**O‘ZBEKISTON RESPUBLIKASI OLIY TAʼLIM, FAN VA INNOVATSIYALAR VAZIRLIGI**

**MUHAMMAD AL-XORAZMIY NOMIDAGI TOSHKENT AXBOROT TEXNOLOGIYALARI UNIVERSITETI**

**Radio va mobil aloqa fakulteti**

**Teleradioeshittirish tizimlari kafedrasi**

**VIDEO MA’LUMOTLARGA RAQAMLI ISHLOV BERISH FANIDAN**

**7 SEMESTR YAKUNIY NAZORAT SAVOLLARI.**

**Yakuniy nazoratda har bir talaba uchun 3 tadan savol berish rejalashtirilgan hamda quyida har bir savol bo‘yicha topshiriqlar bloklarga ajratilgan.**

**I blok savollari**

1. Tasvir, fotosur’at va rasm nima?
2. Raqamli tasvirga ishlov berish nima?
3. Tasvirga ishlov berish qamrovi qanday?
4. Yorug’lik va rang nima?
5. Yo'qotishli tasvir formatlari
6. JPEG/JPG fayl formati
7. GIF (Graphics Interchange Format ) fayl formati
8. PNG (Portable Network Graphics) fayl formati
9. TIFF/TIF (Tagged Image File Format) fayl formati
10. RAW fayl formati
11. PSD fayl formati
12. PDF (Portable Document Format) fayl formati
13. EPS – (Encapsulated PostScript) fayl formati
14. SVG – (Scalable Vector Graphics) fayl formati
15. AI – (Adobe Illustrator) fayl formati
16. Video nima?
17. Kadr tezligi nima?
18. Videoning tomonlar nisbati
19. Bitrate nima?
20. Resolution nima?
21. H.264/AVC (Advanced Video Coding)
22. H.265/HEVC (High-Efficiency Video Coding)
23. AV1
24. VP9
25. H.266/VVC (Versatile Video Coding)
26. Kadrlarda mantiqiy amallar bajarish: Inkor (NOT)
27. Kadrlarda mantiqiy amallar bajarish: Yoki (OR)
28. Kadrlarda mantiqiy amallar bajarish: Va (AND)
29. Kadrlarda mantiqiy amallar bajarish: Ikkilik asosga ko’ra qo’shish (XOR)
30. Ma'lumotlarni Normallashtirishda Binarlash
31. Ma'lumotlarni Sinflashda Binarlash
32. Ma'lumotlarni Siqishda Binarlash
33. Binarlash Asosiy Atamalari
34. Sinf ichidagi farq
35. Sinflararo farqni
36. Moslashuvchan o'rtacha chegara
37. Moslashuvchan Gauss chegarasi
38. Qirralarni aniqlash algoritmlarining maqsadi
39. Diskret Box Blurring (Quti Xiralashtirish) hamda uni qo’llashdan maqsad?
40. Diskret Gauss Blur hamda uni qo’llashdan maqsad?
41. Piksel intensivligini
42. Juda yorqin va Juda qorong‘i tasvirlar
43. Semantik Segmentatsiya
44. Namuna Segmentatsiya
45. Panoptik Segmentatsiya
46. Qirra Segmentatsiya (Edge-Based Segmentation)
47. Chegaraviy Segmentatsiya (Threshold-Based Segmentation)
48. Maydon Segmentatsiya (Region-Based Segmentation)
49. Klaster Segmentatsiya (Cluster-Based Segmentation)
50. Havza Segmentatsiya(Watershed Segmentation)

**II blok savollari**

1. Tasvirni qayta ishlash ilovalari
2. Tasvirga ishlov berish amallari qanday?
3. Rang modellari
4. Grafik fayl formatlari
5. Rastr fayl formatlari
6. Vektor fayl formatlari
7. Kodeklar
8. Konteynerlar
9. Kadrlarda arifmetik Qo’shish
10. Kadrlarda arifmetik Ayirish
11. Kadrlarda arifmetik Ko'paytirish va Bo'lish
12. Arifmetik amallarni birlashtirish
13. Tasvirni binarlashtirish (Image Binarization)
14. Binarlash sabablari?
15. Binarizatsiya turlari
16. Binarizatsiya ilovalari
17. Binarizatsiyaning afzalliklari va kamchiliklari
18. Global Chegaralash nima?
19. Global Chegaralash turlari?
20. Otsu usuli qanday?
21. Mahalliy Chegaralash nima?
22. Xususiyatlarni ajratib olish
23. Tasvir qirralarini aniqlash operatorlari
24. Konturni aniqlash
25. Tasvir qirralarini aniqlashning gradient usuli
26. Tasvir qirralarini aniqlashning Gauss usuli
27. Qirralarni aniqlash (EDGE DETECTION)
28. Qirrani Aniqlash Mohiyati
29. Tasvir intensivligi funksiyasi
30. Qirrani Aniqlashda birinchi va ikkinchi darajali hosila
31. Kernel nima?
32. Gauss Kerneli?
33. Birinchi darajali hosila orqali qirrani aniqlash
34. Qirrani aniqlashda Gradient (HOSILA)
35. Qirrani aniqlashda bitta va ikkita chegara qiymati?
36. Qirralarni aniqlash muammosi va vertical qirrani aniqlash jarayoni?
37. Vertical va Gorizontal qirralarni aniqlash va birlashtirish?
38. Qirralarni aniqlashda xiralashtirish maqsadi va usullari?
39. Tasvir Gistogrammasi
40. Tasvirni segmentlash uchun gistogramma
41. Fotografiyada histogrammalar
42. RGB Gistogramma
43. Tasvir segmentatsiyasi nima?
44. Obyektni aniqlash va ilovalari?
45. Tasvir segmentatsiyasi qanday ishlaydi?
46. Yangi segmentatsiya usullari
47. Tasvir Segmentatsiyasi Turlari
48. Tasvirni segmentlash usullari

**III blok savollari**

1. . X = 238 166 31; 86 138 28; 44 98 17; Y = 99 90 208; 243 109 217;148 44 165

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 77 224 191;161 166 62; 56 49 99; Y = 10 225 230; 45 195 140; 25 110 80

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 82 37 120;218 142 187;160 246 190; Y = 95 159 11;214 173 83;228 212 124

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 51 223 90; 31 28 25;127 14 233; Y = 15 120 172; 0 206 143;116 96 241

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 15 120 172; 0 206 143;116 96 241; Y = 146 66 26;150 198 56; 11 132 12

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 146 66 26;150 198 56; 11 132 12; Y = 229 132 255;106 255 244;176 215 97

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 229 132 255;106 255 244;176 215 97; Y = 72 12 96;196 247 24; 95 56 235

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 72 12 96;196 247 24; 95 56 235; Y = 165 170 34;193 19 198; 54 215 228

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 165 170 34;193 19 198; 54 215 228; Y = 50 232 77; 57 104 105;112 37 146

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 50 232 77; 57 104 105;112 37 146; Y = 233 41 207; 95 156 3;217 110 181

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = ([233 41 207; 95 156 3;217 110 181]); Y = ([31 153 131;221 109 61; 74 212 2]);

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = ([31 153 131;221 109 61; 74 212 2]); Y = ([138 241 160; 85 40 93; 79 186 251]);

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = ([138 241 160; 85 40 93; 79 186 251]); Y = ([90 113 230; 81 28 195;252 239 16]);

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = ([90 113 230; 81 28 195;252 239 16]); Y = ([101 16 204; 67 95 98; 68 63 127]);

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = ([101 16 204; 67 95 98; 68 63 127]); Y = ([250 68 75; 15 77 93;157 100 251]);

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 250 68 75; 15 77 93;157 100 251; Y = 0 74 180;196 214 18; 30 110 248

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 0 74 180;196 214 18; 30 110 248; Y = 84 134 230; 22 94 218;235 17 63

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 84 134 230; 22 94 218;235 17 63; Y = 84 130 165;178 135 159; 45 169 84

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X =84 130 165;178 135 159; 45 169 84; Y = 156 148 126; 1 57 171; 244 116 204

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 156 148 126; 1 57 171; 244 116 204; Y = 54 82 128;252 129 207;253 254 19

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 54 82 128;252 129 207;253 254 19; Y = 190 254 198; 90 175 203; 83 154 18

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 190 254 198; 90 175 203; 83 154 18; Y = 4 10 112;75 38 32;74 112 37

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 4 10 112;75 38 32;74 112 37; Y = 242 92 40; 209 152 147; 14 77 185

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 242 92 40; 209 152 147; 14 77 185; Y = 120 124 30; 38 79 201; 207 71 122

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 120 124 30; 38 79 201; 207 71 122; Y = 73 78 161; 233 29 226; 159 143 241

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 73 78 161; 233 29 226; 159 143 241; Y = 46 73 113; 143 213 167; 186 162 238

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 46 73 113; 143 213 167; 186 162 238; Y = 253 166 158; 191 127 68; 1 198 115

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 253 166 158; 191 127 68; 1 198 115; Y = 204 165 121; 122 108 34; 114 76 64

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 204 165 121; 122 108 34; 114 76 64; Y = 168 149 32; 255 218 150; 150 232 19

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 168 149 32; 255 218 150; 150 232 19; Y = 149 109 110; 145 95 190; 158 208 131

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 149 109 110; 145 95 190; 158 208 131; Y = 215 9 111; 70 60 110; 153 231 104

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 215 9 111; 70 60 110; 153 231 104; Y = 73 201 120; 90 11 161; 165 172 112

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 73 201 120; 90 11 161; 165 172 112; Y = 102 37 239; 224 237 24; 21 163 47

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 102 37 239; 224 237 24; 21 163 47; Y = 140 209 79; 94 248 101; 175 10 223

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

1. X = 140 209 79; 94 248 101; 175 10 223; Y = 185 182 232; 94 49 7; 172 19 192

uint8(X+Y, X-Y, Y-X, |X-Y|) hisoblab, MATLAB kodini keltiring

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