**Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2020**

**CSS**

**COMPUTATIONAL BIOLOGY**

**General Instructions**

1. The Question Paper is having two Parts — Part 'A' Objective type (60%) & Part 'B' Descriptive type (40%).

2. Objective type questions which carry 1 mark each are to be (✓) 'tick marked' in the response sheets against the appropriate answers provided.

3. 4 questions are to be answered out of 6 questions carrying 10 marks each in Part 'B'.

4. **Negative marking** : 0.25 marks will be deducted for each wrong answer in Part 'A'.

**Time : 2 Hours**                                           **Max. Marks : 100**

| To be filled in by the Candidate | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Register Number | in Figures | | | | | | | | | | |
| | in words | | | | | | | | | | |

PART – A

(Objective Type)

Choose appropriate answer from the options in the questions. **One** mark **each**.

**(60 × 1 = 60 marks)**

1. What is the next member in this list? P7N, R14M, T21L, _____ ?

    a) V22M                  b) T24J

    c) S26H                  d) V28K

_____

2. Select the odd one from the given options.

a) Mars                                b) Moon

c) Earth                              d) Sun

3. If $> = \div$, $< = +$, $\wedge = -$, $* = <$, $- = >$, $+ = =$ and $\vee = *$, then which of the following equation is correct?

a) $3 > 6 < 2 \wedge 5 < 7 * 10$

b) $3 < 6 \wedge 2 \vee 5 \wedge 7 + 10$

c) $3 \vee 6 \wedge 2 < 5 > 7 - 10$

d) $3 \vee 6 > 2 < 5 \wedge 7 * 10$

**J – 2272**

4. Read the following statement and arguments carefully and choose the valid argument/arguments given in I, II and III.

Statement : India will soon become a nation producing world leading products developed by a large number of small local entrepreneurs

Aruguments :

I. No. The true potential of entrepreneurship can be attained not by having too many startups but by ensuring that these startups grow into sizeable businesses.

II. Yes. Starting up a business is a hard task and growing it is much easier

III. No. We support seeding of businesses but once these businesses are successful, our policies simply do not seem to help them.

a) Only II                 b) Only I and III
c) Only I and II           d) Only II and III

5. What will be next number in the following series?

6, 9, 15, 27, 51, ?

a) 105                     b) 95
c) 99                      d) 102

6. Which word does NOT belong with the others?

a) pseudocode             b) windows
c) flow chart             d) algorithm

7. What is the decision to be taken in his case?

Let X is a player in Indian team and has no experience in coaching any of the team. But his name is included by all of the 3 cricket advisory committee members.

a) Referred to the cricket Advisory Committee members/BCCI secretary
b) The candidate is not to be selected
c) Data inadequate
d) The candidate is to be selected

8. Apparel : Cloth : : Footwear : ?
   a) Leather
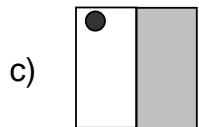   b) Boot
   c) Shoe
   d) Slipper
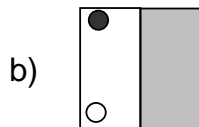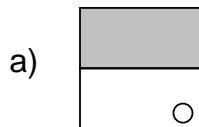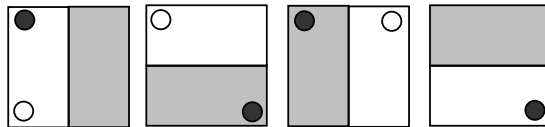
9. What least number must be added with 1662 to obtain a number which is completely divisible by 17?
   a) 21
   b) 7
   c) 4
   d) 5

10. What is the value of 180 degrees in radians?
   a) 0.05
   b) 0.3
   c) 3.1415926
   d) 180.000

11. The successive one of the following pattern is



a)


b)


c)


d)

12. If one-fifth of a milk-container holds 90 litres of milk, then the quantity of milk that one-third of the milk-container holds is

a) 90/5 litres
b) 450 litres
c) 150 litres
d) 270 litres

13. A man buys a cycle for Rs. 1,700 and sells is at a loss of 20%. What is the selling price of the cycle?

a) Rs. 1,360
b) Rs. 1,090
c) Rs. 1,190
d) Rs. 1,290

14. If 3 M = 2 V = 4 P, then M : V : P is

a) 2 : 3 : 4
b) 4 : 3 : 2
c) 4 : 6 : 3
d) 20 : 15 : 2

15. A train travels with a speed of 126 km per hour. What is its speed in metres per second?

a) 15.8
b) 35.0
c) 20.5
d) 38.8

16. D # K A R 5 3 F % M F 8 J 1 E @ H 5 © 9 T I 6 7 * N 3 6 P # M 7 2 $ R

If all the numbers in the above pattern are dropped, which of the following will be the thirteenth letter from the reverse order?

a) E
b) T
c) F
d) H

17. Some persons are sitting in a row facing north. Gibin sits second to right of Jeni. Priya sits fifth to left of Archana. Deva is second to right of Moni. Gibin and Hussain have three persons between them. Priya and Moni have two persons between them. No one sits between Hussain and Archana. Number of persons towards right of Hussain is one less than the number of persons sitting between Deva and Hussain. Number of persons towards left of Moni is equal to the number of persons sitting between Archana and Gibin. What is the position of Archana with respect to Gibin?

a) Third to the left
b) Fourth to the left
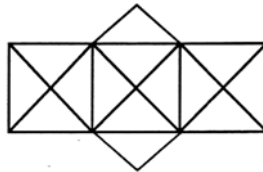c) Fifth to the left
d) Sixth to the left

5

18. January 1, 2020 is Wednesday. What will be the day of the week lies on January 1, 2022?

   a) Tuesday  b) Thursday

   c) Friday  d) Saturday

19. How many words can be formed (either with or without meaning) by using all the letters of the word, KERALA, using each letter exactly once without repetition?

   a) 360  b) 720

   c) 240  d) 120

20. How many rectangle and square are there in the given figure?



   a) 15  b) 16

   c) 25  d) 17

21. An unbiased dice is tossed. What is the probability of getting a multiple of 2?

   a) 2/3  b) 1/3

   c) 1/2  d) 1/4

22. Find out the wrong number in this sequence : 8, 27, 64, 100, 125, 216, 343.

   a) 100  b) 343

   c) 27  d) None

23. Among the three part-time employees. A works longer hours than C, although B works longer hours than A. Who works the longest hours?

   a) A  b) C

   c) B  d) Inadequate data

24. If in a certain language, KOLLAM is coded as MQNNCO, how is THIRISSUR coded in that language?

a) UJLTKVVXS
b) VJKTKUUWT
c) VJLTLUUWT
d) UJKTKVVXS

25. Assertion (A) : James Watt invented the steam engine.

Reason (R) :   It was invented to pump out the water from the flooded mines.

a) Both (A) and (R) are true and (R) is the correct explanation of (A)
b) Both (A) and (R) are true and (R) is not the correct explanation of (A)
c) (A) is true, but (R) is false
d) Both (A) and (R) are false

26. What is the order of the following words in a logical sequence?
(i) executable file
(ii) source code
(iii) algorithm
(iv) flowchart
(v) pseudocode

a) (iii), (v), (iv), (ii), (i)
b) (iii), (iv), (v), (i), (ii)
c) (iv), (iii), (v), (ii), (i)
d) (iii), (iv), (v), (ii), (i)

27. A man started walking 30 meters towards North and he turned right. Then he walked 25 metres and he turned left. Then he walked 15 meters and turned again left and walked 70 meters. What is the distance traveled by the man? And at present the man is heading towards which direction?

a) 115 meters, North
b) 140 meters, East
c) 140 meters, West
d) 115 meters, South

28. M and N are brothers. K and L are sisters. K's daughter is N's sister. How is L related to M?

   a) Aunt
   b) Mother
   c) Sister
   d) None of the above

29. The Question below contains two conclusions followed by statements. Find from which of the statements given, both the conclusions follow.

   Conclusions :

   I.   Some Oranges are not Mangoes

   II.  Some Apples are not Bananas

   a) No Mango is Apple. No Apple is Orange. All Oranges are Bananas
   b) All Mangoes are Apples. Some Apples are Oranges. All Oranges are Bananas
   c) No Mango is Apple. All Apples are Oranges. No Orange is Banana
   d) Some Mangoes are Apples. No Apple is Orange. All Oranges are Bananas

30. If 6.3 is 15% of a certain number, then what is the number?

   a) 24
   b) 42
   c) 23
   d) 32

31. Which was first virus detected on ARPANET, the forerunner of the internet in the early 1970?

   a) Macro
   b) Creeper
   c) Ransomware
   d) Trogen horse

32. Which are the most commonly used languages for CGI Common Gateway Interface scripts?

   a) Perl, C & C++
   b) FORTRAN
   c) mysql
   d) BASIC

33. Which UNIX command is used to display the top of the file?

   a)  cat                                    b)  head

   c)  more                                   d)  grep

34. Which of the following directories in UNIX contain all the 'alias' created by a user, including his login directory?

   a)  /usr                                   b)  /tmp

   c)  /bin                                   d)  /etc

35. Which of the following statements describes the relationship between a shell and the operating system itself?

   a)  The shell has a unique relationship with the operating system because it control starting other programs

   b)  The relationship between the shell and the operating system is special but not unique; the shell has certain privileges used to complete its work

   c)  The shell is like any other program run on UNIX; it has no special relationship to the operating system

   d)  The shell actually has lower privileges from the operating system than most programs, to product the system from security hazards

36. A simple tool that will collect and show system input and output storage device statistics is

   a)  vmstat                                 b)  iostat

   c)  sysstat                                d)  isof

37. In 1940, first automatic electronic digital computer was invented by

   a)  John Mauchly                           b)  George Boole

   c)  John Vincent Atanasoff                 d)  J. Presper Eckert

38. DOS system file consists of

   a)   IBMBIO.COM, IBMDOS.COM, COMMAND.COM

   b)   COMMAND.COM, IBMBIO.COM, FORMAT.COM

   c)   SYS.COM, IBMBIO.COM, IBMDOS.COM

   d)   IBM.DOS.COM


39. The flowchart symbol, such as, rectangle with the horizontal lines on two sides denotes

   a)   defined statement          b)   predefined process

   c)   error fix                  d)   variables defined


40. The transformation between the parallel and serial ports is done with the help of

   a)   flip flops                 b)   logic circuits

   c)   shift registers            d)   peripherals


41. In UNIX, the user file permissions 770 indicates that read, write and execute by

   a)   group & others             b)   user & others

   c)   group & user               d)   others


42. Which command is used to get the size of the hard disk and its memory usage?

   a)   chkdsk                     b)   fdsk

   c)   fdisk                      d)   du


43. The most used web-based search engine namely google was first launched in

   a)   1998                       b)   1999

   c)   1996                       d)   1997


44. The HTML tag for the biggest font size of heading is

   a)   <head>                     b)   <heading>

   c)   <h6>                       d)   <h1>

45. The development of physical products, machines and systems through the use of publicly shared design information is

a) open source hardware
b) open-design movement
c) open design hardware
d) open-design software

46. In Object Oriented Programming (OOP), the fields and methods of the existing class are reused in

a) inheritance
b) object creation
c) polymorphism
d) message passing

47. An intermediate code form in compiler is

a) Postfix notation
b) Syntax Trees
c) Three Address Code
d) All of the above

48. Which one of the following command is not the basic structure of SQL queries?

a) SELECT
b) FROM
c) CREATE
d) WHERE

49. In Java, AWT is used to create

a) statements
b) buttons
c) software
d) errors

50. Which of the following UNIX command will be used to assign write permission to the owner for a file 'out01.txt'?

a) chmod g–w out01.txt
b) chmod u–w out01.txt
c) chmod g+w out01.txt
d) chmod u+w out01.txt

51. Piece of algorithm run for the known number of times is

a) iteration
b) selection
c) reverse action
d) sequence

52. The commands, replies, client to server and vice versa are sent across the control TCP connection in —————— bits ASCII format.

a) 8

b) 7

c) 3

d) 5

53. An interconnection of LANs within a university campus is

a) Local Area Network

b) Campus Area Network

c) Wide Area Network

d) Metropolitan Area Network

54. A conversion specification %10.5f in a printf() statement in C means to print a floating point value with

a) maximum 5 digits where 10 digits are allotted for the digits after the decimal point

b) minimum 10 digits where 5 digits are allotted for the digits before the decimal point

c) maximum 10 digits where 5 digits are allotted for the digits after the decimal point

d) minimum 10 digits where 5 digits are allotted for the digits after the decimal point

55. In relational database management system, the row is said to be

a) Attribute

b) Instance

c) Field

d) Tuple

56. What will be the output of the following C code?

```
#include <stdio.h>
int main ( )
{
    int i = 012; i++;
    printf ("%d", i);
}
```

a) 013

b) 11

c) 012

d) 13

57. Which one of the following is the acceptable Cascading Style Sheet format?

a) body:color=black

b) {body;color:black}

c) {body:color=black(body)}

d) body{color:black}

58. AJAX stands for

a) asynchronous javascript and xml

b) asynchronous JSP and xml

c) advanced javascript and xml

d) advanced JSP and xml

59. Which of the following aspects in regular expression is wrong?

a) { } - NOT
b) /X/ - any pattern

c) [] - OR
d) () - Repeats

60. What will be the output of the following C code?

```
#include <stdio.h>
struct candidate
{
    char *exam;
};
void main()
{
    struct candidate bio1, bio2;
    bio1.exam = "pass"; bio2 = bio1;
    printf("%s %s", bio1.exam, bio2.exam);
}
```

a) Junk value
b) compile time error

c) pass pass
d) pass

ANSWER SHEET — PART – A

| 1 | A | B | C | D | E | | 21 | A | B | C | D | E | | 41 | A | B | C | D | E |
|---|---|---|---|---|---|---|----|---|---|---|---|---|---|----|---|---|---|---|---|
| 2 | A | B | C | D | E | | 22 | A | B | C | D | E | | 42 | A | B | C | D | E |
| 3 | A | B | C | D | E | | 23 | A | B | C | D | E | | 43 | A | B | C | D | E |
| 4 | A | B | C | D | E | | 24 | A | B | C | D | E | | 44 | A | B | C | D | E |
| 5 | A | B | C | D | E | | 25 | A | B | C | D | E | | 45 | A | B | C | D | E |
| 6 | A | B | C | D | E | | 26 | A | B | C | D | E | | 46 | A | B | C | D | E |
| 7 | A | B | C | D | E | | 27 | A | B | C | D | E | | 47 | A | B | C | D | E |
| 8 | A | B | C | D | E | | 28 | A | B | C | D | E | | 48 | A | B | C | D | E |
| 9 | A | B | C | D | E | | 29 | A | B | C | D | E | | 49 | A | B | C | D | E |
| 10 | A | B | C | D | E | | 30 | A | B | C | D | E | | 50 | A | B | C | D | E |
| 11 | A | B | C | D | E | | 31 | A | B | C | D | E | | 51 | A | B | C | D | E |
| 12 | A | B | C | D | E | | 32 | A | B | C | D | E | | 52 | A | B | C | D | E |
| 13 | A | B | C | D | E | | 33 | A | B | C | D | E | | 53 | A | B | C | D | E |
| 14 | A | B | C | D | E | | 34 | A | B | C | D | E | | 54 | A | B | C | D | E |
| 15 | A | B | C | D | E | | 35 | A | B | C | D | E | | 55 | A | B | C | D | E |
| 16 | A | B | C | D | E | | 36 | A | B | C | D | E | | 56 | A | B | C | D | E |
| 17 | A | B | C | D | E | | 37 | A | B | C | D | E | | 57 | A | B | C | D | E |
| 18 | A | B | C | D | E | | 38 | A | B | C | D | E | | 58 | A | B | C | D | E |
| 19 | A | B | C | D | E | | 39 | A | B | C | D | E | | 59 | A | B | C | D | E |
| 20 | A | B | C | D | E | | 40 | A | B | C | D | E | | 60 | A | B | C | D | E |

**J – 2272**

# COMPUTATIONAL BIOLOGY

## PART – B
### (Descriptive Type)

Answer **any four** questions. **(4 × 10 = 40 Marks)**

1. Explain :
   (a) What is LAN?
   (b) What is it composed of?
   (c) What is MAC Address?
   (d) What is the difference between a Switch and a Hub?
   (e) What are the 7 layers OSI model?

2. Explain
   (a) What are the main features of Unix Operating System?
   (b) What is fork()?
   (c) What are the information held by inode?

3. Define the HTML 5 elements used to define the different parts of a web page?

4. What is DBMS (Database Management System)? Give sample tables under Relational Database Management System (RDBMS)?

5. Write a C program to Reverse a String using recursion.

6. What is Machine Learning (ML)? Discuss two of its application in the field of Biology?

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