly matches with the list II **(TSPSC-AEE-2018)** List I A secondary road system B economic studies C engineering studies D road use studies **List II** 1.demograpgic study 2.traffic study 3.state highways 4.topographic studies (a) A-3, B-1, C-2, D-4 (b) A-3, B-1, C-4, D-2 (c) A-1, B-3, C-2, D-4 (d) A-1, B-3, C-4, D-2 Correct Answer: B	
11	**Question: 24626** for the same solid content, if the quantity of sludge with moisture content of 98% is x, then the quantity of sludge with moisture content of 96% will be **(TSPSC-AEE-2018)** (a) 2x (b)x/2 (c) x (d) x/4 Correct Answer: B	
12	**Question: 24625** based on the governing equation for the theory of pure bending which of the following is valid **(TSPSC-AEE-2018)** (a) bending moment = the product of	

bending stress and the section modulus

(b) bending strength = product of modulus of elasticity and curvature

(c) moment resistance = the product of flexural rigidity and the curvature

(d) bending moment = flexural rigidity per unit radius

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen - A,C,D

13	**Question: 24624**

a 3 phase traffic signal at a 4-legged intersection is designed for flow as show below

Choice	Phase-I	Phase-II	Phase-III
	A, B	D, E	C, F
	A, D	C, F	E, B
	A. D	C. E	B. F
	A, B	E, F	C, D
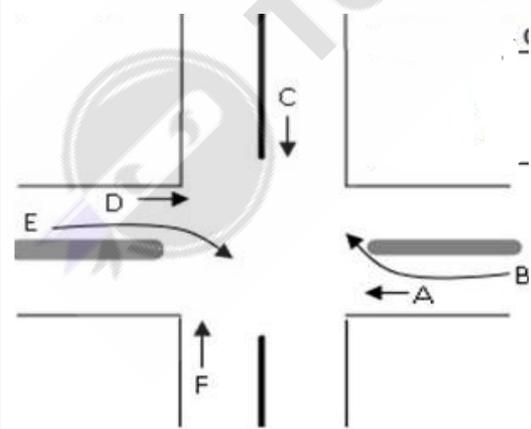
There are 6 groups of flows identified by the alphabets, A through F. among these A,C,D and F are through flows, and B and E are right turnings. Identify which phasing scheme is not recommended **(TSPSC-AEE-2018)**

(a) Z

(b) W

(c) Y

(d) X

	Correct Answer: A	
14	**Question: 24623** at a section of a shaft, a bending moment of 8 kN-m and a twisting moment of 6 kN-m act together. The equivalent twisting moment in kN-m is given by **(TSPSC-AEE-2018)** (a) 14 (b) 2 (c) 10 (d) 48 Correct Answer: C	
15	**Question: 24622** an I-beam section is of 100 mm width flange and 20 mm thick web. Under a given shear force, the increase in the shear stress at the junction of flange and web would be **(TSPSC-AEE-2018)** (a) 80 times (b) 120 times (c) 2000 times (d) 5 times Correct Answer: D	
16	**Question: 24621** according to the Indian standards institute, the standard size of modular bricks is **(TSPSC-AEE-2018)** (a) 23 cm× 10 cm× 7.5 cm (b) 20 cm× 10 cm× 9 cm (c) 10 cm× 10 cm× 9 cm (d) 25 cm× 15 cm× 7.5 cm Correct Answer: B	
17	**Question: 24620**	

	trap efficiency of a reservoir is a function of the ratio of **(TSPSC-AEE-2018)** (a) dead storage capacity to live storage capacity (b) dead storage capacity to annual total sediment inflow volume (c) reservoir capacity to that of annual sediment inflow (d) reservoir capacity to the total annual inflow volume of water Correct Answer: D	
18	**Question: 24619** a track load of length 4 m and magnitude 700 kN is crossing a bridge girder of 20 m span. What would be the maximum BM (in kN-m) at the center of the girder **(TSPSC-AEE-2018)** (a) 3000 (b) 5600 (c) 3150 (d) 4500 Correct Answer: C	
19	**Question: 24618** quartzite is a **(TSPSC-AEE-2018)** (a) metamorphic rock (b) argillaceous rock (c) siliceous rock (d) calcareous rock Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen - A & C	
20	**Question: 24617** for a simply supported beam of given material and cross section, if the udl	

	throughout is replaced by a central point load equal to the total load due to udl, the central deflection of the beam would **(TSPSC-AEE-2018)** (a) would increases by 16.6 times (b) would be doubled (c) would decrease by 1.6 times (d) remains same Correct Answer: A	
21	**Question: 24616** a 596 km^2 catchment has a 12 h unit hydrograph which can be approximated as a triangle. It its time base is 144h, its peak ordinate in m^3/sec is **(TSPSC-AEE-2018)** (a) 50 (b) 13 (c) 2 (d) 23 Correct Answer: D	
22	**Question: 24615** the diameter of the disc for used for compulsory control sign which is having blue background colour is **(TSPSC-AEE-2018)** (a) 900 mm (b) 470 mm (c) 600 mm (d) 1200 mm Correct Answer: C	
23	**Question: 24614** one end of a two dimensional water tank has the shape of a quadrant of a circle of radius 2m. when the tank is full, the vertical component of the force per unit length on the curved surface will be	

	(TSPSC-AEE-2018) (a) 19.62 π kN (b) 39.24 π kN (c) 9.81 π kN (d) 29.43 π kN Correct Answer: C	
24	**Question: 24612** the Indian railways use what sizes of crossing, which facilities to cross the vehicles at higher speed? **(TSPSC-AEE-2018)** (a) 1in 12 and 1 in 16 (b) 1 in 6 and 1 in 20 (c) 1 in 8 ½ and 1 in 12 (d) 1 in 12 and 1 in 20 Correct Answer: B	
25	**Question: 24611** the shear stress in a circular pipe with a laminar flow in it **(TSPSC-AEE-2018)** (a) varies parabolically across cross section (b) varies inversely as the distance from mid plane (c) remains constant over cross section (d) varies directly as the distance from the mid plane Correct Answer: D	
26	**Question: 24610** what is the value of mid-ordinate, If the radius of a simple circular curve – 560 m and the deflection angle = 120° **(TSPSC-AEE-2018)** (a) 186.66 m (b) 280 m (c) 50 m (d) 140 m Correct Answer: B	

27	**Question: 24609** the chlorine demand of a water sample was found to be 0l2 ppm. The amount of bleaching powder containing 30% available chlorine to be added to treat one litre of such a water sample is **(TSPSC-AEE-2018)** (a) 1.33 mg (b) 0.67 mg (c) 0.34 mg (d) 0.06 mg Correct Answer: B	
28	**Question: 24608** standard EDTA (ethylene diamine tetra acetic acid) solution is used to determine the **(TSPSC-AEE-2018)** (a) hardness of water (b) residual chlorine in water (c) dissolved oxygen in water (d) turbidity of water Correct Answer: A	
29	**Question: 24607** the settling velocity of a particle in a sedimentation tank depends on **(TSPSC-AEE-2018)** (a) surface area of tank (b) both depth and surface area of tank (c) thickness of tank (d) depth of tank Correct Answer: A	
30	**Question: 24606** a gravity dams has two alternate designs having the same base width one with drainage gallery at 1/10 base width from	

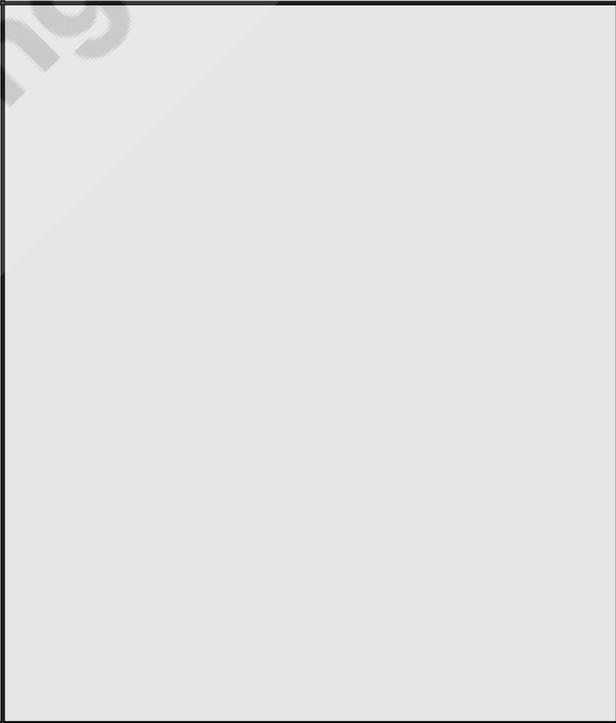|		
	the upstream end and the other without the gallery. If there is no tail water, the reduction in the total uplift force in the former case as a percentage of the latter **(TSPSC-AEE-2018)** (a) 13.3% (b) 43.3% (c) 66.7% (d) 56.7% Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.	
31	**Question: 24604** which of the following statements is wrong? **(TSPSC-AEE-2018)** (a) in Flemish bond, the alternate headers of each course are centrally supported over the stretchers in the course below (b) in English bond, vertical joints in the header courses come over each other and vertical joints in the stretcher courses are also in the same line (c) in Flemish bond, every alternate course starts with a header at the corner (d) in English bond, the heading course should start with a queen closer Correct Answer: D	
32	**Question: 24603** in hydrometer analysis for a soil mass **(TSPSC-AEE-2018)** (a) meniscus correction is subtractive and dispersing agent correction additive (b) meniscus correction is additive and dispersing agent correction is subtractive (c) both meniscus correction and dispersing agent correction are subtractive (d) both meniscus correction and dispersing agent correction are additive	

	Correct Answer: B	
33	**Question: 24602** for analysis of pavements and determination of modulus of sub grade reaction by plate load test, the most representative value of modulus reaction can be obtained at a pressure of ...kg/cm^2 **(TSPSC-AEE-2018)** (a) 0.70 (b) 0.20 (c) 2.50 (d) 1.25 Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.	
34	**Question: 24601** match list-I with list-II and select correct answer using the codes given below **(TSPSC-AEE-2018)sew est** **List- I(shape tunnel)** A horse shoe section B circular C egg shaped D segmental roof **List-II(attribute preference)** 1. Gives self cleaning velocity even in dry weather 2. suitable for soft rocks 3. best suited for non-cohesive soils 4. suitable for soft materials 5. suitable for slab bays OPTIONS: (a) A-2, B-3, C-4, D-5 (b) A-5, B-4, C-1, D-3 (c) A-2, B-3, C-1, D-5 (d) A-3, B-2, C-4, D-1 Correct Answer: B	

35	**Question: 24600** stokes law valid only If the size of particle is **(TSPSC-AEE-2018)** (a) between 0.2 mm and 1.0 mm (b) less than 0.0002 mm (c) between 0.0002 mm and 0.2 mm (d) greater than 0.2 mm Correct Answer: C	
36	**Question: 24599** the hardy cross method of hydraulic analysis of pipe networks, besides satisfying the continuity and energy principles must also satisfy the condition that **(TSPSC-AEE-2018)** (a) flow in to any junction equals the outflow from it (b) flow in each pipe has head loss according to darcys weisbach or any other pipe head loss equation (c) algebraic sum of the head losses around any closed loop is zero (d) momentum principle is followed Correct Answer: C	
37	**Question: 24598** consider the following statements **(TSPSC-AEE-2018)** 1 undistrubed samples may be obtained with the help of augers 2 auger drilling is most effective in clayey soils 3 hollow stem augers are sometimes used to drill holes in silty sand Which of these statements are correct? (a) 3 and 2 only	

(b) 3 and 1 only	
(c) 3,2 and 1	
(d) 2 and 1 only	
Correct Answer: A	
38 **Question: 24597** maximum number of vehicles can be parked with **(TSPSC-AEE-2018)** (a) 75 degree angle parking (b) parallel parking (c) perpendicular parking (d) 45 degree angle parking Correct Answer: C	
39 **Question: 24596** what is the length of each link in a revenue chain **(TSPSC-AEE-2018)** (a) 0.6 feet (b) 20 cm (c) 1 feet (d) 2 (1/16) feet Correct Answer: D	
40 **Question: 24595** as a designer, what would be your estimate (in N/m^2) of the flexural tensile strength of a concrete, whose characteristics cube compressive strength is 25 N/mm^2 **(TSPSC-AEE-2018)** (a) 3.0 (b) 2.5 (c) 3.5 (d) 4.0 Correct Answer: C	

| 41 | **Question: 24594**

the assumption not made in the derivation of bernoullis equation **(TSPSC-AEE-2018)**

(a) steady flow

(b) 2Dimensional flow

(c) uniform flow

(d) inviscid flow

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen -B,C

Correct Answer: B | |
|---|---|---|
| 42 | **Question: 24593**

if the total hardness and alkalinity of a sample of water are 300 mg/l and 10 mg/l (CaCO3 scale) respectively. Then its carbonate and non carbonate hardness in terms of mg/l will be respectively **(TSPSC-AEE-2018)**

(a)100 and 400

(b) 100 and 200

(c) 400 and zero

(d) 400 and 300

Correct Answer: B | |
| 43 | **Question: 24592**

in a field two pumps are provided each with capable of delivering Q amounts of discharge under a head H. there is a requirement of delivery of 2Q amounts of discharge. How do you arrange the pumps to get required discharge **(TSPSC-AEE-2018)**

(a) arrangements is not possible

(b) half series remaining parallel

(c) series arrangement

(d) parallel arrangement | |

Correct Answer: D

44	**Question: 24591**	
	without which of the following basic ingredients, concrete can still be called a concrete? **(TSPSC-AEE-2018)**	
	(a) water	
	(b) cement	
	(c) coarse aggregate	
	(d) fine aggregate	
	Correct Answer: D	
45	**Question: 24590**	
	indian roads congress recommends, softening point of ordinary road marking material hot applied thermoplastic compound shall be ... degree centigrade **(TSPSC-AEE-2018)**	
	(a) 90 ± 10.1	
	(b) 100.0 ± 10.0	
	(c) 102.5 ± 9.5	
	(d) 120 ± 10.5	
	Correct Answer: C	
46	**Question: 24589**	
	the standard temperature gradient considered by the international civil aviation organization, the temperature decrease linearly by... per very 1000 feet increase in altitude **(TSPSC-AEE-2018)**	
	(a) $0.5^{o}C$	
	(b) $2^{o}C$	
	(c) $1^{o}C$	
	(d) $1.5^{o}C$	
	Correct Answer: B	
47	**Question: 24588**	

	for an elementary gravity dam, profile is made up of concrete of relative density 2.5 the limiting height of low dam without considering the uplift was found to be Hv and with consideration of full uplift was Hs, then Hs/Hv will have a value of **(TSPSC-AEE-2018)** (a) 1.8 (b) 1.0 (c) 1.4 (d) 0.7 Correct Answer: C	
48	**Question: 24587** in order to avoid the danger of stress corrosion in pre-stresses concrete works, which of the following is not permitted to be used **(TSPSC-AEE-2018)** (a) sodium carbonate (b) fluoro silicate (c) calcium chloride (d) triethanolamine Correct Answer: C	
49	**Question: 24586** in a siphon aqueduct the worst condition of uplift on the floor occurs when **(TSPSC-AEE-2018)** (a) the canal and drainage are full (b) the canal is empty, the drainage at HFL and the water table is at HFL of the stream (c) the canal is full and drainage is empty (d) the canal is full and the drainage is empty and the water table is at the stream bed Correct Answer: B	
50	**Question: 24585**	

in R.C.C. cantilever retaining wall, if the check for overturning is not satisfied, which of the following would serve the better in meeting the check? **(TSPSC-AEE-2018)**

(a) increasing the heel slab span

(b) decreasing the toe slab span

(c) providing a sloping backfill

(d) providing a shear key

Correct Answer: A

51	**Question: 24584** the slenderness ratio for masonry walls should not more than **(TSPSC-AEE-2018)** (a) 20 (b) 30 (c) 40 (d) 25 Correct Answer: A	
52	**Question: 24583** the term alternate depths in open channel is associated with **(TSPSC-AEE-2018)** (a) at the beginning and end of a hydraulic jump (b) at the beginning and end of gradually varies flow profile (c) having the same specific energy for a given discharge (d) having the same kinetic energy for a given discharge Correct Answer: C	
53	**Question: 24582** which of the following buildings stones absorbs water more? **(TSPSC-AEE-2018)** (a) quartzite	

(b) slate

(c) shale

(d) granite

Correct Answer: C

54	**Question: 24581** in the design of storm sewers, "time of concentration " is revelant to determine the **(TSPSC-AEE-2018)** (a) time of travel (b) area served by the sewer (c) rainfall intensity (d) velocity in the sewer Correct Answer: C	
55	**Question: 24580** in Reynolds law of similitude the discharge ratio Q_r is..[TSPSC AEE 2018] (a) $L_r^3 \, \rho_r$ (b) $L_r^3 \, \rho_r/\mu_r$ (c) $L_r^{5/2}$ (d) $L_r \, \mu_r/\rho_r$ Correct Answer: D	
56	**Question: 24578** the shear strength of a soil **(TSPSC-AEE-2018)** (a) is directly proportional to the angle of internal friction of the soil (b) decrease with increase in normal stress (c) decreases with decrease in normal stress (d) is inversely proportional to the angle of internal friction of the soil note ;for this question, ambiguity is found	

	in question/answer. Candidate will get full marks for this question if any of these options are chosen - a,c Correct Answer: A	
57	**Question: 24577** which of the following properties of aggregate that are influenced by porosity, permeability and water absorption of aggregates, is considered to be less important in general, in the Indian context? **(TSPSC-AEE-2018)** (a) resistance to abrasion (b) bond between aggregate and cement paste (c) resistance to aggressive chemical agencies (d) freezing and thawing Correct Answer: D	
58	**Question: 24576** disinfection efficiency is **(TSPSC-AEE-2018)** (a) highest at pH value of 7 (b) reduced at higher pH value of water (c) unaffected by pH value of water (d) increased at higher pH value of water Correct Answer: B	
59	**Question: 24575** the discharge capacity required at the outlet to irrigate 2600 ha of sugar cane having a kor depth of 17 cm and a kor period of 30 days is **(TSPSC-AEE-2018)** (a) 14.7 m^3/s (b) 1.71 m^3/s (c) 0.18 m^3/s (d) 2.3 m^3/s	

Correct Answer: B

| 60 | **Question: 24574**

stopping sight distance is the minimum distance available on highway which is the **(TSPSC-AEE-2018)**

(a) distance of sufficient length along center line of the roadway to stop the vehicle without collision

(b) longest distance of sufficient length to stop the vehicle without collision

(c) shortest sight distance of sufficient length across the curve to stop the vehicle without collision

(d) shortest sight distance of sufficient to stop the vehicle without collision

Correct Answer: D | |
| --- | --- | --- |
| 61 | **Question: 24573**

a leaf spring is an example of **(TSPSC-AEE-2018)**

(a) a beam of uniform strength

(b) a bar of uniform strength

(c) a closely coiled spring

(d) a beam of uniform geometry

Correct Answer: A | |
| 62 | **Question: 24572**

poissons ratio and bulk modulus of a material are defined in which of the following stress states, respectively **(TSPSC-AEE-2018)**

(a) uniaxial and uniaxial

(b) uniaxial and triaxial

(c) tiraxial and triaxial

(d) triaxial and uniaxial

Correct Answer: B | |

63	**Question: 24571**	
	property of fluid that describes its internal resistance is known as **(TSPSC-AEE-2018)**	
	(a) internal energy	
	(b) viscosity	
	(c) resistance	
	(d) friction	
	Correct Answer: B	
64	**Question: 24570**	
	a hydraulic turbine has a discharge of $3m^3$/s operating under a head of 16 m with a sped of 500 rpm. If it is to be operated under 36 m then the rotational speed will be **(TSPSC-AEE-2018)**	
	(a) 447 rpm	
	(b) 600 rpm	
	(c) 750 rpm	
	(d) 400 rpm	
	Correct Answer: C	
65	**Question: 24568**	
	rolled steel beams are designed by Indian standards in terms of **(TSPSC-AEE-2018)**	
	(a) depth of the section and weight per meter	
	(b) width of the flange and weight per meter	
	(c) weight per meter and width of the flange	
	(d) weight per meter and depth of the section	
	Correct Answer: A	
66	**Question: 24567**	
	the gross bearing capacity of a footing is	

460 kN/m^2. If the footing is 1.5 m wide and is a depth of 1.0 m in a clayey soil which has a unit weight of 20 kN/m^3, then the net bearing capacity is **(TSPSC-AEE-2018)**

(a) 440 kN/m^2

(b) 430 kN/m^2

(c) 23 kN/m^2

(d) 480 kN/m^2

Correct Answer: A

67	**Question: 24566** specific gravity of most of the building stone lies between **(TSPSC-AEE-2018)** (a) 3.0 to 2.5 (b) 2.5 to 2.0 (c) 2.0 to 1.5 (d) 3.5 to 3.0 Correct Answer: A	
68	**Question: 24565** two sources generate noise levels of 90 dB and 94 dB respectively. The cumulative effect of these two noise levels on the human ear is **(TSPSC-AEE-2018)** (a) 184 dB (b) 94 dB (c) 95.5 dB (d) 95 dB Correct Answer: C	
69	**Question: 24564** the following data are available for a cross drainage work project **(TSPSC-AEE-2018)**	

		Item	Canal	Drainage
		FSL/HFL	105	104
		Bed level	100	102
		Discharge	80 m³/s	12 m³/s

The most appropriate cross drainage works for this situation

(a) aqueduct

(b) syphon

(c) siphon aqueduct

(d) super passage

Correct Answer: B

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70 — **Question: 24563**

80 kernel of square and circular sections will be respectively **(TSPSC-AEE-2018)**

(a) circle and rhombus

(b) rhombus and circle

(c) circle and square

(d) square and cirlce

Correct Answer: D

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71 — **Question: 24562**

shingle is **(TSPSC-AEE-2018)**

(a) water bound pebbles

(b) air weathered rock

(c) decomposed laterite

(d) crushed granite

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen - a,c

Correct Answer: A

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72 — **Question: 24561**

the limit of crushing value of aggregate as

	specified (in percentage) b y IS:383-1970 for aggregate used for runways and such other wearing surface is **(TSPSC-AEE-2018)** (a) 45 (b) 25 (c) 20 (d) 30 Correct Answer: D	
73	**Question: 24560** the observed runoff due to a 12h storm of uniform intensity of 0.5 cm/h was a triangular direct runoff hydrograph of base 64 h and maximum ordinate 30 m^3/s. if the catchment area is 120 km^2, the ϕ index for the basin, cm/h is **(TSPSC-AEE-2018)** (a) 1.20 (b) 0.26 (c) 0.52 (d) 0.88 Correct Answer: B	
74	**Question: 24559** 76 in jack arch floor, the rise is kept**(TSPSC-AEE-2018)** (a) 1/6 th of the span (b) 1/8 th of the span (c) 1/12 th of the span (d) 1/10 th of the span Correct Answer: C	
75	**Question: 24558** at a horizontal joint of width 70 m in a gravity dam, the factor of safety against sliding is 1.05. if the sum of all the horizontal forces above the joint is 70 MN	

	and the average shear strength of joint is 1.40 MPa, the friction factor of the joint is **(TSPSC-AEE-2018)** (a) 3.24 (b) 2.30 (c) 1.45 (d) 1.85 Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.	
76	**Question: 24557** the following types of GVF profiles do not exist **(TSPSC-AEE-2018)** (a) $C_2 H_1 A_1$ (b) $C_2 H_2 A_1$ (c) $C_2 H_1 A_2$ (d) $C_1 H_1 A_1$ Correct Answer: A	
77	**Question: 24556** the type of pointing in which the mortar is first pressed into the rakes joint and then finished off flush with the face of the bricks or stones is called **(TSPSC-AEE-2018)** (a) V-grooved pointing (b) flush pointing (c) tuck pointing (d) stuck pointing Correct Answer: B	
78	**Question: 24555** which type of pre stressing is used in pre stressed concrete pavements? **(TSPSC-AEE-2018)** (a) longitudinal	

	(b) contractions	
	(c) traverse	
	(d) expansion	
	Correct Answer: A	
79	**Question: 24554** in a triangular notch there is an error of 4% in observing the head, the error in the computation of discharge**(TSPSC-AEE-2018)** (a) 10% (b) 4% (c) 6% (d) 2.5% Correct Answer: A	
80	**Question: 24553** water is pumped through a pipeline to a height of 10 m at the rate of 0.1 m^3/s, friction and other minor losses are 5 m. pumping power required in kW is **(TSPSC-AEE-2018)** (a)13.3 (b) 14.7 (c) 20 (d) 9.8 Correct Answer: B	
81	**Question: 24552** a formula for the peak flood discharge Q from a catchment area A is Q = 450 $A^{2/3}$ where Q is in Ft^3/s and A is in square miles. If Q is to be in m3/s and A is to be square Km. the formula world be Q = $KA^{2/3}$ where K is**(TSPSC-AEE-2018)** (a) 62.1 (b) 137.1	

(c) 25.1

(d) 248.4

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

| 82 | **Question: 24551**

a soil has a bulk density of 22 kN/m^3 and water content of 10% the dry density of the soil is **(TSPSC-AEE-2018)**

(a) 22.0 kN/m^3

(b) 23.2 kN/m^3

(c) 18.6 kN/m^3

(d) 20.0 kN/m^3

Correct Answer: D |

| 83 | **Question: 24550**

in designing hydraulic structures in alluvial rivers, the equation that is used to calculate the normal depth of scour R for a discharge intensity of q m^3/s/m is **(TSPSC-AEE-2018)**

(a) $R = 1.35 \, (q^2/f)^{2/3}$

(b) $R = 1.20 \, (q^2/g)^{2/3}$

(c) $R = \sqrt{g}$

(d) $R = 1.35 \, (q/f)^{2/3}$

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates. |

| 84 | **Question: 24549**

at a joint where three members are meeting, the possible combination of raotation contribution factors is **(TSPSC-AEE-2018)**

(a) -0.05, -0.35, -0.1

(b) -0.2, -0.3, -0.5

(c) -0.1, -0.4, -0.2

(d) 0.2, 0.3, 0.5 |

Correct Answer: A

| 85 | **Question: 24548**

the best position for laying a brick, in a masonry construction work is **(TSPSC-AEE-2018)**

(a) with the frog down

(b) with the frog up or down but not to the sides

(c) with the frog to the sides

(d) with the frog up

Correct Answer: D | |
|----|----|----|
| 86 | **Question: 24547**

aggregate comprising particles falling essentially within a narrow limit of size fractions are called **(TSPSC-AEE-2018)**

(a) gap graded aggregates

(b) all-in-all aggregates

(c) uniform aggregates

(d) single size aggregates

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen - c,d

Correct Answer: D | |
| 87 | **Question: 24546**

while designing a hill road with a ruling gradient of 1 in 20 on a sharp horizontal curve radius of 60 m is encountered, the compensated gradient as per Indian road congress standard is **(TSPSC-AEE-2018)**

(a) 5.0%

(b) 1.2%

(c) 3.5%

(d) 1.5% | |

	Correct Answer: C	
88	**Question: 24545** bending moment in abeam is not a function of **(TSPSC-AEE-2018)** (a) position of the load (b) type of beam (c) cross section of the beam (d) span of the beam Correct Answer: C	
89	**Question: 24544** in a converging steady flow, there is **(TSPSC-AEE-2018)** (a) no acceleration (b) only for convective acceleration (c) no temporal acceleration (d) convective and temporal acceleration Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen - b,c Correct Answer: B	
90	**Question: 24543** which of the following unit work in anaerobic conditions? **(TSPSC-AEE-2018)** (a) activate sludge treatment (b) sedimentation tank (c) sludge digestion tank (d) trickling filter Correct Answer: C	
91	**Question: 24542** St.venant equations represent **(TSPSC-AEE-2018)**	

	(a) continuity equation in two different forms (b) continuity and momentum equation (c) momentum and energy equation (d) momentum equation in two different forms Correct Answer: B	
92	**Question: 24541** if an unconfined aquifer released 5 m^3 of water for a water table drop of 2 m over a horizontal area of 10 m^2, the specific yield is **(TSPSC-AEE-2018)** (a) 25% (b) 50% (c) 75% (d) 10% Correct Answer: A	
93	**Question: 24540** the maximum velocity occurs in an egg shaped sewer when the ratio of depth of flow to vertical diameter is **(TSPSC-AEE-2018)** (a) 0.95 (b) 0.81 (c) 0.33 (d) 0.50 Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.	
94	**Question: 24539** arrange the order of permanent adjustments of a theodolite **(TSPSC-AEE-2018)theo** I. plate level test	

II. cross-hair ring test

III. bubble tube adjustment test

IV. spire test

V. collimation in azimuth test

VI. vertical are test

(a) I-IV-II-III-VI

(b) III-II-I-IV-VI

(c) II-I-V-IV-VI-III

(d) I=II-IV-III-VI

Correct Answer: D

95	**Question: 24538** with reference to degree of precision in measuring offsets in chain surveying what is the value of the offsets should be measured to the nearest, if the proposed scale of plotting is 1:200 and a point on the paper having thickness of 0.25 mm? **(TSPSC-AEE-2018)** (a) 20 cm (b) 15 cm (c) 5 cm (d) 10 cm Correct Answer: C	
96	**Question: 24537** a clayey soil has field capacity of 35% and permanent wilting point of 20% if the specific weight of soil is 12.75 kN/m^3, the available holding capacity in 0.80 cm depth of soil, constituting the root zone depth of a crop ,is **(TSPSC-AEE-2018)** (a) 17.5 cm (b) 15.6 cm (c) 20.8 cm (d) 36.4 cm	

ANS:B

Correct Answer: B

97	**Question: 24536**	
	from the contour map of a pond the following contour areas were planimetered **(TSPSC-AEE-2018)**	

Contours (m)	1107	1113	1119
Area (m^2)	90	88	70

By prismoidal rule, the volume of the water in the pond is ...m^3

(a) 1008

(b) 1024

(c) 336

(d) 2880

Correct Answer: B

98	**Question: 24535**	

the plinth area of a building NOT includes **(TSPSC-AEE-2018)**

(a) area of cantileverd porch

(b) are of the walls at the floor level

(c) area of stair cover

(d) lift and wall including landing

Correct Answer: A

99	**Question: 24534**	

if the pitch is 60 mm and rivet value is 40 kN, the number of rivets required for a riveted connection carrying an eccentric load of 150 kN at a distance of 300 mm from the centre line is **(TSPSC-AEE-2018)**

(a) 10

(b) 12

(c) 6

(d) 8

note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates

100	**Question: 24533** in a subcritical flow in a channel ΔZ m is the maximum height of a smooth hump that can be installed to cause critical flow over the hump. If a hump of height $\Delta Z >$ ΔZ m is installed then **(TSPSC-AEE-2018)** (a) the flow over the hump will be super critical (b) the flow over the hump will be critical and the lowering of the upstream water (c) the flow over the hump will be sub critical (d) the flow over the hump will be critical and the up stream water surface will rise Correct Answer: D	
101	**Question: 24532** a catchment of area 100 hectares has a runoff coefficient of 0.5 . A storm of duration larger than the time of concentration of the catchment and of intensity 7.2 cm/hr causes a peak discharge in m^3/s of **(TSPSC-AEE-2018)** (a) 360 (b) 50 (c) 100 (d) 10 Correct Answer: D	
102	**Question: 24531** GPS uses 24 satellites in **(TSPSC-AEE-2018)** (a) 24 orbits	

(b) 8 orbits

(c) 12 orbits

(d) 6 orbits

Correct Answer: D

103	**Question: 24530**	
	what is the allowable limit of variation in overall length of a 30 m metric chain, when measured at 8 kg pull and checked against a steel tape standardized at $20^{\circ}C$? **(TSPSC-AEE-2018)**	
	(a) ± 7 mm	
	(b) ± 8 mm	
	(c) ± 5 mm	
	(d) ± 6 mm	
	Correct Answer: B	
104	**Question: 24529**	
	if r is the normal depth of scour by Lacey equation, the depths below HFl up to which the upstream and downstream sheet piles in a weir are usually preferred to protect against the effect of scour are respectively **(TSPSC-AEE-2018)**	
	(a) 2.0 R and 1.5 R	
	(b) 1.0 R and 1.25 R	
	(c) 2.5 R and 1.25 R	
	(d) 1.5 R and 2.0 R	
	Correct Answer: D	
105	**Question: 24528**	
	a canal was designed to supply the irrigation needs of 1200 ha of growing rice of 140 days base period and having a delta of 134 cm. if the canal waters are used to irrigate wheat of base period 120 days and having a delta of 52 cm. the area that can be irrigated is **(TSPSC-AEE-2018)**	
	(a) 399 ha	

	(b) 2651 ha	
	(c) 543 ha	
	(d) 3608 ha	
	Correct Answer: B	
106	**Question: 24527** activated carbon is used for **(TSPSC-AEE-2018)** (a) removing hardness (b) removing corrosiveness (c) removing odours (d) disinfection Correct Answer: C	
107	**Question: 24526** U tube manometers are employed to measure pressure of which type of fluids **(TSPSC-AEE-2018)** (a) liquids (b) liquids and gases (c) solids (d) gases Correct Answer: B	
108	**Question: 24525** in an irrigated plot, the net irrigation requirement of a crop is found to be 14.9 cm, the application efficiency is 80% and the water conveyance efficiency is 70% the gross irrigation requirement is **(TSPSC-AEE-2018)** (a) 26.6 cm (b) 8.3 cm (c) 17.0 cm (d) 21.3 cm	

Correct Answer: A

109	**Question: 24524** one litre of sewage, when allowed to settle for 30 minutes gives a sludge volume o f 27 cm^3, of the dry weight of this sludge is 3 grams, the the sludge volume index will be **(TSPSC-AEE-2018)** (a) 30 (b) 81 (c) 9 (d) 24 Correct Answer: C	
110	**Question: 24523** if E and G represents the moduli of elasticity and shear of a material respectively, which of the following is not a possible relation **(TSPSC-AEE-2018)** (a) E = 3G (b) E = 2G (c) E < G (d) E = G Correct Answer: C	
111	**Question: 24522** according to the Indian roads congress practice (IRC:37-2012), the standard axle load prescribed for tridem-axles with dual wheels on either side configuration is **(TSPSC-AEE-2018)** (a) 148 kN (b) 240 kN (c) 224 kN (d) 80 kN Correct Answer: C	
112	**Question: 24521**	

the critical depth equation for a triangular channel is **(TSPSC-AEE-2018)**

(a) v/√ gy

(b) $(2Q^2/gZ^2)^{1/5}$

(c) $(q^2/g)^{1/3}$

(d) $(3Q^3/gZ^2)^{1/3}$

Correct Answer: B

113	**Question: 24519** the population of a town in three consecutive years is 5000, 7000 and 8400 respectively. The population of the town in the fourth consecutive ywar according to geometrical increase method is **(TSPSC-AEE-2018)** (a) 10100 (b) 9500 (c) 9800 (d) 10920 Correct Answer: D	
114	**Question: 24518** for a laminar flow the reduction of radius to half will increase the pressure gradient by a factor **(TSPSC-AEE-2018)** (a) 4 (b) 8 (c) 2 (d) 16 Correct Answer: D	
115	**Question: 24517** which of the following is a good example of a composite bar? **(TSPSC-AEE-2018)** (a) a steel stanchion (b) a stone pillar	

	(c) a reinforced concrete column (d) a wooden post Correct Answer: C	
116	**Question: 24516** the terminal velocity of a small sphere falling under the action of gravity in a very viscous fluid varies **(TSPSC-AEE-2018)** (a) inversely as the viscosity of fluid (b) directly as the viscosity of fluid (c) directly as the diameter of sphere (d) inversely as the diameter of sphere Correct Answer: A	
117	**Question: 24515** what is the capillary rise of water above the water table, if the water table is at a depth of 10 m in a silty soil, void ratio (e) of the soil is 0.50 and the effective diameter (D_{10}) of the soil mass is 0.05 mm. assume the empricl constant (C) value = 0.5 sq.cm **(TSPSC-AEE-2018)** (a) 0.50 cm (b) 200 cm (c) 50 cm (d) 196 cm Correct Answer: B	
118	**Question: 24514** torque per unit twist of a shaft is known as **(TSPSC-AEE-2018)** (a) stiffness of the shaft (b) strength of the shaft (c) deflection of the shaft (d) curvature of the shaft Correct Answer: A	

| 119 | **Question: 24513**

in the case of normal concretes, approximately how much quantity of water is required to hydrate 1 gram of cement? **(TSPSC-AEE-2018)**

(a) 0.235

(b) 0.253

(c) 0.532

(d) 0.325

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen - a,b

Correct Answer: A | |
|---|---|---|
| 120 | **Question: 24512**

what is the airport reference temperature, if the monthly mean of average daily temperature for the hottest month of a study year = 24^oC and the monthly mean of the maximum daily temperature for the same month of the same year = 30^oC**(TSPSC-AEE-2018)**

(a) 26^oC

(b) 24^oC

(c) 30^oC

(d) 27^oC

Correct Answer: A | |
| 121 | **Question: 24511**

at a work site 25 mm diameter bars of grade-2 mild steel were used under inevitable situation. The permissible stress in tension (in MPa) should be taken as **(TSPSC-AEE-2018)**

(a) 126

(b) 130

(c) 140 | |

(d) 117	
Correct Answer: D	

122	**Question: 24510**	
	the hydrostatic law **(TSPSC-AEE-2018)**	
	(a) holds unaltered to for a liquid in a vessel subjected to constant rotation	
	(b) holds unaltered for a liquid in a vessel subjected to constant acceleration	
	(c) doesn't hold for the atmosphere	
	(d) holds for a liquid in equilibrium only	
	Correct Answer: A	

123	**Question: 24509**	
	the predominant fluid property associated with cavitation phenomenon **(TSPSC-AEE-2018)**	
	(a) surface tension	
	(b) vapour pressure	
	(c) mass density	
	(d) bulk modulus of elasticity	
	Correct Answer: B	

124	**Question: 24508**	
	at the foot of a spillway, the jump rating curve is above the tail water rating curve at low discharges and below it is at higher discharges. The suitable type of energy dissipater for this situation is **(TSPSC-AEE-2018)**	
	(a) a horizontal apron	
	(b) a roller bucket	
	(c) ski jump bucket	
	(d) a secondary dam combined with a sloping apron	
	Correct Answer: D	

125	**Question: 24507**	
	two irrigation channels are A and B are designed to using Lacey's theory. If the median diameter of the silt particles are the same for both the channel and if the discharge in channel A is 50% greater than at B, then between these two channels **(TSPSC-AEE-2018)**	
	(a) channel A has smaller hydraulic radius	
	(b) channel B has smaller longitudinal slope	
	(c) channel B has larger wetted perimeter	
	(d) channel A has smaller longitudinal slope	
	Correct Answer: D	
126	**Question: 24506**	
	in GIS, interpolation is made possible by a principle called **(TSPSC-AEE-2018)**	
	(a) spatial autocorrelation	
	(b) thermatic autocorrelation	
	(c) spatial auto-correction	
	(d) thematic auto-correction	
	Correct Answer: A	
127	**Question: 24505**	
	an open tank contains water to a depth of 1.5 m. the tank is put in an elevator which accelerates at 2.5 m/sec^2. The pressure force per meter length on one side of tank when the acceleration is upward is **(TSPSC-AEE-2018)**	
	(a) 9.8 KN	
	(b) 13.82 KN	
	(c) 55.2 KN	
	(d) 15.85 KN	
	Correct Answer: B	
128	**Question: 24504**	

which of the following statements is not true in case of IS code method of mix design? **(TSPSC-AEE-2018)** (a) water cement ratio is selected based on the computed target mean strength (b) limitations are kept on maximum water cement ratio and minimum cement content (c) vee bee time is used for workability (d) type and maximum size of aggregate are to be specified Correct Answer: C	
129 **Question: 24503** Lechate is coloured liquid that comes out of **(TSPSC-AEE-2018)** (a) aerated lagoons (b) septic tanks (c) compost plants (d) sanitary landfills Correct Answer: D	
130 **Question: 24502** when the Mohr's circle drawn for a certain stress state on a plane in a body, is tangential to the X-axis, which of the following may be true? **(TSPSC-AEE-2018)** (a) both the bi-axial normal stresses are of equal magnitude but of same nature (b) shear stress on that plane is zero (c) both the bi-axial normal stresses are of equal magnitude but of opposite nature (d) one of the bi-axial normal stresses is zero Correct Answer: D	
131 **Question: 24501**	

generally the detention period of grit chamber is kept as **(TSPSC-AEE-2018)**

(a) 2-4 hrs

(b) 12 hrs

(c) 5 minutes

(d) 1 minute

Correct Answer: D

132	**Question: 24500**	

Question: 24500

in a field test of a formation having a porosity of 25%, the hydraulic gradient was formed to be 0.04, and the velocity of a tracer added to the ground water was 6 m/h, the permeability of the aquifer is **(TSPSC-AEE-2018)**

(a) 0.04 cm/s

(b) 1 cm/s

(c) 3 m/s

(d) 0.01 m/s

Correct Answer: B

Question: 24499

a mean annual runoff 1 m^3/s from a catchment of area 10 km^2 represents an effective rainfall of **(TSPSC-AEE-2018)**

(a) 10.0 cm

(b) 315.4 cm

(c) 100 cm

(d) 31.54 cm

Correct Answer: B

Question: 24498

in a sudden contraction the velocity head changes from 0.5 m to 1.25 m. the coefficient of contraction is 0.66, the head loss in this contraction is **(TSPSC-AEE-2018)**

(a) 0.648 m

(b) 0.133 m

(c) 0.644 m

(d) 0.332 m

Correct Answer: D

135	**Question: 24497**	
	a wheel of 114 kN axle load is coming on to the cantilever portion of a T-beam bridge with it's center of gravity located at 0.6 m from the end longitudinal girder, In what width (in meters) this wheel load is effective **(TSPSC-AEE-2018)**	
	(a) 1.31	
	(b) 1.13	
	(c) 2.33	
	(d) 3.11	
	Correct Answer: B	
136	**Question: 24496**	
	which one of the following solid waste disposal methods is ecologically most acceptable? **(TSPSC-AEE-2018)**	
	(a) sanitary landfill	
	(b) composting	
	(c) pyrolysis	
	(d) incineration	
	Correct Answer: B	
137	**Question: 24495**	
	in a BOD test, 1.0 ml of raw sewage was diluted to 100 ml and the dissolved oxygen concentration of diluted sample at the beginning was 6 ppm and it was 4 ppm at the end of 5 days incubation at 20°C. the BOD of raw sewage will be **(TSPSC-AEE-2018)**	
	(a) 400 ppm	

(b) 200 ppm

(c) 300 ppm

(d) 100 ppm

Correct Answer: B

138	**Question: 24494**	
	the primary pollutant caused by incomplete combustion of organic matter is **(TSPSC-AEE-2018)**	
	(a) sulphur dioxide	
	(b) carbon monoxide	
	(c) ozone	
	(d) nitrogen oxides	
	Correct Answer: B	
139	**Question: 24493**	
	in an old map, a line RS was drawn to a magnetic bearing of $5°30'$ and the magnetic declination at that time being $1°$East. To what magnetic bearing should the line be set now, if the present magnetic declination is $8°30'$ East? **(TSPSC-AEE-2018)**	
	(a) $13°$	
	(b) $354°$	
	(c) $360°$	
	(d) $358°$	
	Correct Answer: D	
140	**Question: 24492**	
	a three hinged parabolic arch of span L and rise h carries a UDL of w kN/m over the entire span. At any section **(TSPSC-AEE-2018)**	
	(a) bending moment alone is zero	
	(b) shear force alone is zero	
	(c) both bending moment and shear force	

are zero

(d) both bending moment and shear force are not zero

Correct Answer: C

141	**Question: 24491** a hydrograph is a plot of **(TSPSC-AEE-2018)** (a) stream discharge against time (b) rainfall intensity against time (c) cumulative rainfall against time (d) cumulative runoff against time Correct Answer: A	
142	**Question: 24490** the double mass curve technique adopted to **(TSPSC-AEE-2018)** (a) estimate the missing data (b) obtain intensities of rainfall at various durations (c) to obtains the amount of storage needed to maintain a demand pattern (d) to check the consistency of data Correct Answer: D	
143	**Question: 24489** what would be the possible number of total conflicts points with a rotary 3-legged intersection having 2-lane 2-way operation **(TSPSC-AEE-2018)** (a) 12 (b) 6 (c) 9 (d) 3 Correct Answer: B	

| 144 | **Question: 24488**

the process of making the background rough, before plastering is **(TSPSC-AEE-2018)**

 (a) hacking

(b) dubbing

(c) blistering

(d) peeling

Correct Answer: A | |
|---|---|---|
| 145 | **Question: 24487**

If p_1 and p_2 are the bi-axial normal stresses and q is shear stress on a plane in a strained body then what is condition that both the principal stresses will be of the same sign? **(TSPSC-AEE-2018)**

(a) (p_1p_2) is equal to q^2

(b) $(p_1p_2)+q^2 = 0$

(c) (p_1p_2) is less than or equal to q^2

(d) (p_1p_2) is greater than or equal to q^2

Correct Answer: D | |
| 146 | **Question: 24486**

which of the following statements is not true in case of portland slag cement **(TSPSC-AEE-2018)**

(a) better sulphate resistance

(b) slag should not be in glassy form

(c) lower heat of hydration

(d) slower early strength

Correct Answer: B | |
| 147 | **Question: 24485**

hearting is the portion of a **(TSPSC-AEE-2018)**

(a) wall between facing and backing | |

(b) brick cut in such a manner that is one long face remains uncut

(c) brick cut across the width

(d) wall ot exposed to weather

Correct Answer: A

148	**Question: 24484**	
	a weir across an alluvial river has a horizontal floor length 54 m and retains 6 m of water under full pond conditions. If the downstream sheet pile is driven to a depth of 6 m below the average bed level, the exit gradient foe this case is **(TSPSC-AEE-2018)** (a) $1/(\pi /\sqrt{5})$ approx (b) $1/(\pi /\sqrt{2})$ approx (c) $1/(\pi /\sqrt{3})$ approx (d) $1/(\pi /\sqrt{6})$ approx Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.	
149	**Question: 24483**	
	the layout of distribution of which water flows towards the outer periphery is **(TSPSC-AEE-2018)** (a) dead end system (b) grid iron system (c) ring system (d) radial system Correct Answer: D	
150	**Question: 8442**	
	Lower Food to Micro-organism (F/M) ratio in a conventional activated treatment plant will mean **[TSPSC HMWS&SB 2015][TSPSC AEE 2018][TSPSC AEE 2017]**	

	(1) Lower BOD removal	
	(2) Higher BOD removal	
	(3) No effect on BOD removal	
	(4) Medium BOD removal	
	Correct Answer: B	