Question 1

Source code:

```
#include <stdio.h>

int main()
{
  FILE *fp = fopen("no.txt", "r");
  int ch = getc(fp);
  while (ch != EOF)
  {
    /* display contents of file on screen */
    putchar(ch);

    ch = getc(fp);
  }

  if (feof(fp))
     printf("End of file.\n");
  else
     printf("ERROR\n");
  fclose(fp);

  getchar();
  return 0;
}
```

Output:

```
1.ugyen
2.thinley
3.pema
4.zamu
5.tashi
6.sonam
7.yangzom
8.lhamo
9.leo
10.mak
11.lilly
12.zule
13.yanchen
14.dorji
15.karma
16.tenzin
17.tshering
18.yeshi
19.choden
20.pem

End of file.
```

Question 2

Source code:

```
#include <stdio.h>
int main( )
{
FILE *fp ;
char path[100];
char ch;
printf("Enter the file path: ");
scanf("%s",path);
fp = fopen ( path, "r" ) ;

while ( 1 ){
        ch = fgetc ( fp ) ;
        if ( ch == EOF )
                break ;
        printf ( "%c", ch ) ;
}
printf ( "\n" ) ;
fclose ( fp ) ;
}
```

Output:

```
Enter the file path: /home/user/Desktop/Ugyen_Lhamo/C/lab-11/empty.txt
my name is ugyen lhamo
I am from zgang
currently I am in gyalpozhing college...
```

Question 3

Source code:

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   FILE * file;
   char path[100];

   char ch;
   int characters, words, lines;


   /* Input path of files to merge to third file */
   printf("Enter source file path: ");// /home/user/Desktop/Ugyen_Lhamo/C/lab-11/no.txt
   scanf("%s", path);

   /* Open source files in 'r' mode */
   file = fopen(path, "r");


   /* Check if file opened successfully */
   if (file == NULL)
   {
      printf("\nUnable to open file.\n");
      printf("Please check if file exists and you have read privilege.\n");

      exit(EXIT_FAILURE);
   }

   /*
    * Logic to count characters, words and lines.
    */
   characters = words = lines = 0;
   while ((ch = fgetc(file)) != EOF)
   {
      characters++;

      /* Check new line */
      if (ch == '\n' || ch == '\0')
         lines++;

      /* Check words */
      if (ch == ' ' || ch == '\t' || ch == '\n' || ch == '\0')
         words++;
   }

   /* Increment words and lines for last word */
```

```
    if (characters > 0)
    {
        words++;
        lines++;
    }

    /* Print file statistics */
    printf("\n");
    printf("Total characters = %d\n", characters);
    printf("Total words      = %d\n", words);
    printf("Total lines      = %d\n", lines);


    /* Close files to release resources */
    fclose(file);

    return 0;
}
```

Output:

Enter source file path: /home/user/Desktop/Ugyen_Lhamo/C/lab-11/no.txt

Total characters = 174
Total words   = 22
Total lines   = 22

Question 4

Source code:

```
// C program to show contents of a file with breaks
#include <stdio.h>

// This function displays a given file with breaks of
// given line numbers.
void show(char *fname, int n)
{
	// Open given file
	FILE *fp = fopen("empty.txt", "r");
	int curr_lines = 0, ch;

	// If not able to open file
	if (fp == NULL)
	{
		printf("File doesn't exist\n");
		return;
	}

	// Read contents of file
	while ((ch = fgetc(fp)) != EOF)
	{
		// print current character
		putchar(ch);

		// If current character is a new line character,
		// then increment count of current lines
		if (ch == '\n')
		{
			curr_lines++;

			// If count of current lines reaches limit, then
			// wait for user to enter a key
			if (curr_lines == n)
			{
				curr_lines = 0;
				getchar();
			}
		}
	}

	fclose(fp);
}

// Driver program to test above function
int main()
{
	char fname[] = "empty.txt";
```

```
        int n = 4;
        show(fname, n);
        return 0;
}
```

Output:

```
my name is ugyen lhamo
I am from zgang
currently I am in gyalpozhing college...
I love my country

Every flower must grow thourgh dust
feelings without feeling is not an emotion ya
see ya bye…
```

Question 5

Source code:

```
#include <stdio.h>
#include <stdlib.h>

/* Function declaration */
int compareFile(FILE * fPtr1, FILE * fPtr2, int * line, int * col);


int main()
{
   /* File pointer to hold reference of input file */
   FILE * fPtr1;
   FILE * fPtr2;
   char path1[100];
   char path2[100];

   int diff;
   int line, col;


   /* Input path of files to compare */
   printf("Enter path of first file: ");
   scanf("%s", path1);
   printf("Enter path of second file: ");
   scanf("%s", path2);


   /*  Open all files to compare */
   fPtr1 = fopen(path1, "r");
   fPtr2 = fopen(path2, "r");

   /* fopen() return NULL if unable to open file in given mode. */
   if (fPtr1 == NULL || fPtr2 == NULL)
   {
      /* Unable to open file hence exit */
      printf("\nUnable to open file.\n");
      printf("Please check whether file exists and you have read privilege.\n");
      exit(EXIT_FAILURE);
   }


   /* Call function to compare file */
   diff = compareFile(fPtr1, fPtr2, &line, &col);

   if (diff == 0)
   {
      printf("\nBoth files are equal.");
   }
```

```
    else
    {
        printf("\nFiles are not equal.\n");
        printf("Line: %d, col: %d\n", line, col);
    }


    /* Finally close files to release resources */
    fclose(fPtr1);
    fclose(fPtr2);

    return 0;
}


/**
 * Function to compare two files.
 * Returns 0 if both files are equivalent, otherwise returns
 * -1 and sets line and col where both file differ.
 */
int compareFile(FILE * fPtr1, FILE * fPtr2, int * line, int * col)
{
    char ch1, ch2;

    *line = 1;
    *col  = 0;

    do
    {
        // Input character from both files
        ch1 = fgetc(fPtr1);
        ch2 = fgetc(fPtr2);

        // Increment line
        if (ch1 == '\n')
        {
            *line += 1;
            *col = 0;
        }

        // If characters are not same then return -1
        if (ch1 != ch2)
            return -1;

        *col  += 1;

    } while (ch1 != EOF && ch2 != EOF);


    /* If both files have reached end */
    if (ch1 == EOF && ch2 == EOF)
        return 0;
```

```
    else
        return -1;
}
```

Output:

```
Enter path of first file: /home/user/Desktop/Ugyen_Lhamo/C/lab-11/no.txt
Enter path of second file: /home/user/Desktop/Ugyen_Lhamo/C/lab-11/empty.txt

Files are not equal.
Line: 1, col: 0
```