



VISOKA POSLOVNA ŠKOLA STRUKOVNIH STUDIJA ČAČAK

SEMINARSKI RAD

Upravljanje kvalitetom

Mentor: _____
Profesor: _____

Student: _____
Br.Indeksa: _____

ZADATAK

3. Tabela rezultata merenja $x = 18^{+0,080}_{-0,060} [mm]$

N	x	N	x	N	x	N	x	N	x
1	17,981	21	17,991	41	17,970	61	17,967	81	17,996
2	17,988	22	18,008	42	17,993	62	17,982	82	18,011
3	17,994	23	17,988	43	17,968	63	18,033	83	17,985
4	18,004	24	18,013	44	18,001	64	18,054	84	17,991
5	18,005	25	18,023	45	18,004	65	18,001	85	18,036
6	17,996	26	18,015	46	18,023	66	17,975	86	17,987
7	18,003	27	18,008	47	17,961	67	18,001	87	17,985
8	17,987	28	17,998	48	17,973	68	17,975	88	18,033
9	17,991	29	17,996	49	18,011	69	18,007	89	18,028
10	17,994	30	18,002	50	18,033	70	18,009	90	18,005
11	18,003	31	17,979	51	18,023	71	18,017	91	17,999
12	18,000	32	17,964	52	18,016	72	17,980	92	18,004
13	17,991	33	17,996	53	18,010	73	18,011	93	18,008
14	17,995	34	18,003	54	17,899	74	18,027	94	18,001
15	17,994	35	18,000	55	18,089	75	18,080	95	17,994
16	18,001	36	17,979	56	17,993	76	18,003	96	18,023
17	18,003	37	17,964	57	18,015	77	17,980	97	18,004
18	18,019	38	17,945	58	17,951	78	18,018	98	17,993
19	17,967	39	18,000	59	17,978	79	18,099	99	17,987
20	17,975	40	17,988	60	17,999	80	17,899	100	18,081

n = 4

M = 1600

n_t = 30

REŠENJE

1) Sredeni podaci statističkog skupa

i	x_i	i	x_i	i	x_i	i	x_i	i	x_i
1	17,899	21	17,981	41	17,994	61	18,003	81	18,015
2	17,899	22	17,982	42	17,995	62	18,003	82	18,016
3	17,945	23	17,985	43	17,996	63	18,003	83	18,017
4	17,951	24	17,985	44	17,996	64	18,004	84	18,018
5	17,961	25	17,987	45	17,996	65	18,004	85	18,019
6	17,964	26	17,987	46	17,996	66	18,004	86	18,023
7	17,964	27	17,987	47	17,998	67	18,004	87	18,023
8	17,967	28	17,988	48	17,999	68	18,005	88	18,023
9	17,967	29	17,988	49	17,999	69	18,005	89	18,023
10	17,968	30	17,988	50	18,000	70	18,007	90	18,027
11	17,970	31	17,991	51	18,000	71	18,008	91	18,028
12	17,973	32	17,991	52	18,000	72	18,008	92	18,033
13	17,975	33	17,991	53	18,001	73	18,008	93	18,033
14	17,975	34	17,991	54	18,001	74	18,009	94	18,033
15	17,975	35	17,993	55	18,001	75	18,010	95	18,036
16	17,978	36	17,993	56	18,001	76	18,011	96	18,054
17	17,979	37	17,993	57	18,001	77	18,011	97	18,080
18	17,979	38	17,994	58	18,002	78	18,011	98	18,081
19	17,980	39	17,994	59	18,003	79	18,013	99	18,089
20	17,980	40	17,994	60	18,003	80	18,015	100	18,099

- Ukupan broj komada koje treba kontrolisati: $N_k = \sqrt{n \cdot m} = \sqrt{4 \cdot 1600} = 80$

- Broj potrebnih uzoraka: $k = \frac{N_k}{n} = \frac{80}{4} = 20$

- Učestanost uzimanja uzoraka: $m_t = \frac{N_k}{n_t} = \frac{80}{30} = 2,66h \approx 160 \text{ min}$

- Učestanost uzimanja uzoraka po jednom kom.: $m_t' = \frac{m_t}{n} = \frac{160}{4} = 40 \text{ min}$

2) Grupna (intervalna) raspodela podataka

Broj grupnih intervala k je : $k \approx \sqrt{N} = \sqrt{80} \approx 9$

Raspon statističkog skupa R je :

$$R = x_{\max} - x_{\min} = 18,015 - 17,899 = 0,116 \approx 0,12 \text{ [mm]}$$

Dužina grupnog intervala d je : $d = \frac{R}{k} = \frac{0,116}{9} \approx 0,013 \text{ [mm]}$

i	Grupni razmak			m_i	m_{ki}	w_i	w_{ki}
	q_{i-1}	x_{si}	q_i				
1	17,899	17,905	17,911	2	2	0,025	0,025
2	17,912	17,918	17,924	0	2	0,000	0,025
3	17,925	17,931	17,937	0	2	0,000	0,025
4	17,938	17,944	17,950	1	3	0,013	0,038
5	17,951	17,957	17,963	2	5	0,025	0,063
6	17,964	17,970	17,976	10	15	0,125	0,188
7	17,977	17,983	17,989	15	30	0,188	0,375
8	17,990	17,996	18,002	27	57	0,338	0,713
9	18,003	18,009	18,015	23	80	0,288	1,000
				80			

3) Poligoni i histogrami raspodele apsolutnih i relativnih učestalosti, kao i kumulativnih apsolutnih i relativnih učestalosti

4) Aritmetička sredina, moda, medijana, standardna devijacija i koeficijenti asimetrije i spljoštenosti

i	x_i	m_i	$b_i = \frac{x_i - a}{d}$	$b_i m_i$	$b_i^2 m_i$
1	17,905	2	-7	-14	98
2	17,918	0	-6	0	0
3	17,931	0	-5	0	0
4	17,944	1	-4	-4	16
5	17,957	2	-3	-6	18
6	17,970	10	-2	-20	40
7	17,983	15	-1	-15	15
8	17,996	27	0	0	0
9	18,009	23	1	23	23
Σ		80	-27	-36	210

Aritmetička sredina:

$$\bar{x} = a + \frac{d}{N} \sum_1^k b_i m_i = 17,996 + \frac{0,013}{80} (-36) = 18,002 \text{ [mm]}$$

Standardna devijacija :

$$\sigma = d \sqrt{\frac{1}{N} \sum_1^k b_i^2 m_i - \left(\frac{1}{N} \sum_1^k b_i m_i \right)^2} = 0,013 \cdot \sqrt{\left[\frac{210}{80} - \left(\frac{-36}{80} \right)^2 \right]} = 0,020 \text{ [mm]}$$

Moda :

$$M_o = q_{Mo-1} + d \frac{m_{Mo} - m_{Mo-1}}{(m_{Mo} - m_{Mo-1}) + (m_{Mo-1} - m_{Mo+1})}$$

$$M_o = 17,990 + 0,013 \cdot \frac{27 - 15}{(27 - 15) + (15 - 23)} = 18,029 \text{ [mm]}$$

Medijana :

$$M_e = q_{Mo-1} + d \frac{\frac{N}{2} - m_{kMe-1}}{m_{Me}} = 17,990 + 0,013 \cdot \frac{40 - 30}{27} = 17,994_{[mm]}$$

Gotovi seminarski, maturski, maturalni i diplomski radovi iz raznih oblasti, lektire , puškice, tutorijali, referati - specijalizovan tim za usluge visokokvalitetnog pisanja, istraživanja i obradu teksta za kompletan region Balkana.

Posetite nas na sajtovima ispod:

WWW.MATURSKIRADOVI.NET

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Dostupni smo Vam 24h 365 dana u godini.

Za gotove verzije rada obratiti se na mail:

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Seminarski, diplomski, maturski radovi, prevodi na engleski i eseji...