

WORKING PRINCIPLE OF TAMPING MACHINES

1.	Lining systems are used onmachines			
	a.	CSM & 3X only	b.	UNO & DUO only
	C.	all tamping machines only	d.	all track machines
2.		Lining method/ me	thoo	ds are used on tamping machine
	а.	3 point lining only	b.	4 point lining only
	С.	3 point & 4 point	d.	single chord & double chord
3.	Dur	ing lining machine measures defle	ectio	on w.r.t & rectify it.
	a.	Reference rail	b.	both rails
	C.	no rail	d.	canted rail
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4.	Dur	ring alignment machine corrects		
	а.	Slew	b.	versine
	C.	cant	d.	cross level
5.	Tan	nping machine can work on the h	orizo	ontal curve having radius up to
	a.	100 mtrs	b.	150 mtrs
	C.	200 mtrs	d.	176 mtrs
6.	Tan	nping machine can work on the	ver	tical curve having radius up to
	а	500 mtrs	h	2500 mtrs
	C.	3000 mtrs	d.	4000 mtrs
7.	Tan	nping machine can normally work	on	max. gradient as per design
	a.	1in 1000	b.	1in 100
	C.	1in 150	d.	1in 400
Q	Vor	sine of curved track depends on		
0.	2	radius of curve	h	measuring chord length
	а. С	measurement method	d.	all of a b & c
	υ.	measurement method	u.	
9.	Doι	uble chord lining system is used o	า	machine
	а.	UT Only	b.	Old UNO & DUO only
	С.	CSM & Tamping Express	d.	only CSM



10.In lining system, smoothing mode may be used in 4 point lining method only b. 3 point lining method only a. 3 point & 4 point lining method d. None of these C. both 11.Laser mode may be used in a. 4 point lining method b. 3 point lining method c. 3 point & 4 point lining method d. None of these both 12.Design mode may be used in 4 point lining method b. 3 point lining method a. 3 point & 4 point lining method d. None of these C. both 13. In 4 point lining method, no. of trollies used..... b. 3 a. 2 d. 1 c. 4 14.In 4 point lining method, versines are measured at points for comparison to control the lining a. 1 b. 2 c. 3 d. 4 15.Standard formula for calculating versine, if chord length is BD & versine is required to be measured at point C in between BD is H=..... a. BCxCD/2R b. BCxCD/R c. BCxCD/4R d. BCxCD/8R 16.What is versine ratio in four point lining method if front bogie is at D, lining bogie is at C, measuring bogie at B and rear bogie at A a. i=ACxBC/ABxBD b. i = AD xBD/ACxBCc. i=ACxCD/ABxBD d. i= AD xBD/ABxBC

17.Versine ratio in four point lining method for CSM is

a.	1.33	b.	1.2157
C.	1.62231	d.	1.507

bogie is at D, lining bogie is at C, measuring is at B and rear is at A a. A & B are on corrected track b. A, B & D are on corrected track and C & D is on incorrected & C is on incorrected track track c. A,B are on corrected track & d. A &D are on corrected track C&D is on incorrected track and B&C is on incorrected track 19. Residual Error or left over error in case of four point lining method in smoothing mode is a. Fd/n b. 0 c. H1/H2 d. iH2 20.Residual Error or left over error in case of four point lining method in design mode is a. Fd/n b. 0 d. iH2 c. H1/H2 21.error reduction ratio in case four point lining method is a. n=ACxBC/ABxBD b. n= AD xBD/ACxBC c. n=ACxCD/ABxBD d. n = AD xBD/ABxBC22.error reduction ratio in case of four point lining method for UNIMAT-3S (old) a. 6 b. 6.47 d. 6.276 c. 7.62 23. The error reduction ratio is valid under the presumption that the Points & are on the perfect alignment a. A&D b. A, B & D C. B&D d. A & B 24. VERSINE COMPENSATION VALUE (Vm) is fed in 3 point lining only 4 point lining only a. b. None of these d. C. 3 & 4 point lining

18. In four point lining method, what assumption has been taken, if front

25. VERSINE COMPENSATION VALUE (Vm) is fed by.....



- a. Slew potentiometer b. Versine potentiometer
- c. Correctionvalue potentiometer d. cant potentiometer

26.Costant versine ratio is valid only for track havingradius

- a. constant b. variable
- c. parabolic d. Spiral

27. VERSINE COMPENSATION VALUE (Vm) depends on.....

- a. Radius of curve only b. Length of transition only
- c. Radius and length of transition d. None of these both

28.Direction of toggle switch for feeding vesine compensation value (Vm) when machine enters from Higher radius to lower radius is

- a. Outer side b. Inner side
- c. Any side d. Don't depend

29. Constant for VERSINE COMPENSATION VALUE (Vm) for CSM is

- a. 83000 b. 82485
- c. 88333 d. 84000

30.V- value for compound curve having radius R1 & R2 (R1 > R2) is

- a. V2-V1 b. V1-V2
- c. V1+V2 d. None of these
- 31.Residual error in the 4 point lining method is approximate......of the 3 point lining method
 - a. Half b. Two times
 - c. equal d. 1.33 times
- 32. Why do we not use 4 point lining method in straight track in smoothing mode inspite of half residual error than 3 point lining method
 - a. Due to residual error b. Due to Vm value
 - c. Due to error accumulation d. None of these

33.Residual error or left over error in 4 point lining mehod in design mode is--

a.	Fd/n	b.	1.33 H2
C.	Zero	d.	H1/H2



34.In 3 pc	pint lining method,number of trol	lies u	used
a.	1	b.	2
c.	3	d.	4
35.In 3 po	pint lining method, versine is mea	sure	ed atpoint
a.	1	b.	2
c.	3	d.	no need of measurement
36.In 3 p compa a. c.	oint lining method, actual versir ared with H2 Theoretical value fed manually	ne m b. d.	neasured by lining transducer is iH2 None of these
37.In 3 pc	pint lining method, theoretical ver	rsine	e is being fed by
a.	Slew potentiometer	b.	Versine potentiometer
c.	correctionvalue potentiometer	d.	None of these
38.What	is versine formula for CSM in thre	e pc	pint lining method
a.	H=25000/R	b.	H=23617/R
c.	H=24000/R	d.	H=29000/R
39.The tr	olleys in lining system are pneum	atica	ally pressed against
a.	Datum rail	b.	Opposite of datum rail
c.	Any side	d.	Both rail
40.what i	s error reduction ratio in 3 point l	ininą	g method
a.	n=BD/BC	b.	n=BC/BD
c.	n=ACxCD/ABxBD	d.	n= AD xBD/ABxBC
41.Value	of residual error in three point li	ning	method for CSM is
a.	1/3	b.	1/3.138
c.	1/3.12	d.	1/2.91
42.Radius a. c.	s of straight track is zero Depend on length of track	b. d.	infinite None of these



43.Versine of straight track is

a. zero	b.	infinite	
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- c. Depend on length of track d. None of these
- 44.In three point lining method, only Versine is measured by lining transducer and same is compared with theoretical Versine, which is fed by Versine potentiometer from front cabin ,but in straight track why do we not feed versine in versine potentiometer.
 - a. Does not required b. Versine is zero
 - c. By default normal setting of d. None of these Versine potentiometer is zero

45.In 3 point lining method for circular curve, we can calculate the Versine by the formula

- a. H= AD xBD/ABxBC b. H=ACxCD/ABxBD
- c. H=BCxCD/2R d. H=BCxCD/4R

46.In 3 point lining method, for curve, radius & length of transition is given by JE/SE(P.Way) are R=250 mtrs & L= 50 mtrs respectively. Hv (versine cumulation value) or CSM will be

a.	94 mm	b.	140 mm
C.	0	d.	100 mm

- 47.Calculation formula for rate of change of Versine constant throughout transition portion.
 - a.
 VL/R
 b.
 L/V

 c.
 VxL
 d.
 V/L (mm/mtrs)

48.In 3 point lining method, slew is fed frompotentiometer

- a. versine b. slew
- c. General lift d. cant
- 49.In 3 point lining method, in a trasitioned curve having same transition length on both side, costant for versine of two points i.e. A (during straight to transition) & C(Circular to transition) is
 - a. Always different b. same
 - c. Same but opposite side d. None of these



50.In 3 point lining method, versine for section A can be calculated by the formula

- a. System constant for A/R b. System constant B/R
- c. operation constant value for d. None of these A/(RxL)

51. What is full form of LASER in the lining system of tamping machine

- a. Lavelling & Alignment by b. Long alignment by surveying of Service Engineer existing rail
- c. Light Amplification by d. None of these Stimulated Emission of Radiation

52. Which machines are equipped with Automatic Guiding Computer (ALC) for track geometry measurement and LASER Sighting System (LSS) for lining besides other features for design tamping

- a. Tamping expressb. UNO & old DUOc. UNI-3Sd. BCM
- 53. During survey by chord system, the lining errors are to be determined by measuring offsets at every intervals on chord on straight track
 - a. 10 m & 20 m b. 5 m & 20 m
 - c. 5 m & 40 m d. 10 m & 40 m
- 54. During survey by chord system, the lining errors are to be determined by measuring offsets at every intervals on chord on a curved track
 - a. 10 m & 20 m b. 5 m & 20 m
 - c. 5 m & 10 m d. None of these

55. The long-wave track geometry faults become significant with the in speed of trains.

- a. increase b. decrease
- c. constant
- 56.LASER lining is used on straight track in 3-point mode to remove
 - a. Long misalignment or false b. Short misalignment curve curve

d. None of these

c. Both a & b d. None of these

57.In ALC, measuring method is used when track data is

a. Known

c. Not depend on track data

58. During ALC measuring mode, track can measured by the tamping machine in

- a. Reverse direction only
- b. Working direction only
- c. Both direction
- d. None of these

b. Not known

d. None of these

59.While working in ALC measuring mode, checking of working order of is necessary before the start of the measuring run to avoid errors at the start of the measuring run, due to poor bogie alignment or incorrect pre-loading.

- a. The lining system only
- c. Both a & b

- b. The lifting system only
- d. None of these

60.In ALC working, the lining system has to be set to

- a. 4- point only b. 3-point only
- c. 3-point or 4- point d. None of these

61. Versine potentiometer converts versine value to electrical signal at the rate of(-ve for RH side and +ve for LH side).

- a. 25mv/mm b. 50 mv/mm
- c. 2 mv/mm d. 10 mv/mm

62.Before starting calibration of versine potentiometer, +10V & -10V to this potentiometer should be checked and adjusted by potentiometer P1 & P2

inPCB of front cabin

a.	EK 813SV	b.	EK 345
C.	EK 290	d.	EK 348

63.Slew potentiometer is provided in front cabin on panel

a. B4 b. B2 c. B3 d. B1

64.Slew potentiometer converts slew value to electrical signal at the rate of

 a. 50 mv/mm
 b. 25 mv/mm

 c. 2 mv/mm
 d. 10 mv/mm

65. Tamping Machine corrects the leveling error in mode/modes.



a. one

С.	three	d.	Four
66.In smo	oothening mode, general lift over	the	Base rail is generally
а.	fixed	b.	varies
С.	Fixed or varies	d.	None of these
67.In sm	oothening mode, Longitudinal	level	and Cross-level are corrected
······	completely	h	Not completly
а. С.	Cannot sav	d.	None of these
68.In Des over b	sign or Precision mode, base rail.	is f	ed by general lift potentiometer
а.	General lift	b.	Target height
С.	slew	d.	Versine
		. ,	
69.In Des	lign or Precision mode,	is/a	re removed
а.	Short waves defect only	b.	Long waves defect only
С.	Both a&b	d.	None of these
70.Gener ascert	al Lift should always be ained by P.Way supervisor in adv	thar ance	n the largest dip which shall be
a.	less	b.	more
С.	equal	d.	None of these
71.for sin	gle insertion, normal general lift	value	e should bein PSC sleeper
track			100
a.	50 mm	b.	100 mm
С.	20 mm	α.	30 mm
72.For d	ouble Insertion, general Lift va	lue	in PSC sleeper should exceed
	50 mm	h	100 mm
a. C	20 mm	d. d	30 mm
73.While	tamping, ramp in & ramp out	of	should be given to the
a.	1 in 1000	b.	1 in 100
u.			
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b. two



c. 1 in 360	d.	1 in 720
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74. If leveling offset is LR, distance between front tower to measuring tower is

"b" & measuring tower to rear tower is "a", then level error is

а.	LRxa/(a+b)	b.	LR/ab
C.	LRxa/b	d.	LRxb/a

75. Residual error ratio in lifting for UNO/DUO machine is

а.	1.33	b.	3	
C.	2.775	d.	3.326	

76. For carrying out attention to longitudinal profile of railway track, one rail is

kept as

- a. Base or datum rail
- c. Cess rail
- b. Cant rail d. Non cess rail

77. While selecting base rail on straight track in single line and middle track in multiple lines, is kept as Base Rail

- a. Non cess rail b. Lower/more disturbed track
- d. None of these c. Higher/less disturbed rail

78. Generally while selecting base rail on curved track......is kept as base rail.

- a. Non cess rail b. Lower rail
- c. Higher rail d. Any one

79. In Plasser Tampers, direction of Cant Selector Switch is to be always kept

- a. Same side b. Opposite to base rail
- Does not say d. None of these C.

80. In Russian Tamper,is provided for selecting Base Rail.

- a. Cant selecter switch
- b. Slew selecter switch

d. None of these

- c. Base selector switch
- 81.In DUOMATIC/UNOMATIC, superelevation is fed from
 - a. Working cabin b. Front cabin
 - c. Both cabin d. Any cabin



82. In levelling system, there are height transducers a. Two b. Three c. Four d. One 83.Longitudinal levels are measured byin levelling system b. General lift potentiometer a. pendulum c. Height transducer d. Cant potentiometer 84.In levelling system, front pendulam is used for correction ofautomatically a. Longitudinal level b. Cross level c. versine d. Twist 85. In levelling system, middle pendulam is used for a. Cross level correction b. Indication of cross level d. Twist c. Cannot say 86. The output of the rear pendulum serves functions in CSM b. 2 a. 1 c. 3 d. 4 87.Most important function of rear pendulam in Tamping Express is a. Cross level correction b. Longitudinal level correction d. Twist correction c. Versine correction 88. Recording of cross level is being done with the help of a. Front pendulum b. Measuring pendulum d. None of these c. Rear pendulum 89. In which machine, we can fed super elevation/cant in both the cabins a. UNO/DUO b. CSM d. UNIMAT c. Tamping Express 90. In CSM, superelevation potentiometer is provided in Cabin b. working a. front d. none of these c. both



91.Correction value can be calculated by	the formula
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- a. K= 100 x SE/R b. K=50 x SE/R
- c. K= 50 x SE/(R*L)
- d. None of these
- 92. Front pendulam used for sending signals in tamping machine for
 - a. versine b. Cross level
 - c. Cannot say d. Both a&b

93.....machines are used for twist correction.

- a. UNO & DUO
- c. CSM & Tamping Express
- 94. What is full form of GVA
 - a. General versine addition
 - c. Geo value access

95. What is full form of ALC

- a. Automatic logic control
- c. Automatic lining control

- b. Geometry value assesment
- d. None of these

b. UNI-2S & 3S

d. None of these

- b. Automatic guiding computer
- d. Automatic LASER Control

96.In ALC, there is mode for correction.

- a. one b. two
- c. three d. None of these

ANSWERS

1. C	2. C	3. a	4. b	5. d	6. a	7. b	8. d	9. a	10. C
11. b	12. C	13. C	14. b	15. a	16. C	17. b	18. b	19. a	20. b
21. b	22. C	23. d	24. b	25. b	26. a	27. C	28. a	29. b	30. a
31. a	32. C	33. C	34. C	35. a	36. C	37. b	38. b	39. a	40. a
41. b	42. b	43. a	44. C	45. C	46. a	47. d	48. b	49. C	50. C
51. C	52. a	53. C	54. a	55. a	56. C	57. b	58. C	59. C	60. b
61. b	62. a	63. a	64. a	65. b	66. a	67. b	68. b	69. C	70. b
71. d	72. d	73. a	74. a	75. d	76. a	77. C	78. b	79. b	80. C
81. b	82. a	83. C	84. b	85. b	86. C	87. d	88. C	89. C	90. b
91. b	92. b	93. C	94. b	95. b	96. C				

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