1.	To prev	vent creep in rails, the	steel sleepers are f	ixed v	vith ra	uls by clips, bolt an	·d·	4
		Two keys			Four			
	• •	Five keys	34.		Six k	•		
2.	` '	ails are provided		11		-		
	_	near tongue rails.		(b)	near	check rails.		
	` ,	in crossing.		(b)		stock rails.		
		_	1764.			Jr. Luito,		
3.		fective bearing area of	all types of sleepe	4.79				
	` '	0.38 m <sup>2</sup>	<u> </u>	(b)				
	(c) (	0.43 m²		(d)	0.46	m²		
4.	Two n	najor roads with two	lanes each are sare two-way, the	crossi n nun	ng in nber o	an urban area to	form an uncor	atrolled
		20	#:: {:	(b)				
	` '	24	Š	(d)				
	(-)	omotive on Broad Ga	 auge railway tenal			pairs of driving u	heels each carr	ying 40
5.	tonnes	omotive on Broad Grad. If the coefficient of of the locomotive is:	friction between v	vheels	and i	rails of B.G. track	is 0.25, then the	liauling
	-	20 tonnes		(b)	40 (	tonnes		5 5 72
		60 tonnes	K.	(d)		) tonnes		e e de l
6.	sand 1	sonry dam is founded particles is 2.05. For ssible upward gradien	r a desired factor	of S	arety	of 3 against sand	h and specific g	naximum
	(a)	0.225	• • • • •	(b)				
	(c)	1.0	uni e poruzier se	(d)		ne of these		
7.	The	atio of saturated unit vis 2.65, the void ratio	weight to dry unit of the soil is:				specific gravity	of solids
		0.625	ista	-	) 0.0			
	(a) (c)	0.044	<b>!</b>	(d	-,	325		
			ample obtained fi	rom a	in ear	in fill:has natural	moisture conten	t of 20%.
8.	A par	rtially saturated soil s fic gravity of 2.70 and	I void ratio of 90%	-	_	<u> III</u>	soil is:	•
	(a)	20 %	•	(t	b) 41	J%		OM -
	(a) (c)	60%	:	(ı	d) 80	The second secon	OTESMY FOOT.	
	-		e always directed:			wW.nOTESm		
9.	The s	seepage through soil i	aiwaya directed.		b) n	arallel to equipoter	itial line.	
	(a)	perpendicular to equ	upotential tine.		4) 5	emendicular to plu	reatte tine.	
	(c)	perpendicular to stre	cam nnc.		_, P	sh lianid limit mot	re than 50% and	l plasticity
10.	Usin	perpendicular to strong plasticity chart of a below A – line can	• • •		oll Wi	ighly plastic organ	nic silt (MH)	
	(a)	Inorganic clay off h	righ plasticity (CH	,	(b) H	norganic silt (MI)		
	(a) (c)	- · · · f low	compressibility (CL	.) (	(d) I	norganic and (1927)		
	(0)							P.T.O.
				2				

11.	The 8	specific The va	gravity lue of cr	of the printer in	particles of a ydraulic grad	sand is	2.63 he do	5. The	void rate of s	atio of tand is:	the san	d in	dense si	ate is
		0.65					(b)	2.65						
	(c)	1.65					(d)							
12.	and 2	2.70 res	vci	y. Assui	rated soil and ming the unit of the soil are:	weight	01 W	vater t	0 00 10	oil soli kN/m³	ds wer , the sa	e fou turate	nd to b	e 30% weight
		19.4, 19.4,						18.5, 18.5,						
13.	An er	mbankn kN/m³	nent of :	ear stre	cohesion of ngth of soil o Take tanl4°	on a hor = 0.25)	izont	al pla	ne at a p	al fricti point 10	on of i	14° ar s belo	nd unit ow the	weight surface
	(a)	50 kN	/m²					75kN						
		100kN					(d)	200k	N/m <sup>2</sup>					
14.	Match the co	h List-I	(differ	ent type	es of soils) v	vith Lis	t-II ( the li	group sts:	symbol	ls of IS	classi	ficati	on) and	i select
				List-I	_								<u>ı-1]</u>	
	A.	Well	-graded	gravel	sand mixture	s with I	ittle (	or no i	fines				ML	
	B.	Poor	ly grade	d sands	or gravelly	sands w	ith li	ttle or	no fine	S			CH	
	C.	Inorg	anic sil	ts and v	ery fine sand	is or cla	yey s	ilts w	ith low	plastici	ty		GW	
	D	Inorg	anic cla	ys of h	igh plasticity							4.	SP	
	Codes	::												
	(a)	Α	В	С	D		<b>(b)</b>	Α	В 4	С	D			
	( )	3	1	4	2						3			
	(c)	Α	В	С	D 2		(d)	A	B 1	C 4	D 3			
		3	4	1							-			
15.	If the	specif	ic gravi stilled v	ity of a vater of	soil particle viscosity 0.0	e of 0.0 01 poise	)5 cn e is:	n diar	neter is	2.67, i	ts term	ninal	velocit	y while
	(a)	0.2200	cm/se	C			(b)	0.22	25 cm/s	cc				
	(c)		cm/sec				(d)	0.22	.75 cm/s	ec				
16.	If v	is the	residual is propo	error	and n is the	e numb	er o	f obse	ervation	s, the	probab	le en	ror of	a single
								[						
	(a)	$\frac{\sum v^2}{n-1}$						$\sqrt{\frac{\Sigma}{n}}$						
	()	$\frac{\sum v}{n(n-1)}$	· 1)	•			(d)	$\sqrt{\frac{1}{n}}$	$\frac{\sum v^2}{(n-1)}$					
17.	Agor	ic lines	s pass th	rough	points of:									
			declinat				(b)	Equ	ıal decli	nation				
	(a)						(d)	_	ıal dip				,	
	(c)	Zero (	ďΡ				` '	•	-					

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18.		bble tube with divisions of 2mm and a radi	us of	10 m has the sensitivity of about:
	(a)	40"	<b>(p)</b>	•
	(c)	20"	(d)	2"
19.	The horiz	vertical angle between the longitudinal a contal line is called:	xis o	f a freely suspended magnetic needle and the
	(a)	Declination	<b>(b)</b>	Meridian
	(c)	Azimuth	(d)	Dip
20.	The c	departure of a line of transverse is its lengt	h mu	Itiplied by:
	(a)	cosine of reduced bearing.	(b)	sine of reduced bearing.
	(c)	secant of reduced bearing.	<b>(p)</b>	tangent of reduced bearing.
21.	The g	given equation $y = \frac{x^3}{6RL}$ is known as:		
	(a)	Froude's Transition Curve	<b>(b)</b>	Linear Transition Curve
	(c)	Mohr's Transition Curve	(d)	Parabolic Transition Curve
22.		mum radius of a simple circular curve req	puired	on a national highway with maximum speed as
	(a)	315 m	(b)	630 m
	(c)	285 m	(d)	190 m
23.	Whi	ch of the following is not an indirect meth	od of	[levelling?
	(a)	Barometric levelling	(b)	Trigonometrical levelling
	<b>(</b> 2 <b>)</b>	Hypcometry	(d)	Reciprocal levelling
24.		n the angular measures being more precinced by:	ise th	an the linear measurements, the traverse can b
	(a)	Graphical method	(b	Theodolite correction
	(c)	Bowditch rule	(d	) Transit rule
25.	Selec	ct the correct answer:		
	(a)	Magnetic declination at a place remains constant.	s (b	) The true meridian at different places are parallel to one another.
	(c)	The angle of dip at magnetic pole is 45°.	(6	<ol> <li>Diurnal variation of magnetic declination is less at equator than at poles.</li> </ol>
26.	Mon	nentum correction factor β is given by:		

(a) 
$$\beta = \frac{\int v^2 dA}{v^2 A}$$

(b) 
$$\beta = \frac{\int v^3 dA}{v^3 A}$$

(c) 
$$\beta = \frac{\int v dA}{vA}$$

(d) 
$$\beta = \frac{\int v^4 dA}{v^4 A}$$

where, v = mean velocity and A = area of flow



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27.	Which is the correct sequence of crop rotation?	•
	(a) Sugarcane – wheat – gram	(b) Cotton - wheat - sugarcane
	(c) Rice - gram - cotton	(d) Wheat - rice - sugarcane
28.	Water is flowing in an alluvial channel at a velocity based on Kennedy's silt theory?	depth of 1.0 m. What shall be the value of critical
	(a) 1.0 m/s	(b) 0.64 m/s
	(c) 0.55 m/s	(d) 0.25 m/s
29.	For a triangular channel having depth 2 m a equal to:	nd side slope 1:1, the hydraulic radius (in m) will be
	(a) $\frac{2}{\sqrt{2}}$ (c) $\frac{1}{2}$	(b) 2
	(c) $\frac{1}{2}$	(d) $\frac{1}{\sqrt{2}}$
30.	A rectangular channel 2.5m wide carries wa 0.0036. Average shear stress on the boundar	ter at a depth of 1.2 m. The bed slope of the channel is y will be:
	(a) 56.42 Pa	(b) 21.58 Pa
	(c) 36.73 Pa	(d) 18.12 Pa
31.		y dam having concrete strength of 3000 KN/m <sup>2</sup> is:
	(a) 60 m	(b) 75 m
	(c) 90 m	(d) 110 m
32.	The maximum velocity in open channel occ	curs:
	(a) at the mid depth.	(b) at the free surface.
	(c) a little below the free surface.	(d) near the channel bottom.
33.	When a canal crosses a natural drain in s canal trough, then we will construct:	such a way that H.F.L. of the drains always touches the
	(a) a super passage.	(b) a level crossing.
	(c) an aqueduct.	(d) a siphon aqueduct.
34.	In a siphon aqueduct, the worst condition	of uplift on the floor occurs when:
	(a) the canal is full & the drain empty.	(b) the canal is empty and drain is full.
	(c) canal and drain both running full.	(d) canal and drain both empty.
35.	wheat crops are 30% and 40% respective	atercourse is 1500 hectares. Intensities of sugarcane and ely. The duties for the crops at the head of the watercourse res/ cumec respectively. Find the discharge required at the
	(a) 0.33 cumec	(b) 0.95 cumec
	(c) 0.67 cumes	(d) 0.29 cumec

(d) 0.29 cumec

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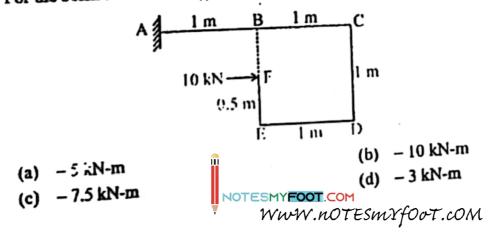
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36.	Retrog	gression of the bed level of a river d/s of a	weir	is basically caused due to the
	(a)	variation in the silt carrying capacity of u/s and d/s water		variation in the bed level u/s and d/s of the
	(c)	both (a) and (b)	(d)	none of these
37.	5-day	BOD does not measure:		
	(a)	Carbonaceous organic matter.	(b)	Nitrogenous oxygen demand.
	(c)	Both Carbonaceous and Nitrogenous demand.	(d) 	Biodegradable organic matter.
38.	Capac	city of water pumps is determined as:		
	(a)	<i>WQH</i> 75	<b>(b)</b>	γQH 75
			(-,	75 WOH -
	(c)	<u>₩QH</u> 750	(ď)	$\frac{WQH}{50}$
39.	Goos	e Neck is provided in water supply conn	ection	for individual houses to provide:
	(a)	for any settlement in plumbing system.	(b)	for minimizing pressure losses in pipes.
	(c)	for shutting off the water supply.	(d)	for measuring consumption of water.
40.	For re	ectangular layout of roads, the preferred	syste	m of distribution of water pipes is:
	(a)	Dead End System	(b	) Grid Iron System
	(c)	Circular System	(d	) Radial System
41.	Varia	ations in hourly water demand can be me	t out	by:
	(a)	provision of overhead storage tank.	•	provision of variable speed pumps.
	(c)	combined pumping and gravity method.	(d	l) all of the above.
42.	Exce	ss concentration of nitrates can cause:		
	(a)	Blue Babies in infants.		Cancer in throat.
	(c)	Diarrhoea.	(	d) Eutrophication.
43.	Septi	ic tanks are designed using:		
45.	(a)	HRT of 24 hours with storage space.		b) HRT of 10 hours with storage space.
	(c)	Aerobic treatment technology.		(d) F/M.
	Rem	oval of grits in grit channels can be acc	ompl	ished by:
44.	(a)	providing a parabolic section of the		<ul> <li>(b) providing rectangular section with proportional weir at the outlet.</li> </ul>
	(-)	channel		(d) all of the above
	(c)	velocity.		•
45.	Nitr	ification can be achieved in activated sl	ludge	(b) maintaining high MLVSS.
	(a)			(d) shorter detention time.
	(c)			(d) shorter detended.
		NOTE		FOOT.COM
		. • * 1%		1.nOTESmYf0oT.cOM

P.7

The design flow for a main sewer to receive a flow from 1 km<sup>2</sup> area with a population densit 200 persons/ha and an average sewage flow of 150 litres/capita/day is: 46. (a) 7 million litres per day. (b) 9 million litres per day. (c) 11 million litres per day. (d) 13 million litres per day. The value of allowable rate of centrifugal acceleration on a transition curve for the design spec 85 km/hr is: (b) 0.25 m/sec<sup>3</sup> (a) 0.15 m/sec<sup>3</sup> (d) 0.60 m/sec<sup>3</sup> (c) 0.50 m/sec<sup>3</sup> The radius of horizontal circular curve is 500 m and the design speed is 127 km/hr. If the pres on inner and outer wheels of vehicle is equal, then the value of equilibrium super elevation is: (b) 0.127 (a) 0.254 (d) 0.070 (c) 0.150 In cement concrete roads construction dowel bars are not provided at: 49. (b) Transverse joint (a) Longitudinal joint (d) Construction joint (c) Expansion joint For the design speed of 50 km/hr on a two-lane road having two-way traffic, the safe stopping distance is (assume coefficient of friction = 0.37 and Reaction time of driver = 2.5 sec.): (b) 51.2 m (a) 61.4 m (d) 75.0 m (c) 80.2 m An axially loaded bar is subjected to normal stress of 173 MPa. The maximum shear develop 51. the bar is: (b) 86.5 MPa 75 MPa (a) (d) 122.3 MPa. 100 MPa (c) A simply supported beam made of timber is 200×400 mm. The span of the beam is 4 m. I maximum permissible bending stress for timber is 2 MPa, then the maximum uniformly distrit 52. load the beam can carry is: (b) 7.54 kN/m (a) 6.54 kN/m (d) 8.34 kN/m (c) 5.34 kN/m

53. For the beam shown below, bending moment at A will be:



54.	A can 1°, the	tilever beam carries a uniformly distribute e deflection at the free end is:	ed Ioa	d over entire length. If the slope at free end is
	(a)	30.27 mm	(b)	39.27 mm
	(c)	49.27 mm	(b)	60.27 mm
55.	Whic	h of the following methods of structural a	nalysi	s is a force method?
	(a)	slope defection method.	(b)	column analogy method.
	(c)	moment distribution method.	(d)	none of the above.
56.		aply supported beam of length <i>l</i> carries num at right end. The maximum bending		nd varying uniformly from zero at left end to ent occurs at a distance of:
	(a)	$\frac{1}{\sqrt{3}}$ from left end	<b>(b)</b>	1/3 from left end 1/3 from right end
	(c)	$\frac{1}{\sqrt{3}}$ from right end	(d)	<sup>1</sup> / <sub>3</sub> from right end
57.	A mil	d-steel bar of uniform cross-section 'A' energy stored in the bar would be:	and l	ength 'L' is subjected to an axial load 'W'. The
	(a)	WL	(b)	$\frac{W^2L}{2AE}$
	(a)	WL  ZAE  W <sup>2</sup> L  AAF	(0)	ZAE
	(c)	W <sup>2</sup> L	(d)	WL AAF
		TAL		TAL
58.	In the	e case of a rectangular beam subjected stress to average shear stress is:	to a t	ransverse shearing force, the ratio of maximum
	(a)	0.75	<b>(b</b> )	
	(c)	1.25	(d)	1.50
59.	The	deflected neutral surface of a beam after	bendi	ng is called:
٠,٠	(a)			) bent scale
	(c)	elastic curve	(d	plastic flow
60.	The	ratio of volume of helical reinforcement	to the	volume of the core shall not be less than:
00.			(t	$0.36 \left(\frac{A_s}{A_c} - 1\right)^{\frac{f_{ck}}{f_y}}$
	(c)	$0.15 \left(\frac{A_s}{A_c} - 1\right)^{\frac{f_{ck}}{f_{7}}}$ $0.45 \left(\frac{A_c}{A_s} - 1\right)^{\frac{f_{ck}}{f_{7}}}$		0) $0.36 \left(\frac{A_s}{A_c} - 1\right)^{\frac{f_{ck}}{f_y}}$ d) $0.60 \left(\frac{A_c}{A_s} - 1\right)^{\frac{f_{ck}}{f_y}}$
61.	•	spirally reinforced column substantial of collapse ultimately takes place when the	luctili e spir	ity is achieved prior to the collapse of the column. al reinforcement:
		yier s in tension.		b) fails in shear.
		Citata banding	(	d) fails in compression.
43	The	maximum ratio of span to depth of a si	ab sin	aply supported and spanning in two directions is:
62.				(ъ) 30
	(a)			(d) 40
	(c)	, 55		P.T.O.

63.	Mat	ch List	-I with	List-II :	and select	the correct	answ	er usia	ng the co	dee oiv	en below the	
	Code	A. B. C. D.	No For	<u>Lis</u> (Appar edle Vil	t-I atus) orator : Vibrator ator			1. 2. 3.	Comp Comp Comp	List-II (Uses) action is action i	,	
	(a)	Α	В	С	D		(L)				_	
		2	3	4	1		<b>(p)</b>	3	4	1	D 2	
	(c)	A 1	B 4	C 2	D 3	P.V.	(d)	A 2	B 3	C 1	D 4	
64.	Desig	gn stre	ngth of	concre	te for limit	t state of co	llaps	e is ta	ken as:			
	(a)	.fck				***		0.67				
	(c)	0.67	Tck Y				(d)	Yck				
	When	reγis į	partial	safety f	actor for c	oncrete.						
65.	Whic	h of th	ese is	not a sh	ear failure	in beams?						
	(a)	shear	– tens	ion		to the same	( <del>b)</del>	shea	ar – bene	ding		
	(c)	shear	·- bone	d			(d)	pun	ching sh	ear		
66.	Whic	h of th	e follo	wing st	atement is	incorrect a	s per	IS 45	6:2000	?		
	(a)	bar is	0.12%	of cros	s sectiona			of g	ross cros	s-section	nent in colum nal area of th	e colunn.
	(c)			column in diam		be less ** *	<del>(d)</del>	Spa peri	cing of lo phery of	ngitudi the colu	nal bars meas mn shall not	sured along to exceed 300 t
67.	Depti	hofai	lat slal	o is not	decided by	y one of the	e foll	owing	g criteria	as per	IS: 456-20	00:
	•										apse – Shea	
	(c)	Limit	State	of Colla	pse – Flex	cure	(d)	Lin	nit State	of Ser	viceability -	Deflection
68.	The s	strengti gth of s	h of co	mpress	ion memb	er with he	lical	reinfo	orcemen	t shall	be taken as	time
	(a)	1.00					(b)	1.0	5			
	(c)	1.10					(d)	1.1	5			
69.	of 20	Binm (	liamete	er. Con	crete mix	0 mm × 40 t is M30. ng limit sta	AXIA ite m	thod	can be	applied	ve steel bar nin section upto:	s of Fe-500 with mini
	(a)	1707	.37 kN			i			05.30 kh	1		
	(c)	1806	.40 kN			Ï			03.7 kN =00T.⊂0			
					www.	nOTESmi				M		

70.	In a r	reinforce concrete T-beam (in which the fl	lange	is in compression), the position of neutral axis
	(a)	be within the flange.	(b)	be within the web.
,	(c)	depends on the thickness of flange in relation to total depth and percentage of reinforcement.	(d)	at the junction of flange and web.
71.	The I	ight weight aggregates are obtained from:		
	(a)	Sedimentary rocks	(b)	Metamorphic rocks
	(c)	Igneous rocks	(d)	Volcanic rocks
72.	Brick	s attain red colour due to the presence of:		
	(a)	Iron oxide	(b)	Lime
	(c)	Silica	(b)	Magnesia
73.	· Cold	rolled copper is an:		
	(a)	isotropic material	(b)	plastic material
	(c)	anisotropic material	(d)	none of the above
74.	For the	he following four compounds of cement,	the ra	te of heat evolution in ascending order is:
14.		1. C <sub>3</sub> S		
		2. C <sub>2</sub> S 3. C <sub>3</sub> A		
		3. C <sub>3</sub> A		
		4. C <sub>4</sub> AF		
	(a)	2, 4, 1, 3		1, 2, 3, 4
	(c)	3, 1, 4, 2	(d)	2, 4, 3, 1
75.	The a	alkali aggregate reaction in concrete can l	be co	ntrolled if the percentage of alkali is less than:
	(a)	< 10.4 %	(b)	<5.0 %
		< 1.0 %	(d)	< 0.4 %
76.			2 at 10	00° C. The resistance of the wire at 0° C will be:
	(a)	2Ω	<b>(</b> b)	) 1Ω
	(c)		(d	) 3Ω ·
77.	The	greatest length of a copper wire that car 10 <sup>7</sup> N/m <sup>2</sup> ; Density of copper = 7.2 g/cc;	1 han g = 10	g without breaking would be [Breaking stress = 0 m/s <sup>2</sup> ]:
			) (b	
	(a)	10 m	(d	,
	(c)	1000 m	•	the table and a distance of 3 m by means
78.	A sh	nip of mass 3×10 <sup>7</sup> kg which is initially at force of 5×10 <sup>4</sup> N. If there is no water res	••••	can be pulled through a distance of 3 m by means ce, then the speed attained by the ship will be:
	(a)	0.1 m/s	(t	) 1 111/5
	(c)	10 m/s	(0	0.01 m/s
	,			
				•

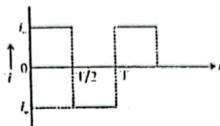
- 79. Two masses, one 'n' times heavier than the other, have equal kinetic energy. The ratio of momenta (p2/p1) would be:
  - (a) √n

(b) n

(c)  $n^{3/2}$ 

- (d)  $n^2$
- 80 Find the value of ims for the variation of current as given below:





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(a)  $i_{rms} = i_0 / 4$ 

(b)  $i_{cms} = i_0 / 2$ 

(c)  $i_{rms} = 4i_0 / 3$ 

- (d)  $i_{rms} = i_0$
- 81. An inductance coil of 0.50 H and resistance 100 Ω is connected to a 220V, 50 Hz a.c. supply. \(\)
  is the time lag between the voltage maximum and current maximum?
  - (a) 3.2 ms

(b) 3.0 ms

(c) 1.57 ms

- (d) 2.57 ms
- 82. A nucleus with z =92 emits the following in a sequence:

$$\alpha$$
,  $\alpha$ ,  $\beta^-$ ,  $\beta^-$ ,  $\alpha$ ,  $\alpha$ ,  $\alpha$ ,  $\alpha$ ,  $\alpha$ ,  $\beta^-$ ,  $\beta^-$ ,  $\alpha$ ,  $\beta^+$ ,  $\beta^+$ ,  $\alpha$ .

The z of the resulting nucleus is:

(a) 76

(b) 78

(c) 82

- (d) 74
- 83. A potentiometer wire has a length of 5m and resistance of 2 Ω/m. A cell of e.m.f. 5V at resistance box are connected in series with it. The value of resistance to be introduced in the box as to get a potential gradient of 0.1 V/m will be
  - (a) 55 Ω

(b) 90 Ω

(c) 115 Ω

- (d) 172 Ω
- 84 Bomb calorimeter is used to estimate:
  - (a) calorific value of solid and liquid fuels.
- (b) calorific value of gaseous fuels.
- (c) composition of solid and liquid fuels.
- (d) composition of gaseous fuels.

- 85. The luster of a metal is due to:
  - (a) presence of it e electrons
- (b) its chemical inertness

(c) its hydraulic washing

- (d) its high density
- 86. What chemicals combe used to make a buffer of pH = 10?
  - (a) CH<sub>3</sub>COOH + CH<sub>3</sub>COONa
- (b) NH4OH + NH4CI

(c) H<sub>3</sub>PO<sub>4</sub> + CH<sub>3</sub>COONa

(d) CH<sub>3</sub>COOH + NH<sub>4</sub>Cl

87.	Which of the following is not a greenhouse gas?	
	(a) CO <sub>2</sub> (b) CO	
	(c) CH <sub>4</sub> (d) Water	
88.	Which of the following is not a disinfectant?	
	(a) CaOCl <sub>2</sub> (b) CINH <sub>2</sub>	
	(c) O <sub>3</sub> (d) Na <sub>2</sub> CO <sub>3</sub>	
89.	Which of the following metal forms a volatile oxide film?	
	(a) Al (b) Pb	
	(c) Au (d) Mo	
90.	Nylon-6 is prepared by the self-polymerization of:	
	(a) Caprolactam (b) ω-Amino undecanoic acid	
	(c) Hexa-methylene diamine (d) Adipic acid	
91.	Which of the following functional groups is of an aldehyde?	
	(a) — OH (b)	
	(c) -Ç-OH	
92.	Electrolysis of water produces	
,	(a) OH-and O2- (b) H2 and H3O+	
	(c) H <sub>3</sub> O <sup>+</sup> and OH <sup>-</sup> (d) H <sub>2</sub> and O <sub>2</sub>	
93.	The value of 4 cos12° cos48° cos72° is:	
-	(a) cos 36° (b) cos72°	
	(c) sin36° (d) sin72°	
94.	The value of k for which the points $(k, 2-2k)$ , $(-k+1, 2k)$ and $(-4-k, 6-2k)$ are collinear is	Ľ
···	(a) any value of k (b) $k = -1$ or $k = \frac{1}{2}$	-
	(c) $k = 1$ or $k = -\frac{1}{2}$ (d) $k = 1$ or $k = \frac{1}{2}$	
	•	
95.	If $\cos 40^\circ - \sin 40^\circ = x$ , $(x < 2)$ , then value of $\cos 80^\circ$ is	
	(a) $x\sqrt{2-x^2}$ (b) $2x$	
	\-\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	

(c)  $-x\sqrt{2-x^2}$ 

(a) e

(b)  $\frac{1}{e}$ NOTESMY FOOT. COM

(d)  $\frac{1}{e^2}$ WWW. nOTES my foot. com

97. Value of  $\int_{-3}^{3} \frac{x^2 s t n x}{1 + x^4} dx$  is

(a) 0

(b) 1

(c) 2

(d) 4

98. Let  $\vec{a} = 2\hat{i} + 3\hat{j} - \hat{k}$  and  $\vec{b} = \hat{i} - 2\hat{j} + 3\hat{k}$ , then the value of  $\lambda$  for which the vi  $\vec{c} = \lambda\hat{i} + \hat{j} + (2\lambda - 1)\hat{k}$  is parallel to the plane containing  $\vec{a}$  and  $\vec{b}$  is:

(a) l

(b) 0

(c) -1

(d) 2

79. The equation of tangent to the circle  $x^2 + y^2 + 4x - 4y + 4 = 0$  which makes equal intercept positive quadrant is given by:

(a) x + y = 1

(b)  $x + y = \sqrt{2}$ 

(c)  $x + y = \frac{1}{\sqrt{2}}$ 

(d)  $x + y = 2\sqrt{2}$ 

100. If the percentage error in the edge of a cube is 1, then the error in its volume is:

(a) 1%

(b) 2%

(c) 3%

(d) 4%

## ALIGARH MUSLIM UNIVERSITY, ALIGARH Answer Key B.E.( CIVIL ) Admission Test 2019-20 SERIES: D

	No.	Answ	7
	1	В	_
	2	C	
	3	D	_
_	4	<u>C</u>	_
_	5	В	_
	6	B	_
10 10 11 13 14 15 16 17 18	7	B B B C A B D B A A D D D A B C D D C D D C D D D C D D D D D D D D	_
	8	<u>C</u> _	_
<u></u>	1	A_	_
1	0	В	_
1	1	D_	_
1	2	A	_
13	-1	<u>C</u>	_
14	-	B	_
15		D	
16		В	
17		Α	
18		Α	
19		D.	_
19		В	-
21		A	-
21 22 23 24 25 26 27 28	$\neg$	Α	_
23	$\neg$	D	-
24	+	D	-
25	+	D	
26	+	<del>-</del>	1
27	+	- P	
28	+	<u>-</u>	
29	+	<u>_</u>	-
	+	<u>D</u>	4
30	-	В	ı
31		С	l
32		C	I
33		D	l
32 33 34	$\top$	B C C D A B	l
35 36		В	ĺ
36		A	l
37	1	B	
38	+	A A B	
39	+	<u> </u>	
40	+-	<u>^</u>	
7 40		В	

54	ZKIEG. D
Q.No.	Answer
41	D
42	A
43	A
44	D
45	
46	A B C A D
47	C
48	A
49	D
50	A
51	B
52	C A B
53	A
54	В
55	В
56	AB
57 .	В
58.	. D
59	C
60	В
61	. A
62	A C
63	A
64	A
65	D
66	В
67	A
68	A B
70	-
70	
71	D
72	Α
73	C
74	Α
75.	D
76	C
69 70 71 72 73 74 75 76 77 78 79 80	A C D A C A D C A D C A D D
78	
70	
90	
60	D

Q.No.	Answer
81	Α
. 82	.B
83	В
84	Α
85	Α
86	В
87	В
88	, D
89	D
90	A
91	В
92	D
93	Α
94	В
95	A
96	В
97	Α
98	Α
. 99	.D
100	С

COORDINATOR
DATED: 13.06.2019

