Bihar Public Service Commission

Lecturer, Written (Objective) Competitive Examination (Advt. No. 14/2020)

(Examination Date : 26.10.2022)

FINAL ANSWER KEY : Electrical Engineering

Series-A Question No.	Answer	Series-B Question No.	Answer	Series-C Question No.	Answer	Series-D Question No.	Answer	Remarks
1	A	7	B	19	C	25	D	No Change. Solution:- The auxiliary equation of the partial differential equation, in Lagrange's form, is given by $$\frac{dx}{x} = \frac{dy}{y} = \frac{dz}{-z}$$ Taking the 1st and 3rd ratios, we get $$\frac{dx}{x} + \frac{dz}{z} = 0$$ which on Integration gives $logx + logz = logc$ $\Rightarrow xz = c \ (constant)$ $\Rightarrow z = \frac{c}{x} = \frac{k_1+k_2}{x}$, where c= k_1 +k_2 equation (i) Now ,taking the 1st and the 2nd ratios $$\frac{dx}{x} = \frac{dy}{y}$$ Or, $\frac{dx}{x} - \frac{dy}{y} = 0$ On Integration, $logx - logy = \log c$ or, $log \frac{x}{y} = \log c$ $\Rightarrow \frac{x}{y} = c$ $\Rightarrow \frac{x}{y} = k_1 + k_2$ from (i) Now from (i) $z = \dfrac{k_{1+k_2}}{x}$ $$= \frac{1}{x}\left[f\left(\frac{x}{y}\right) + g\left(\frac{x}{y}\right)\right]$$ Hence, option (A) is correct.
2	Deleted	8	Deleted	20	Deleted	26	Deleted	
3	B	9	C	21	D	27	A	
4	A	10	B	22	C	28	D	
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Series-A		Series-B		Series-C		Series-D		Remarks
Question No.	Answer	Question No.	Answer	Question No.	Answer	Question No.	Answer	
6	C	12	D	24	A	30	B	
7	A	13	B	25	C	1	D	
8	A	14	B	26	C	2	D	
9	D	15	A	27	B	3	C	
10	Deleted	16	Deleted	28	Deleted	4	Deleted	
11	D	17	A	29	B	5	C	
12	A	18	B	30	C	6	D	
13	A	19	B	1	C	7	D	
14	C	20	D	2	A	8	B	
15	Deleted	21	Deleted	3	Deleted	9	Deleted	
16	B	22	C	4	D	10	A	
17	Deleted	23	Deleted	5	Deleted	11	Deleted	
18	A	24	B	6	C	12	D	
19	B	25	C	7	D	13	A	
20	C	26	D	8	A	14	B	
21	A	27	B	9	C	15	D	
22	C	28	D	10	A	16	B	
23	Deleted	29	Deleted	11	Deleted	17	Deleted	
24	Deleted	30	Deleted	12	Deleted	18	Deleted	
25	B	1	C	13	D	19	A	
26	C	2	D	14	A	20	B	
27	Deleted	3	Deleted	15	Deleted	21	Deleted	
28	Deleted	4	Deleted	16	Deleted	22	Deleted	
29	D	5	A	17	B	23	C	
30	C	6	D	18	A	24	B	
31	C	48	D	59	A	70	B	
32	A	49	B	60	C	71	D	
33	C	50	D	61	A	72	B	
34	B	51	C	62	D	73	A	
35	D	52	A	63	B	74	C	
36	C	53	A	64	B	75	C	
37	C	54	D	65	A	76	B	
38	D	55	A	66	B	77	C	
39	B	56	C	67	D	78	A	
40	C	57	D	68	A	79	B	
41	A	58	B	69	C	80	D	
42	Deleted	59	Deleted	70	Deleted	31	Deleted	
43	A	60	B	71	C	32	D	
44	A	61	B	72	C	33	D	
45	A	62	B	73	C	34	A	
46	D	63	A	74	B	35	C	
47	A	64	B	75	C	36	A	

Series-A		Series-B		Series-C		Series-D		Remarks
Question No.	Answer	Question No.	Answer	Question No.	Answer	Question No.	Answer	
48	C	65	D	76	A	37	B	No Change. Reason: In a three phase $\Delta-Y$ transformer, there is a phase shift of 30^0 between line voltages and currents between Δ and Y sides. However, the line voltages of the Y side lead the Δ side voltages by 30^0
49	D	66	A	77	B	38	C	
50	C	67	D	78	A	39	B	
51	B	68	C	79	D	40	A	
52	D	69	A	80	B	41	C	
53	C	70	D	31	A	42	B	
54	A	71	B	32	C	43	D	
55	A	72	B	33	C	44	D	
56	D	73	A	34	B	45	C	
57	C	74	D	35	A	46	B	
58	B	75	C	36	D	47	A	
59	C	76	D	37	A	48	B	
60	C	77	D	38	A	49	B	
61	A	78	B	39	C	50	D	
62	D	79	A	40	B	51	C	
63	B	80	C	41	A	52	B	
64	Deleted	31	Deleted	42	Deleted	53	Deleted	No Change. Reason: If there are multiple poles on the Y axis, there shall be either more than a pole at the origin or pairs of poles. If there are poles at the origin, the system is unstable. However, the pairs of poles on the Y axis, the system is marginally stable. Since the options have both, the question may be deleted.
65	A	32	B	43	C	54	D	
66	D	33	A	44	B	55	C	
67	B	34	C	45	D	56	A	
68	D	35	A	46	B	57	C	
69	A	36	B	47	C	58	D	No Change. In a CT, Ferrite core is preferred to avoid the ratio and phase angle errors
70	C	37	D	48	A	59	B	
71	A	38	B	49	C	60	D	
72	B	39	C	50	D	61	A	
73	Deleted	40	Deleted	51	Deleted	62	Deleted	No Change. Class B and Class AB amplifiers provide distortion in the output. Since the options have both the types, the question may be deleted.
74	C	41	D	52	A	63	B	
75	C	42	D	53	A	64	B	

Series-A		Series-B		Series-C		Series-D		Remarks
Question No.	Answer	Question No.	Answer	Question No.	Answer	Question No.	Answer	
76	C	43	D	54	A	65	B	
77	D	44	A	55	B	66	C	
78	B	45	C	56	D	67	A	
79	B	46	C	57	D	68	A	
80	Deleted	47	Deleted	58	Deleted	69	Deleted	