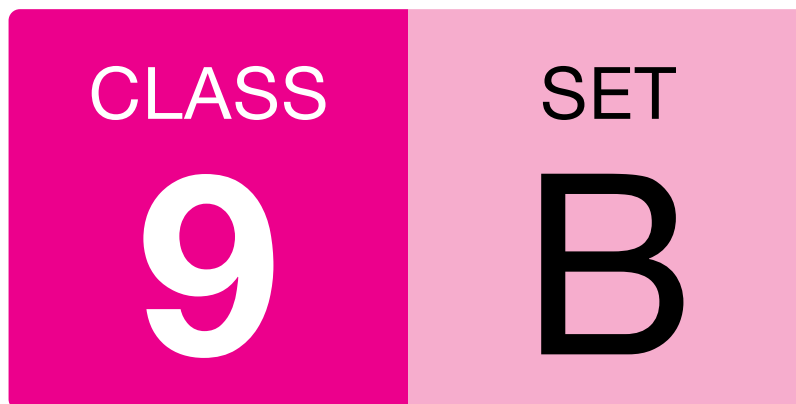




Total Questions : 50

Time : 1 hr.

Guidelines for the Candidate

1. You will get additional ten minutes to fill up information about yourself on the OMR Sheet, before the start of the exam.
2. Write your **Name, School Code, Class, Section, Roll No.** and **Mobile Number** clearly on the **OMR Sheet** and do not forget to sign it. We will share your marks / result and other information related to SOF exams on your mobile number.
3. The Question Paper comprises four sections:
Logical Reasoning (10 Questions), **Computer Science** (30 Questions), **AI, Robotics and Information Technology** (5 Questions) and **Achievers Section** (5 Questions).

Each question in Achievers Section carries 3 marks, whereas all other questions carry 1 mark each.

4. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
5. There is only ONE correct answer. Choose only ONE option for an answer.
6. To mark your choice of answers by darkening the circles on the OMR Sheet, use **HB Pencil** or **Blue / Black ball point pen** only.
E.g.

Q.16: Which of the following is a type of printer?

- A. Cathode Ray Tube B. Light Emitting Diode C. Thermal Flatbed D. Liquid Crystal Display

As the correct answer is option C, you must darken the circle corresponding to option C on the OMR Sheet.

16. (A) (B) (C) (D)

7. Rough work should be done in the blank space provided in this booklet.
8. Return the OMR Sheet to the invigilator at the end of the exam.
9. Please fill in your personal details in the space provided before attempting the paper.



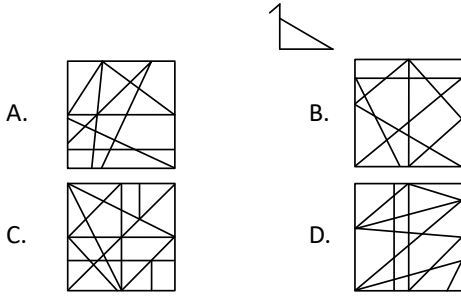
DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

Name:.....

SOF Olympiad Roll No.:..... Contact No.:.....

LOGICAL REASONING

1. Select a figure from the options in which the given figure is exactly embedded as one of its parts.



2. In the given letter series, some of the letters are missing which are given in that order as one of the options below it. Select the correct option.

af_ed_afa_d_a_

- A. deef
B. defaf
C. edafe
D. eefef

3. The following digits are coded as follows:

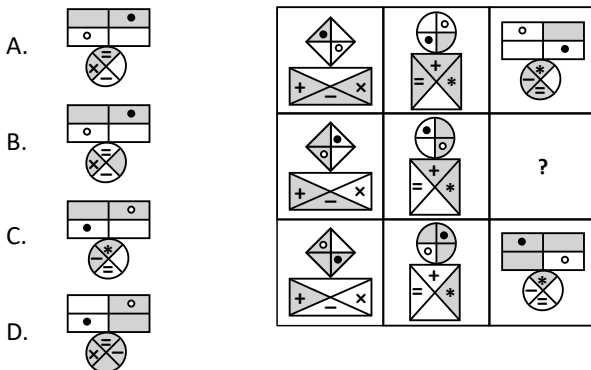
Digits	6	8	3	7	9	4	2	5
Codes	H	α	E	λ	ξ	π	M	$\odot$

- (i) If the first as well as the last digit is even number, then both are to be coded as #.
- (ii) If the first digit is an even number and the last digit is odd number, then their codes are to be interchanged.
- (iii) If the first digit as well as the last digit are prime numbers, then both are to be coded as *.
- (iv) If the second as well as second last digits are even number, then both are to be coded as +.

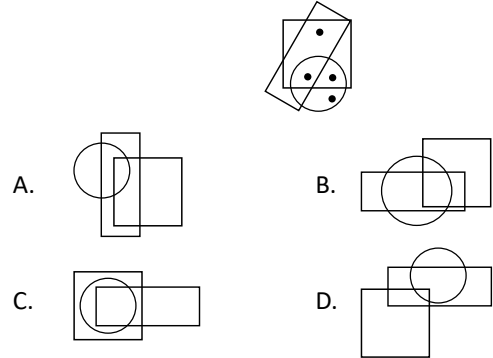
Find the code of 485769.

- A. $\pi\alpha\odot\lambda H\xi$
B. $\xi+\odot\lambda+\pi$
C. $*+\odot\lambda+*$
D. $\xi\alpha\odot\lambda H\pi$

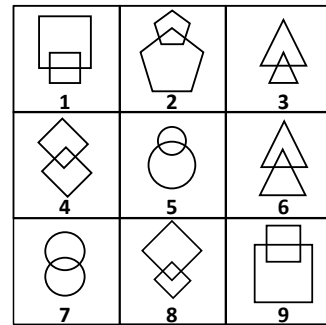
4. Select a figure from the options which will complete the given figure matrix.



5. Which of the following options satisfies the same conditions of placement of the dots as in the given figure?

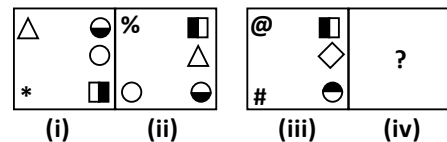


6. Group the given figures into three classes on the basis of their identical properties using each figure only once.



- A. 1, 3, 8; 2, 6, 7; 4, 5, 9
B. 1, 4, 8; 2, 5, 9; 3, 6, 7
C. 1, 3, 8; 2, 5, 9; 4, 6, 7
D. 1, 5, 9; 2, 3, 8; 4, 6, 7

7. There is a certain relationship between figures (i) and (ii). Establish a similar relationship between figures (iii) and (iv) by selecting a suitable figure from the options that would replace the (?) in fig (iv).



- A. B. C. D.

8. A bus carrying passengers from city X starts to travel towards East. After travelling 35 km, it turns left and travels 20 km to reach city Y. It then turns towards East again and travels 15 km. Finally, it turns right

and travels 40 km to reach city Z. How far and in which direction is city Z from city Y?

- A. $5\sqrt{73}$ km, South-East
- B. $10\sqrt{29}$ km, North-East
- C. $5\sqrt{73}$ km, North-West
- D. $10\sqrt{29}$ km, South-East

9. Which of the given interchanges in sign would make the given expression correct?

$$(256 \div 32) - 16 + 14 \times 21 = 308$$

- A. $\div$ and +
- B. - and +

- C. $\times$ and $\div$
- D. - and $\div$

10. In a row of boys, Garvit is 12th from the left end and 19th from the right end. In another row of boys, Aman is 14th from the left end and 20th from the right end. How many boys are there in both the rows together?

- A. 63
- B. 65
- C. 67
- D. 61

COMPUTER SCIENCE

11. Identify the following.

- It acts as a central nervous system for other components of computer.
- It manages and coordinates entire computer system.
- It obtains instructions from a program stored in main memory, interprets instructions and issues signals that cause other units of system to execute them.

- A. ALU
- B. Memory register
- C. Control unit
- D. Execution unit

12. Which of the following is the correct decimal number representation of the given binary number?

1101011

- A. 107
- B. 91
- C. 84
- D. 109

13. Which of the following statements hold(s) true about Flash Fill in MS-Excel 2016?

Statement 1: It automatically fills in values based on a pattern it detects from the user's input.

Statement 2: It helps in data extraction or combination without the need for complex formulas.

- A. Only Statement 1
- B. Only Statement 2
- C. Both Statement 1 and Statement 2
- D. Neither Statement 1 nor Statement 2

14. Which of the following options will allow you to create wireless PAN?

- (i) Firewire
- (ii) Bluetooth
- (iii) Infrared
- (iv) LAN

- A. (i) and (iv) only
- B. (ii) and (iii) only

- C. (iii) and (iv) only
- D. (i), (ii), (iii) and (iv)

15. Match the following with respect to MS-Word 2016.

Column-I	Column-II
(a) 	(i) Restrict Editing
(b) 	(ii) Block Authors
(c) 	(iii) Smart Lookup
(d) 	(iv) Track Changes

- A. (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
- B. (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)
- C. (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
- D. (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

16. Which of the following options does not merge the cells of a table in HTML?

- (i) `<td colspan="2">`
- (ii) `<td rowspan="2">`
- (iii) `<th colspan="3">`
- (iv) `<cellspacing="10">`

- A. (i) only
- B. (iv) only
- C. (ii) and (iii) only
- D. (i), (ii) and (iii) only

17. Which of the following symbols indicates a subroutine/ procedure that is completely described in a separate flowchart segment?

- A. 
- B. 
- C. 
- D. 

18. Select the incorrect match.

- A. Star topology – All devices are connected individually to a central hub or switch.
- B. Bus topology – All devices are connected to a single central cable.
- C. Ring topology – All devices are connected in a circular loop, with each device connected to two others.
- D. Mesh topology – A combination of two or more topologies, such as star-bus or star-ring are connected to each other.

19. Which of the following statements is/are correct about EEPROM memory?

- (i) It is read-only and cannot be modified.
- (ii) It must be erased using ultraviolet light.
- (iii) It can be electrically erased and rewritten.
- (iv) It is only used in RAM modules.

- A. (ii) only
- B. (iii) only
- C. (i), (ii) and (iii) only
- D. (ii), (iii) and (iv) only

20. Which of the following statements hold(s) true with respect to MS-PowerPoint 2016?

Statement 1:  It is used to add a placeholder to the slide layout.

Statement 2:  It is used to add a new slide master to the presentation.

- A. Only Statement 1
- B. Only Statement 2
- C. Both Statement 1 and Statement 2
- D. Neither Statement 1 nor Statement 2

21. Match the following with respect to MS-Excel 2016.

- | Column-I | Column-II |
|------------|--|
| (a) A\$1 | (i) Changes when copied to another cell |
| (b) \$A\$1 | (ii) Remains constant when copied or dragged |
| (c) \$A1 | (iii) Column changes, row stays the same |
| (d) A1 | (iv) Row changes, column stays the same |

- A. (a)-(iii),(b)-(ii),(c)-(iv),(d)-(i)
- B. (a)-(iv),(b)-(iii),(c)-(i),(d)-(ii)

- C. (a)-(ii),(b)-(iv),(c)-(iii),(d)-(i)
- D. (a)-(i),(b)-(ii),(c)-(iii),(d)-(iv)

22. Select the incorrect match with respect to MS-Word 2016.

- A. Insert Citation – 
- B. Insert Caption – 
- C. Insert Footnote – 
- D. Mark Entry – 

23. Which of the following options prevents unwanted changes to the structure of a workbook, such as moving, deleting or adding sheets in MS-Excel 2016?

- A. 
- B. 
- C. 
- D. 

24. Which of the following options represents features of an operating system?

- (i) Process management handles the creation, scheduling and termination of processes.
- (ii) Device management controls and communicates with input/output devices via device drivers.
- (iii) User interface provides an interface such as GUI or CLI for user interaction with the system.
- A. (i) and (iii) only
- B. (i) and (ii) only
- C. (ii) and (iii) only
- D. (i), (ii) and (iii)

25. Which of the following options can be used to protect your system against spyware?

- (i) Install anti-spyware or antivirus software (e.g., Malwarebytes, Windows Defender).
- (ii) Keep your OS and software updated.
- (iii) Click on suspicious links or ads.
- (iv) Avoid downloading from untrusted websites.
- (v) Use firewalls and browser security extensions.

- A. (i), (iii) and (v) only
- B. (i), (ii), (iv) and (v) only
- C. (ii), (iii) and (iv) only
- D. (iii), (iv) and (v) only

26. Which of the following statements hold(s) true about the given icon in MS-PowerPoint 2016?



Statement 1: It provides a detailed view and control over all the animations applied to the objects (like text, images, charts) on a slide.

Statement 2: It is used to copy animation effects from one object (like text, shape, image, etc.) and apply them to another object on the same or different slide.

- A. Only Statement 1
- B. Only Statement 2
- C. Both Statement 1 and Statement 2
- D. Neither Statement 1 nor Statement 2

27. Which multimedia file format supports both audio and video compression and is commonly used for streaming over the internet?

- A. WAV
- B. AVI
- C. MP4
- D. Both B and C

28. _____ is a utility tool in operating systems like Windows that helps free up space on a computer's hard drive by identifying and removing unnecessary files such as temporary files, recycle bin contents, etc.

- A. Disk Defragmenter
- B. Disk Cleanup
- C. Data Masking
- D. Disk Encryption

29. What would be the code for the given output in Python?

HelloHelloHello

- A. `>>>print("HelloHelloHello")`
- B. `>>>print("Hello" *3)`
- C. `>>>print("Hello"); print("Hello");print("Hello");`
- D. Both A and B

30. Which of the following scanners has a glass window where the document/object is placed for scanning?

- A. Drum scanner
- B. Flatbed scanner
- C. Hand held scanner
- D. Impact scanner

31. Which of the following is the correct order of steps to change the default number of sheets (While creating new workbook) in MS-Excel 2016?

- A. File tab → Options → General → When creating new workbooks section → Add desired value in "Include this many sheets" option
- B. File tab → Options → Advanced → When creating new workbooks section → Add desired value in Default view for new sheets
- C. Home tab → Options → Advanced → Default view for new sheets
- D. Home tab → Options → General → Include this many sheets

32. What would be the output of the given algorithm?

Step 1: Start

Step 2: Set variables Sum = 0, i = 1, N = 5

Step 3: WHILE i ≤ N, repeat:

- Add i to Sum
- increment i by 1

Step 4: Print Sum

Step 5: Stop

- A. 10
- B. 5
- C. 15
- D. 0

33. In which of the following topologies, all networking devices connect to multiple other devices, creating redundant pathways and enhancing fault tolerance?

- A. Bus topology
- B. Star topology
- C. Ring topology
- D. Mesh topology

34. What would be the output of the given code in Visual Basic?

Private Sub Command1_Click()

Print Now()

End Sub

- A. It returns the current system date and time.
- B. It returns the current system time only.
- C. It returns the current system date only.
- D. It shows an error message.

35. Which of the following network devices is used to connect two or more separate LANs to work as a single network and also filters and forwards data packets based on MAC addresses to reduce traffic and improve efficiency?

- A. Switch
- B. Repeater
- C. Bridge
- D. Hub

36. Identify the following with respect to MS-Excel 2016.

- It is a tool that is used to create, edit, delete, and manage named ranges or formulas.
- It cannot contain spaces (use underscores _ instead).
- It is case-insensitive (e.g., sales = Sales).
- It avoids using names that conflict with cell references (like A1).

- A. 
- B. 
- C. 
- D. 

37. Select the incorrect match with respect to MS-PowerPoint 2016.

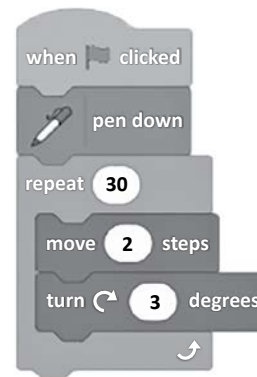
- A.  – New Slide
- B.  – Duplicate Selected Slides
- C.  – Slide Master
- D.  – Reuse Slides

38. Which of the following statements is correct about the given icon of MS-PowerPoint 2016?



- A. It is used to search for specific text within your presentation.
- B. It is used to zoom your presentation to fill the window with slide.
- C. It is used to select a text or objects in your presentation.
- D. Both A and B

39. What will be the output of the given code in Scratch?



- A. The sprite will forever move and bounce.
- B. The sprite will spin at 360°.
- C. The sprite will hide and show for 1 sec.
- D. The sprite will draw an arc.

40. What will be the output of the given code in Python?

```
>>>for i in range(1,6):
...     print(i)
```

- | | | | |
|------|------|------|------|
| A. 1 | B. 0 | C. 1 | D. 0 |
| 2 | 1 | 2 | 1 |
| 3 | 2 | 3 | 2 |
| 4 | 3 | 4 | 3 |
| 5 | 4 | 5 | 4 |
| 6 | 5 | | 6 |

AI, ROBOTICS AND INFORMATION TECHNOLOGY

41. Which of the following options is used for the information that is sent from the robot sensor to the robot controller?

- A. Unobservance
- B. Feedback
- C. Inattention
- D. Negative

42. HMD stands for _____ and it is used in various fields for immersive visual experiences.

- A. Headed-Mounted Display
- B. Head-Mounted Display
- C. Head-Mask Display
- D. Headed-Mount Display

43. What are the drawbacks of artificial intelligence?

- (i) It requires expensive hardware, software and data for development and maintenance.
- (ii) It can analyse data and can also mimic creatively like humans.
- (iii) It can replace repetitive or routine jobs, leading to job displacement in sectors like manufacturing, customer support, etc.

- A. (i) and (ii) only
- B. (i) and (iii) only
- C. (ii) and (iii) only
- D. (i), (ii) and (iii)

44. Which of the following apps are commonly used for collaborative document editing and cloud storage?



- A. (i), (ii) and (iii) only
B. (ii), (iii) and (iv) only

- C. (i), (iii) and (iv) only
D. (i), (ii), (iii) and (iv)

45. Which of the following intelligence involves the use of body effectively, like in sports or acting?

- A. Mathematical intelligence
B. Spatial intelligence
C. Kinesthetic intelligence
D. Naturalistic intelligence

ACHIEVERS SECTION

46. What would be the output of the given HTML code?

```
<table frame = "box">
<tr>
<th>Day</th>
<th>Activity</th>
</tr>
<tr>
<td> Monday</td>
<td> Swimming </td>
</tr>
</table>
```

- A.

Day	Activity
Monday	Swimming

B.

Day	Activity
Monday	Swimming

C.

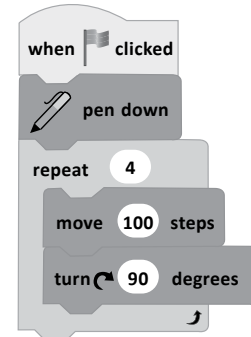
Day	Activity
Monday	Swimming

D.

Day	Activity
Monday	Swimming

- A. To format the display of data in a field.
B. To restrict the type of data that can be entered into a field.
C. To create relationships between tables.
D. To automatically back up the database.

49. What would be the output of the given code in Scratch?



- A. B.
C. D.

47. Consider the given snapshot of MS-Excel 2016 .

	A	B	C
1	2	3	
2	5	8	
3	6	2	
4	7	5	
5	1	4	
6			

What would be displayed in cell C2, if it contains the following formula?

=IF(MIN(A1:B4)=3,"Yes","No")

- A. Yes B. No
C. 3 D. 2

48. Which of the following options is correct with respect to the usage of validation rule in the table of MS-Access 2016?

50. Identify (X) and (Y) with respect to OS.

(X) : It is a kind of software, system that manages a group of independent computers and makes them appear to users as a single unified system.

(Y) : It is a kind of software, system that can run two or more processors (CPUs) simultaneously, working on different tasks or parts of a program to improve performance and speed.

- (X) (Y)
A. Distributed OS Single-user OS
B. Single-user OS Multiprocessing OS
C. Distributed OS Multiprocessing OS
D. Multiprogramming OS Distributes OS

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