

UNIVERSITY OF MYSORE

Postgraduate Entrance Examination June/July 2017



SUBJECT CODE : **57**

QUESTION BOOKLET NO.

Entrance Reg. No.					

118981

QUESTION BOOKLET

(Read carefully the instructions given in the Question Booklet)

COURSE : **M.Sc.**

SUBJECT : **Computer Science**

MAXIMUM MARKS : 50

MAXIMUM TIME : ONE HOUR

(Including initial 10 minutes for filling O.M.R. Answer sheet)

INSTRUCTIONS TO THE CANDIDATES

1. The sealed questions booklet containing 50 questions enclosed with O.M.R. Answer Sheet is given to you.
2. Verify whether the given question booklet is of the same subject which you have opted for examination.
3. Open the question paper seal carefully and take out the enclosed O.M.R. Answer Sheet outside the question booklet and fill up the general information in the O.M.R. Answer sheet. If you fail to fill up the details in the form of alphabet and signs as instructed, you will be personally responsible for consequences arising during scoring of your Answer Sheet.
4. During the examination:
 - a) Read each question carefully.
 - b) Determine the Most appropriate/correct answer from the four available choices given under each question.
 - c) Completely darken the relevant circle against the Question in the O.M.R. Answer Sheet. For example, in the question paper if "C" is correct answer for Question No.8, then darken against Sl. No.8 of O.M.R. Answer Sheet using Blue/Black Ball Point Pen as follows:

Question No. 8. (A) (B) (C) (D) (Only example) (Use Ball Pen only)

5. Rough work should be done only on the blank space provided in the Question Booklet. Rough work should not be done on the O.M.R. Answer Sheet.
6. If more than one circle is darkened for a given question, such answer is treated as wrong and no mark will be given. See the example in the O.M.R. Sheet.
7. The candidate and the Room Supervisor should sign in the O.M.R. Sheet at the specified place.
8. Candidate should return the original O.M.R. Answer Sheet and the university copy to the Room Supervisor after the examination.
9. Candidate can carry the question booklet and the candidate copy of the O.M.R. Sheet.
10. The calculator, pager and mobile phone are not allowed inside the examination hall.
11. **If a candidate is found committing malpractice, such a candidate shall not be considered for admission to the course and action against such candidate will be taken as per rules.**

INSTRUCTIONS TO FILL UP THE O.M.R. SHEET

1. There is only one most appropriate/correct answer for each question.
2. For each question, only one circle must be darkened with BLUE or BLACK ball point pen only. Do not try to alter it.
3. Circle should be darkened completely so that the alphabet inside it is not visible.
4. Do not make any stray marks on O.M.R. Sheet.

ಗಮನಿಸಿ : ಸೂಚನೆಗಳ ಕನ್ನಡ ಆವೃತ್ತಿಯು ಈ ಪುಸ್ತಕದ ಹಿಂಭಾಗದಲ್ಲಿ ಮುದ್ರಿಸಲ್ಪಟ್ಟಿದೆ.

- 1) A CPU's processing power is calculated in:
 - a) IPS
 - b) CIPS
 - c) MIPS/BIPS/TIPS
 - d) Nano seconds

- 2) Who is credited with the technique of using punch cards to control patterns in a weaving machine?
 - a) Blaise Pascal
 - b) Jackquard
 - c) Herman Hollerith
 - d) Both Jackquard and Herman Hollerith

- 3) Which device is called as Silico sapiens?
 - a) Hardware
 - b) VDU +CPU
 - c) CU+MU+VDU
 - d) Computer.

- 4) EBCDIC can code up to how many different characters?
 - a) 255
 - b) 254
 - c) 256
 - d) 257

- 5) The nibble is called
 - a) $\frac{1}{2}$ byte(4 bits)
 - b) $\frac{1}{4}$ byte(2 bits)
 - c) $\frac{3}{4}$ byte (6 bits)
 - d) 1 byte (8bits)

- 11) What is the minimal form of the karnaugh map shown below? Assume that X specifies a don't care term.

cd \ ab	00	01	11	10
00	1	X	X	1
01	X			1
11				
10	1			X

- a) $\bar{b}\bar{d}$
b) $\bar{b}\bar{d} + \bar{b}\bar{c}$
c) $\bar{b}\bar{d} + a\bar{b}\bar{c}d$
d) $\bar{b}\bar{d} + \bar{b}\bar{c} + \bar{c}\bar{d}$
- 12) An example of a universal building block is:
a) EX-OR gate
b) NAND and NOR Gates
c) AND gate
d) OR gate.
- 13) The minimum number of D flip-flops required to design a mod-258 counter is
a) 512
b) 513
c) 9
d) 511
- 14) The number of full and half adders necessary to add 16-bit numbers is:
a) 8-half adders and 8-full adders.
b) 16-half adder and 0-full adders.
c) 1-half and 15-full adders.
d) 4-half adders and 12-full adders.

15) The total number of don't care input lines in Binary Coded Decimal (BCD) adder is:

a) 312

b) 313

c) 314

d) 315

16) What does the following code do?

```
int x,y;
```

```
x=x^y;
```

```
y=x^y;
```

```
x=x^y;
```

a) Leaves x and y unchanged.

b) Doubles x and stores in y.

c) Doubles y and stores in x.

d) Swaps x and y.

17) What does the following piece of C program print

```
char hj[]="NEET2017";
```

```
char *a=hj;
```

```
printf("%s", a+a[3] — a [1]);
```

a) NEET2017

b) T2017

c) 017

d) 2017

- 18) After shifting n bits right by using right shift operator in "C" language, the left most n bits are:
- a) Are always filled with zeroes.
 - b) Are always filled with ones.
 - c) Are filled with zeroes or ones and is machine dependent
 - d) None of the above.
- 19) What is the output of the following C code
- ```
for(int i=1; i<=5; i=i+1/2) printf("%d",i);
```
- a) it prints 1,1.5,2,2.5,3,3.5,4,4.5,5 and stops.
  - b) it prints 1,2,3,4,5 and stops.
  - c) it prints 1, 2,3,4,5 and repeats forever.
  - d) it prints 1,1,1,1,1 and repeats forever.
- 20) Assume that string 1 and string2 are properly defined and formatted strings. Which one of the following statements identifies the content of string 1 is similar to the content of string2.
- a) `if(strcmp(string1,string2)>0)`
  - b) `if(strcmp(string1,string2)==0)`
  - c) `if(string1==string2)`
  - d) `if(string1=string2).`
- 21) The alias name for an array is:
- a) Variable of Index
  - b) Index Variable or Subscripted Variable
  - c) Variable of Subscript
  - d) None of the above

22) Let us consider the following 'C' programs and calculate the size of structure and union

```
void main()
{
 struct hj
 {
 int a;
 char b;
 double d;
 printf("%d",sizeof(struct hj));
 }
}
```

```
void main()
{
 union adarsha
 {
 int a;
 char b;
 double d;
 }
 printf("%d",sizeof(union adarsha));
}
```

- a) The size of struct is 11 bytes and union is 11 bytes.
- b) The size of struct is 11 bytes and union is 8 bytes.
- c) The size of struct is 8 bytes and union is 8 bytes
- d) The size of struct is 8 bytes and union is 11 bytes.

23) In C,if you pass an array as an argument to a function,what actually gets passed?

- a) Value of elements in array
- b) First element of the array
- c) Base address of the array
- d) Address of the last element of array.

- 24) Which of the following function is used to free the allocated memory?
- a) `remove (var-name);`
  - b) `free(var-name);`
  - c) `delete(var-name):`
  - d) `dalloc(var-name);`
- 25) `ftell()` is used to
- a) Repositions the file pointer to end of a file
  - b) Repositions the file pointer to the beginning of a file
  - c) Return the current position of the file pointer.
  - d) Provide the name of the file.
- 26) Which of the following is mainly essential to transform an infix expression successfully into a post fix expression:
- a) Stack Operator
  - b) Stack Operand
  - c) Parse tree and Lexical tree
  - d) Stack operator.stack operand.parse tree,lexical tree.
- 27) Linked List is not a suitable primitive data structure to implement the concept of Binary Search because its time complexity is:
- a)  $O(n^2)$
  - b)  $O(n \log n)$
  - c)  $O(n)$
  - d)  $O(\log n)$



28) How many comparisons are necessary to sort an array of length 5 if a straight selection sort is used and array is already sorted in the opposite order.

- a) 0
- b) 1
- c) 10
- d) 20

29) Consider a Merge Sort Algorithm which is used to sort a following collection of elements in an increasing order 20,47,15,8,9,4,40,30,12,17. The sequence of all these elements after the completion of second pass is specified as follows

- a) 8,9,15,20,47,4,12,17,30,40.
- b) 9,15,20,20,47,4,9,30,40,12,17.
- c) 4,8,9,15,20,47,12,17,30,40.
- d) 15,20,47,4,8,9,12,30,40,17.

30) The depth of complete binary tree is given by

- a)  $D_n = n \log_2 n$
- b)  $D_n = n \log_2 n + 1$
- c)  $D_n = \log_2 n$
- d)  $D_n = \log_2 n + 1$

31) Identify the correct statement from the following choices with respect to C++ language

- a) C++ supports only Inline constructors but not inline functions.
- b) C++ supports inline functions but not an inline constructors.
- c) C++ supports both inline functions as well as inline constructors.
- d) None of the above.

32) What will be the size of an empty class in C++.

- a) 0Byte.
- b) 1 Byte.
- c) 2 Bytes.
- d) 3 Bytes.

- 33) Protected data member in C++ is a sequence of
- a) (50% Private +50% Protected).
  - b) (25% Protected +75% Public).
  - c) (50% Public+ 50% Private).
  - d) (75% Protected+25% Private).
- 34) Identify the correct statement from the following choices.
- a) At the time of Objects creation and destruction Constructor acts as a LIFO and Destructor acts as FIFO.
  - b) At the time of Objects creation and destruction Constructor acts as FIFO where as Destructor acts as a LIFO,
  - c) Both (a) & (b)
  - d) None of the above.
- 35) Which of the following operators in C++ cannot be overloaded by using a friend function
- a) +,-,\*, /, %
  - b) ++,- -
  - c) =, (), [], ->
  - d) new,delete.
- 36) What is the output of the following program?
- ```
public class Hj
{
public static void main (String [] args)
{
private static final int value=5;
float total;
total=value + value/2;
System.out.println(total);
}
}
```
- a) 7.5
 - b) 7.0
 - c) 5.0
 - d) None of the above

37) What is the Output of the following code:

```
int m=100;
while(true)
{
    if(m<10)
        continue;
    m=m-10;
}
System.out.println("m is " + m);
```

- a) 1
- b) 100
- c) 90
- d) infinite loop

38) The methods wait () and notify() are defined in

- a) java.lang.String
- b) java.langRunnable
- c) java.lang.Object
- d) Java.lang.ThreadGroup

39) What is the error in the following class definition?

```
abstract class XY
{
    abstract sum (int x int y) { }
}
```

- a) Class header is not defined properly
- b) Constructor is not defined
- c) Method is not defined properly
- d) No error

40) Which of the following types of comments is supported by the Java language?

- a) Single,multiple,and quote
- b) block,line and javadoc
- c) Javadoc, literal and string
- d) Javadoc, char and string.

41) Let us Consider the following table of arrival time and burst time for the three processes P0,P1 and P2.

Process	Arrival Time	Burst Time
P0	0ms	9ms
P1	1 ms	4ms
P2	2 ms	9ms

The pre-emptive shortest job first Scheduling algorithm is used.Scheduling is carried out only at arrival or completion of processes.What is the average waiting time for the three processes?

- a) 4.33ms
- b) 5.0ms
- c) 6.33ms
- d) 7.33ms

42) A Critical Section is a Program segment:

- a) Which avoids deadlocks.
- b) Where shared resources are accessed.
- c) Which must be enclosed by a pair of semaphore operations P, and V.
- d) Which should run in a certain specified amount of time.

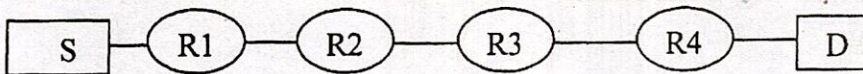
- 43) The following program consists of 3 concurrent processes and 3 Binary semaphores. The semaphores are initialized as $S0=1, S1=0, S2=0$.

Process P0	Process P1	Process P2
while (true) {	wait(S1);	wait(S2);
wait(S0)	release(S0);	release(S0);
print(0);		
release(S 1);		
release(S2):		
}		

How many times will process P0 print 0' ?

- a) Exactly twice
- b) Exactly once
- c) Exactly thrice
- d) At least twice.
- 44) Which of the following Scheduling algorithm is known as non-preemptive CPU Scheduling:
- a) Round Robin.
- b) Multilevel Queue Scheduling.
- c) Multilevel Queue Scheduling with Feedback.
- d) All of these.
- 45) A Solution to the Dining Philosophers problem which is used to avoid deadlock is:
- a) Ensures that all Philosophers pick up the left fork before the right fork.
- b) Ensures that all Philosophers pick up the right fork before the left fork.
- c) Ensures that one particular philosopher picks up the left fork before the right fork and that all philosophers pick up the right fork before the left fork.
- d) None of the above.

- 46) The Virtual Circuit network is a cross network obtained by
- Space Division Switching and Circuit Switched Network
 - Time Division Switching and Space Division Switching
 - Datagram networking and Circuit Switching
 - None of the above
- 47) In a network of LAN's connected by Bridges, packets are sent from one LAN to another through intermediate bridges. Since more than one path may exist between two LAN's, packets may have to be routed through multiple bridges. Why is spanning tree algorithm used for bridge-routing?
- For shortest path routing between LANs.
 - For avoiding loops in the routing paths.
 - For Fault Tolerance.
 - For minimizing collisions.
- 48) Let us consider S and D are Source and Destination devices connected through four intermediate routers labeled IR in ISO/OSI Reference model. Calculate how many times each packet visits the Network Layer(NL) and the Datalink Layer(DL) during a transmission from Source to Destination in an ISO/OSI Reference model.



- NL-04 times and DL-04 times.
 - NL- 10 times and DL-06 times.
 - NL-06 times and DL-10 times.
 - NL-02 times and DL-10 times.
- 49) Which of the following transport layer protocol is used to support electronic email.
- | | |
|--------|---------|
| a) TCP | b) UDP |
| c) IP | d) SMTP |
- 50) Which of the following is correct for Synchronous Time Division Multiplexing.
- Data rate link is n times faster and the unit duration is n times longer.
 - Data rate of link is n times faster and the unit duration is n times shorter.
 - Data rate of link is n times slower and the unit duration is n times shorter.
 - Data rate of link is n times slower and the unit duration is n times longer.



Rough Work

ಅಭ್ಯರ್ಥಿಗಳಿಗೆ ಸೂಚನೆಗಳು

1. ಓ.ಎಂ.ಆರ್. ಉತ್ತರ ಹಾಳೆಯ ಜೊತೆಗೆ 50 ಪ್ರಶ್ನೆಗಳನ್ನು ಹೊಂದಿರುವ ಮೊಹರು ಮಾಡಿದ ಪ್ರಶ್ನೆ ಪುಸ್ತಕವನ್ನು ನಿಮಗೆ ನೀಡಲಾಗಿದೆ.
2. ಕೊಟ್ಟಿರುವ ಪ್ರಶ್ನೆ ಪುಸ್ತಕವು, ನೀವು ಪರೀಕ್ಷೆಗೆ ಆಯ್ಕೆ ಮಾಡಿಕೊಂಡಿರುವ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದ್ದೇ ಎಂಬುದನ್ನು ಪರಿಶೀಲಿಸಿರಿ.
3. ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯ ಮೊಹರು ಜಾಗ್ರತೆಯಿಂದ ತೆರೆಯಿರಿ ಮತ್ತು ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯಿಂದ ಓ.ಎಂ.ಆರ್. ಉತ್ತರ ಹಾಳೆಯನ್ನು ಹೊರಗೆ ತೆಗೆದು, ಓ.ಎಂ.ಆರ್. ಉತ್ತರ ಹಾಳೆಯಲ್ಲಿ ಸಾಮಾನ್ಯ ಮಾಹಿತಿಯನ್ನು ತುಂಬಿರಿ. ಕೊಟ್ಟಿರುವ ಸೂಚನೆಯಂತೆ ನೀವು ನಮೂನೆಯಲ್ಲಿನ ವಿವರಗಳನ್ನು ತುಂಬಲು ವಿಫಲರಾದರೆ, ನಿಮ್ಮ ಉತ್ತರ ಹಾಳೆಯ ಮೌಲ್ಯಮಾಪನ ಸಮಯದಲ್ಲಿ ಉಂಟಾಗುವ ಪರಿಣಾಮಗಳಿಗೆ ವೈಯಕ್ತಿಕವಾಗಿ ನೀವೇ ಜವಾಬ್ದಾರಾಗಿರುತ್ತೀರಿ.
4. ಪರೀಕ್ಷೆಯ ಸಮಯದಲ್ಲಿ:
 - a) ಪ್ರತಿಯೊಂದು ಪ್ರಶ್ನೆಯನ್ನು ಜಾಗ್ರತೆಯಿಂದ ಓದಿರಿ.
 - b) ಪ್ರತಿ ಪ್ರಶ್ನೆಯ ಕೆಳಗೆ ನೀಡಿರುವ ನಾಲ್ಕು ಲಭ್ಯ ಆಯ್ಕೆಗಳಲ್ಲಿ ಅತ್ಯಂತ ಸರಿಯಾದ/ ಸೂಕ್ತವಾದ ಉತ್ತರವನ್ನು ನಿರ್ಧರಿಸಿ.
 - c) ಓ.ಎಂ.ಆರ್. ಹಾಳೆಯಲ್ಲಿನ ಸಂಬಂಧಿಸಿದ ಪ್ರಶ್ನೆಯ ವೃತ್ತಾಕಾರವನ್ನು ಸಂಪೂರ್ಣವಾಗಿ ತುಂಬಿರಿ. ಉದಾಹರಣೆಗೆ, ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯಲ್ಲಿ ಪ್ರಶ್ನೆ ಸಂಖ್ಯೆ 8ಕ್ಕೆ "C" ಸರಿಯಾದ ಉತ್ತರವಾಗಿದ್ದರೆ, ನೀಲಿ/ಕಪ್ಪು ಬಾಲ್ ಪಾಯಿಂಟ್ ಪೆನ್ ಬಳಸಿ ಓ.ಎಂ.ಆರ್. ಉತ್ತರ ಹಾಳೆಯ ಕ್ರಮ ಸಂಖ್ಯೆ 8ರ ಮುಂದೆ ಈ ಕೆಳಗಿನಂತೆ ತುಂಬಿರಿ:
 ಪ್ರಶ್ನೆ ಸಂಖ್ಯೆ 8.(A) (B) ● (D) (ಉದಾಹರಣೆ ಮಾತ್ರ) (ಬಾಲ್ ಪಾಯಿಂಟ್ ಪೆನ್ ಮಾತ್ರ ಉಪಯೋಗಿಸಿ)
5. ಉತ್ತರದ ಪೂರ್ವಸಿದ್ಧತೆಯ ಬರವಣಿಗೆಯನ್ನು (ಚಿತ್ತು ಕೆಲಸ) ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯಲ್ಲಿ ಒದಗಿಸಿದ ಖಾಲಿ ಜಾಗದಲ್ಲಿ ಮಾತ್ರವೇ ಮಾಡಬೇಕು (ಓ.ಎಂ.ಆರ್. ಉತ್ತರ ಹಾಳೆಯಲ್ಲಿ ಮಾಡಬಾರದು).
6. ಒಂದು ನಿರ್ದಿಷ್ಟ ಪ್ರಶ್ನೆಗೆ ಒಂದಕ್ಕಿಂತ ಹೆಚ್ಚು ವೃತ್ತಾಕಾರವನ್ನು ಗುರುತಿಸಲಾಗಿದ್ದರೆ, ಅಂತಹ ಉತ್ತರವನ್ನು ತಪ್ಪು ಎಂದು ಪರಿಗಣಿಸಲಾಗುತ್ತದೆ ಮತ್ತು ಯಾವುದೇ ಅಂಕವನ್ನು ನೀಡಲಾಗುವುದಿಲ್ಲ. ಓ.ಎಂ.ಆರ್. ಹಾಳೆಯಲ್ಲಿನ ಉದಾಹರಣೆ ನೋಡಿ.
7. ಅಭ್ಯರ್ಥಿ ಮತ್ತು ಕೊಠಡಿ ಮೇಲ್ವಿಚಾರಕರು ನಿರ್ದಿಷ್ಟಪಡಿಸಿದ ಸ್ಥಳದಲ್ಲಿ ಓ.ಎಂ.ಆರ್. ಹಾಳೆಯ ಮೇಲೆ ಸಹಿ ಮಾಡಬೇಕು.
8. ಅಭ್ಯರ್ಥಿಯು ಪರೀಕ್ಷೆಯ ನಂತರ ಕೊಠಡಿ ಮೇಲ್ವಿಚಾರಕರಿಗೆ ಮೂಲ ಓ.ಎಂ.ಆರ್. ಉತ್ತರ ಹಾಳೆ ಮತ್ತು ವಿಶ್ವವಿದ್ಯಾನಿಲಯದ ಪ್ರತಿಯನ್ನು ಹಿಂದಿರುಗಿಸಬೇಕು.
9. ಅಭ್ಯರ್ಥಿಯು ಪ್ರಶ್ನೆ ಪುಸ್ತಕವನ್ನು ಮತ್ತು ಓ.ಎಂ.ಆರ್. ಅಭ್ಯರ್ಥಿಯ ಪ್ರತಿಯನ್ನು ತಮ್ಮ ಜೊತೆ ತೆಗೆದುಕೊಂಡು ಹೋಗಬಹುದು.
10. ಕ್ಯಾಲ್ಕುಲೇಟರ್, ಪೇಜರ್ ಮತ್ತು ಮೊಬೈಲ್ ಫೋನ್‌ಗಳನ್ನು ಪರೀಕ್ಷಾ ಕೊಠಡಿಯ ಒಳಗೆ ಅನುಮತಿಸಲಾಗುವುದಿಲ್ಲ.
11. ಅಭ್ಯರ್ಥಿಯು ದುಷ್ಕೃತ್ಯದಲ್ಲಿ ತೊಡಗಿರುವುದು ಕಂಡುಬಂದರೆ, ಅಂತಹ ಅಭ್ಯರ್ಥಿಯನ್ನು ಕೋರ್ಸ್‌ಗೆ ಪರಿಗಣಿಸಲಾಗುವುದಿಲ್ಲ ಮತ್ತು ನಿಯಮಗಳ ಪ್ರಕಾರ ಇಂತಹ ಅಭ್ಯರ್ಥಿಯ ವಿರುದ್ಧ ಕ್ರಮ ಕೈಗೊಳ್ಳಲಾಗುವುದು.
ಓ.ಎಂ.ಆರ್. ಹಾಳೆಯನ್ನು ತುಂಬಲು ಸೂಚನೆಗಳು

1. ಪ್ರತಿಯೊಂದು ಪ್ರಶ್ನೆಗೆ ಒಂದೇ ಒಂದು ಅತ್ಯಂತ ಸೂಕ್ತವಾದ/ಸರಿಯಾದ ಉತ್ತರವಿರುತ್ತದೆ.
2. ಪ್ರತಿ ಪ್ರಶ್ನೆಗೆ ಒಂದು ವೃತ್ತವನ್ನು ಮಾತ್ರ ನೀಲಿ ಅಥವಾ ಕಪ್ಪು ಬಾಲ್ ಪಾಯಿಂಟ್ ಪೆನ್‌ನಿಂದ ಮಾತ್ರ ತುಂಬತಕ್ಕದ್ದು. ಉತ್ತರವನ್ನು ಮಾರ್ಪಡಿಸಲು ಪ್ರಯತ್ನಿಸಬೇಡಿ.
3. ವೃತ್ತದೊಳಗಿರುವ ಅಕ್ಷರವು ಕಾಣದಿರುವಂತೆ ವೃತ್ತವನ್ನು ಸಂಪೂರ್ಣವಾಗಿ ತುಂಬುವುದು.
4. ಓ.ಎಂ.ಆರ್. ಹಾಳೆಯಲ್ಲಿ ಯಾವುದೇ ಅನಾವಶ್ಯಕ ಗುರುತುಗಳನ್ನು ಮಾಡಬೇಡಿ.

Note : English version of the instructions is printed on the front cover of this booklet.

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