

## Bihar Public Service Commission

Assistant Engineer (Civil) Written (Objective) Competitive Examination (Advt. No. 07/2020)

**(Examination Date : 11.11.2022)**

### FINAL ANSWER KEY : Civil Engineering, Paper – V

Series-A		Series-B		Series-C		Series-D		Remarks
Question No.	Answer	Question No.	Answer	Question No.	Answer	Question No.	Answer	
1	C	14	D	31	A	39	B	
2	B	15	C	32	D	40	A	
3	B	16	C	33	D	41	A	
4	C	17	D	34	A	42	B	The Minimum strength of brick as per Bureau of Indian Standard (IS 1077-1992) should be 3.5 N/mm <sup>2</sup> .
5	C	18	D	35	A	43	B	No Change. Gypsum is added during the manufacture of cement before the final grinding for control of the "Setting of Cement"
6	B	19	C	36	D	44	A	
7	B	20	C	37	D	45	A	No Change. As per the calculation, the absolute bending movement in simply supported beam will be 375 kNM at-midpoint.
8	C	21	D	38	A	46	B	
9	B	22	A	39	B	47	A	
10	C	23	D	40	A	48	B	
11	A	24	B	41	C	49	D	
12	A	25	B	42	C	50	D	
13	C	26	C	43	C	1	C	
14	C	27	D	44	A	2	B	
15	B	28	C	45	D	3	A	The figure depicted in the question paper clearly shows that the number of zero force members will be three (03), based on the boundary condition.
16	C	29	D	46	A	4	B	No Change. The figure depicted in the question paper clearly shows that the degree of indeterminacy as per boundary condition of the frame will be ten (10).
17	C	30	D	47	A	5	B	
18	D	31	A	48	B	6	C	
19	B	32	C	49	D	7	A	
20	B	33	C	50	D	8	A	
21	B	34	C	1	A	9	B	
22	C	35	D	2	A	10	B	
23	D	36	A	3	B	11	C	
24	D	37	D	4	D	12	D	No Change. The shape factor for the symmetrical I section is 1.14 based on the calculation. (Ref... Limit State Design of Steel Structures by S. K. Duggal, page- 86-87).

Series-A		Series-B		Series-C		Series-D		Remarks
Question No.	Answer	Question No.	Answer	Question No.	Answer	Question No.	Answer	
25	C	38	D	5	A	13	B	
26	A	39	B	6	C	14	D	
27	C	40	D	7	A	15	B	
28	C	41	D	8	A	16	B	
29	Deleted	42	Deleted	9	Deleted	17	Deleted	No Change. Target mean compressive strength for M20 as per stipulation made in Bureau of Indian Standard (IS 456) is given by $T_g = f_{ck} + 1.65 \sigma = 20 + 1.65 \times 4 = 26.60$ Nmm <sup>2</sup> .
30	D	43	A	10	B	18	C	
31	B	44	C	11	D	19	A	
32	D	45	A	12	B	20	C	
33	B	46	C	13	D	21	A	
34	B	47	C	14	D	22	A	No Change. The effective length of the column as per stipulation made in Bureau of Indian Standard (IS 800-2007, page-44, table 11 ) would be 0.8L .
35	D	48	A	15	B	23	C	
36	A	49	B	16	C	24	D	
37	B	50	C	17	D	25	A	
38	Deleted	1	Deleted	18	Deleted	26	Deleted	
39	D	2	A	19	B	27	C	
40	B	3	C	20	D	28	A	
41	A	4	B	21	C	29	D	
42	B	5	C	22	D	30	A	
43	Deleted	6	Deleted	23	Deleted	31	Deleted	
44	B	7	C	24	D	32	A	No Change. The correct answer is liquid limit.
45	D	8	D	25	D	33	D	
46	B	9	C	26	D	34	A	
47	C	10	A	27	B	35	C	
48	Deleted	11	Deleted	28	Deleted	36	Deleted	
49	Deleted	12	Deleted	29	Deleted	37	Deleted	
50	A	13	B	30	C	38	D	