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POLITICAL SCIENCE ■

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## **ISBF GRADUATE DIPLOMA ENTRANCE TEST**

### **PREPARATORY ADVICE**

#### **Section A**

This section tests your mathematical and statistical reasoning, and general quantitative ability. The emphasis is on clarity of key mathematical concepts, rather than on the ability to solve numerical questions.

The section will encompass the following topics – coordinate geometry; measures of central tendency; quadratic equations; ratios, proportions and percentages; numbers and their properties; arithmetic progression; factors and fractions; properties of triangles, quadrilaterals and circles; linear equations, including simultaneous equations; Venn diagrams; time, speed, distance and work; mensuration; syllogisms; visual or numerical patterns; sufficiency of statements to support conclusions; relations and functions; limits; differentiation and its applications; integration; matrices and determinants; concavity and convexity of functions; measures of dispersion; correlations; probability; expectations operator; hypothesis testing; and statistical distributions.

Topics that are entirely unrelated to those mentioned above need not be prepared.

#### **Section B**

This section tests your abilities of logical reasoning, comprehension, assimilative reading and data interpretation. Several questions will require you to read passages – either single passages or multi-passage case studies – and answer analytical questions based on them.

To prepare for this section, you would do well to read widely with a spirit of enquiry. The emphasis should be on ensuring that you understand everything you read (whether textbooks, newspapers, magazines or other online or offline publications), and can answer inferential and analytical questions based on such reading. To achieve this, discussing with others the key takeaways and learnings from your readings is likely to be helpful. It will be important to be mentally fresh and alert while attempting this section, as it will require you to think analytically.



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### **SAMPLE QUESTION PAPER**

#### **Instructions:**

- 1) This sample question paper is intended to be *indicative* of the pattern and degree of difficulty of the final question paper.
- 2) This paper consists of two sections. It is worth a total of 100 marks, and you will have 2 hours (120 minutes) to complete it.
- 3) **Section A consists of 31 multiple choice questions (MCQs), worth a total of 49 marks. For Questions 1 to 26, each correct answer will fetch 1.5 marks, while for Questions 27 to 31, each correct answer will fetch 2 marks. Every incorrect answer in this section will reduce your total score by 0.5 marks.** This section tests mathematical reasoning and quantitative ability. Some questions in this section may have multiple right options. Your answer will be considered as correct only if all the right options are marked.
- 4) **Section B consists of 34 MCQs, worth a total of 51 marks. Each correct answer will fetch 1.5 marks, and every incorrect answer will reduce your total score by 0.5 marks.** This section tests your abilities of logical reasoning, comprehension, assimilative reading and data interpretation. Where there are passages preceding questions (or sets of questions), you must read them carefully and answer the questions in light of your reading.
- 5) You are advised to allocate time to each section according to the proportion of marks it is worth.



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### SECTION A

This section consists of 31 questions, and is worth a total of 49 marks.

Questions 1 to 26 are worth 1.5 marks each, while Questions 27 to 31 are worth 2 marks each. Every incorrect answer in this section will reduce your total score by 0.5 marks. Some questions may have multiple correct answers.

1. If the roots of the quadratic equation  $x^2 + bx + c = 0$  are consecutive integers, then what is the value of  $b^2 - 4c - 1$ ?
  - a. 1
  - b. -1
  - c. 2
  - d. 0
  
2. Consider a triangle ABC.  
Statement I: The perimeter of the triangle ABC is P.  
Statement II: If the length of one side of triangle ABC is known, its height can be ascertained.  
What is the area of triangle ABC?
  - a. The question can be answered using I alone but not using II alone
  - b. The question can be answered using II alone but not using I alone
  - c. The question can be answered using I and II together but not using I or II alone
  - d. The question cannot be answered even using I and II together
  
3. The salaries of employees in a company are given in US dollars and denoted by  $\$S_1, \$S_2, \$S_3 \dots \$S_n$ . The Accounts department of the company keeps a record of the mean and median for these salaries. Then this company was bought out by a European firm, and the same salaries were paid in Euros instead (1 US dollar = 0.93 Euros). Which of the following statement(s) would hold true?  
Statement I: The mean salary would remain the same.  
Statement II: The median salary would remain the same.
  - a. (i) only
  - b. (ii) only
  - c. Both (i) and (ii)
  - d. Neither (i) nor (ii)
  
4. Consider the following system of equations.  
 $ax + by = 0$ , and  
 $2ax + 2by = 0$ ,  
where a and b are non-zero constants.  
Which of the following would solve this system?
  - a.  $x = 0, y = 0$
  - b.  $x = \frac{1}{a}, y = -\frac{1}{b}$
  - c.  $x = -\frac{1}{a}, y = \frac{1}{b}$
  - d.  $x = \frac{1}{a}, y = \frac{1}{b}$



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5. What is the area of the triangle formed by the graphical intersection of the lines  $x = 0$ ,  $y = 0$  and  $3y + 4x = 12$  ?
- 12 square units
  - 6 square units
  - 6 square units
  - 9 square units
6. Which of the following statement(s) is/are true?  
Statement I: The product of an odd number and a prime number is always odd.  
Statement II: The sum of an odd number and a prime number can be an odd number.
- (i) only
  - (ii) only
  - Both (i) and (ii)
  - Neither (i) nor (ii)
7. Let  $p$  be the price of a chocolate when it is sold at a loss of 20%, and  $q$  be the price when it is sold at a profit of 40%. What is the ratio of  $p$  to  $q$ ?
- 8:14
  - 2:4
  - 4:7
  - Cannot be determined
8. Which of the following statement(s) is/are true?  
Statement I: There are three lines,  $p, q$  and  $r$ . The equation of line  $p$  is given by  $ax + by + c = 0$ , where  $a, b, c$  are whole numbers.  $p$  is parallel to  $q$ , and  $q$  is parallel to  $r$ . The slope of  $r$  is given by  $c$ .  
Statement II: The equation of the  $y$ -axis is given by  $y = 0$ .
- (i) only
  - (ii) only
  - Both (i) and (ii)
  - Neither (i) nor (ii)
9. If the 4<sup>th</sup> term of an arithmetic progression is 12, and the sum of the first 10 terms is 60, what is the difference between the 3<sup>rd</sup> and the 5<sup>th</sup> term?
- 8
  - 16
  - 12
  - 4



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10. Consider the inequality  $ax + b \geq cx + d$

Which of the following statements is/ are true?

Statement I: The inequality will remain unchanged if both sides (of the inequality) are divided by  $a$ , where  $a > 0$ .

Statement II: The inequality will remain unchanged if both sides (of the inequality) are multiplied by  $a$ , where  $a < 0$ .

- a. (i) only
- b. (ii) only
- c. Both (i) and (ii)
- d. Neither (i) nor (ii)

11. Which of the following statements is / are true?

Statement I:  $\frac{((a^x)^y)^z \cdot a^x}{a^y}$  is the same as  $\frac{a^{-y}}{a^{-x}} \cdot a^{xyz}$

Statement II: There exists a number  $x$  such that  $x^{-3}$  is a positive integer.

- a. (i) only
- b. (ii) only
- c. Both (i) and (ii)
- d. Neither (i) nor (ii)

12. Consider a club where Chess and Bridge may be played.

Statement I: 40 members play Chess, and 40 members play Bridge. The club has 110 members.

Statement II: The number of members who do not play any of these two games is equal to the number who play Bridge.

How many play both Bridge and Chess?

- a. The question can be answered using I alone but not using II alone
- b. The question can be answered using II alone but not using I alone
- c. The question can be answered using I and II together but not using I or II alone
- d. The question cannot be answered even using I and II together

13. Which of the following statement(s) is/ are true?

Statement I: If the rate of interest is positive, and interest is calculated over  $n$  years ( $n > 1$ ), the amount of simple interest is always greater than that of compound interest.

Statement II: If the coordinates of any two points on a line are known, one can find the equation of the line.

- a. (I) only
- b. (II) only
- c. Both (I) and (II)
- d. Neither (I) nor (II)



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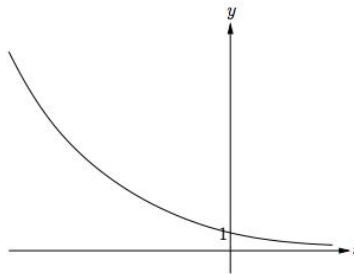
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14. The ratio of the sums of interior angles of two equilateral / regular polygons is 4:5. Which of the following could be the ratio of the number of sides they have?
- Cannot be determined
  - 2:9
  - 6:7
  - 4:5
15. A firm has only two type of employees - managers and workers. There are a total of  $n$  employees in the firm, and their average salary is \$ $a$ . The average salary of  $m$  managers is \$ $b$ , and the average salary of the workers is \$ $c$ . What is the number of employees in the firm?
- $m \frac{b-c}{a-c}$
  - $m$
  - $m \frac{b-c}{a+c}$
  - Cannot be determined
16. The sides of a scalene triangle are given by  $a$ ,  $b$  and  $c$ . The length of the smallest side is  $a$ , and the length of the longest side is  $b$ . One of the altitudes of the triangles divides side  $b$  in a ratio of 2:7. Which of the following is/are expression(s) for the area of the triangle?
- $\left(\frac{b}{2}\right) \sqrt{c^2 - \frac{49}{81}b^2}$
  - $\frac{b\sqrt{a^2 - \left(\frac{2}{3}b\right)^2}}{2}$
  - $\sqrt{c^2 - \frac{49}{81}b^2}$
  - $\left(\frac{a}{2}\right) \sqrt{a^2 - \frac{49}{81}b^2}$
17. Which of the following statements must be true about  $f(x) = a^x$ , as represented in the following diagram?



- $x$  is a variable, and  $a$  is a constant greater than 1.
- $x$  is a variable, and  $a$  is a constant less than 1.
- $x$  and  $a$  are both variables.
- $x$  and  $a$  are both constants.



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18. Consider  $p = f(x, y, z) = x^2 + 3xy - 5yz + 18xyz$ . Which of the following statements is/are true?

Statement I:  $z$  is a dependent variable in the given function.

Statement II: The degree of the function is 2.

- a. I Only
- b. II Only
- c. Both I & II
- d. Neither I nor II

19. If  $A$  and  $B$  are two matrices, which of the following statements is/are true?

Statement I: If  $A$  and  $B$  are of the same order, then  $A + B$  is defined.

Statement II: If  $AB$  is defined, then  $BA$  is also defined.

- a. I Only
- b. II Only
- c. Both I & II
- d. Neither I nor II

20. If  $A$  is a square matrix of order  $n$  in the matrix equation  $AX = B$ ,  $I$  is an identity matrix of order  $n$ , and  $(\text{adj } A)$  is the adjoint of  $A$ , which of the following statements is true?

- a. If  $|A| \neq 0$ , the system may or may not be consistent
- b. If  $|A| = 0$  and  $(\text{adj } A) \cdot B \neq 0$ , there exists a unique solution
- c. If  $|A| = 0$  and  $(\text{adj } A) \cdot B = 0$ , the system may or may not be consistent
- d. If  $|A| = 0$  and  $(\text{adj } A) \cdot B = 0$ , there exists unique solution

21. If  $y = f(x)$ , and  $x = g(z)$ , then which of the following statements is/are true?

Statement I: The change in  $y$  given a unit change in  $z$  is estimated by  $\frac{dy}{dz}$ , and this can be calculated.

Statement II: If  $f'(x)$  is the first derivative of  $y = f(x)$ , and  $g'(z)$  is the first derivative of  $x = g(z)$ , and if  $f'(x) = .5$  and  $g'(z) = 1.5$ , then  $\frac{dy}{dz} = .75$ .

- a. I Only
- b. II Only
- c. Both I & II
- d. Neither I nor II

22. For a function  $y = f(x)$ , where  $f'(x) = \frac{dy}{dx} = 0$  when  $x = c$ , or in other words where  $f'(c) = 0$ , which of the following statements is/are true?

Statement I:  $c$  is a point of local maxima if  $f'(x)$  changes sign from positive to negative, as  $x$  increases through  $c$ .



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Statement II:  $c$  is a point of local maxima if the rate of change of the slope of  $f(x)$  is decreasing, as  $x$  increases through  $c$ .

- a. I Only
- b. II Only
- c. Both I & II
- d. Neither I nor II

23. The volume of a cube is increasing at a rate of 12 cubic centimetres per second, and its surface area is increasing at a rate of 4.8 square centimetres per second. What is the length of the cube's edge or side?

- a. 2.5
- b. 10
- c. 12.6
- d. 32.4

Read the information given below, and answer questions 24 and 25

A sample is being used to test if students in a university use online teaching resources for more than 2 hours a week. The sample consists of 22 students, and the population distribution parameters (mean and variance) are not known.

24. Based on the information given above, which of the following statements is/are true?

Statement I: The null hypothesis should equate the population mean to 2.

Statement II: The requisite hypothesis test will be a two sided test.

- a. I Only
- b. II Only
- c. Both I & II
- d. Neither I nor II

25. Which of the following distributions should be used to test the validity of the null hypothesis over repeated samples?

- a. The z-distribution
- b. The t-distribution
- c. The Binomial distribution
- d. The Poisson distribution





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26. If Z is a variant of the standard normal distribution, then which of the following distributions does Z follow?
- The Normal distribution
  - The t-distribution
  - The Chi-square distribution
  - The F-distribution
27. A researcher finds a correlation of 0.80 between personal income and the number of years of college completed. Based on this finding, which of the following statements is a valid conclusion?
- A person who has attended four years of college will have an annual income of \$80,000.
  - Fewer years of education is the cause of lower income.
  - Personal income is a positively skewed variable.
  - More years of education are associated with higher income.
28. Which of the following statements is true regarding the variance of a dataset?
- Smaller samples have a higher variance.
  - Random sampling results in distributions with larger variance.
  - The independent variable does not affect the variance of the dependent variable.
  - An insensitive dependent measure will lead to increased variance.
29. If a dataset has an outlier, and the mean is greater than the median, which of the following statements is true?
- The data is positively skewed.
  - The data is negatively skewed.
  - The data is normally distributed.
  - Can not be determined
30. Based on the time of the week, the demand for a good could be 21 units, 19 units or 22 units, with probabilities as 0.25, 0.40 and 0.35 respectively. If the profit per unit is \$0.5, what is the expected profit on any given day?
- 31.0
  - 20.6
  - 12.0
  - 10.3
31. The probabilities of two events, A and B is such that  $P(A) \cdot P(B) > 0$ . In that light, which of the following is/are true?
- A and B are independent
  - A and B are mutually exclusive
  - A and B are mutually exhaustive
  - Cannot be determined



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### **SECTION B**

This section consists of 34 questions, and is worth a total of 51 marks. Negative marking is applicable.

*Read the information given below, and answer questions 32 to 35*

The Makombo Reserve rescues and rehabilitates giraffes that have been injured or abandoned in the wild. Using the clues below, for each of the 4 giraffes – Chamey, Dyneton, Jebedah and Kaldel – currently at the preserve, determine the height (either 10, 11, 12 or 13 feet) and country of origin (either Ethiopia, Namibia, Zambia or Botswana).

- Of Chamey and Jebedah, one came from Botswana and the other is 12 feet tall.
- The giraffe that is 10 feet tall came from Zambia.
- Chamey is either from Zambia or is 13 feet tall.
- Kaldel came from Namibia.
- The 12 feet tall giraffe came from Ethiopia.

32. Which of the following statements is / are true?

Statement I: Dyneton is the giraffe from Zambia.

Statement II: Jebedah is from Ethiopia.

- a. (I) only
- b. (II) only
- c. Both (I) and (II)
- d. Neither (I) nor (II)

33. Which of the following statements is / are true?

Statement I: Kaldel is 11 feet tall.

Statement II: Jebedah is 13 feet tall, and Chamey is 12 feet tall.

- a. (I) only
- b. (II) only
- c. Both (I) and (II)
- d. Neither (I) nor (II)

34. Which of the following statements is incorrect?

- a. Chamey is from Ethiopia
- b. The giraffe from Zambia is 11 feet tall
- c. Both of the above
- d. None of the above

35. Which of the following statements is correct?

- a. Kaldel is from Namibia and 12 feet tall
- b. Jebedah is 13 feet tall and is from Ethiopia
- c. Both of the above
- d. None of the above



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Read the information given below, and answer questions 36 and 37

A, B, C, D, E, F and G are playing cards sitting around a circular table. Player D is not a neighbour of C or E. Player A is a neighbour of B and C. Player G, who is second to the left of D, is a neighbour of E and F.

36. Which of the following statements is correct?

- a. B is between A and D
- b. D is between F and G
- c. E is to the immediate right of G
- d. F is to the immediate left of G

37. Which of the following will be D's position after E and D interchange their places?

- a. Neighbour to G and C
- b. To the immediate right of F
- c. Neighbour of C and A
- d. To the immediate left of C

38. Which **Conclusion(s)** necessarily follow from the **Statements** given below?

**Statements**

Some roses are flowers.

Some flowers are buds.

All buds are leaves.

All leaves are plants.

**Conclusions:**

I. Some plants are flowers.

II. Some roses are buds.

III. No leaves are roses.

IV. No roses are buds.

- a. Only I and II follow
- b. Only II and IV follow
- c. Only I and either II or IV follow
- d. Only III and either II or IV follow

39. Which **Conclusion(s)** necessarily follow from the **Statements** given below?

**Statements**

All boys are girls.

Some girls are students.

All students are healthy.

**Conclusions:**

I. Some healthy could be boys.

II. Some healthy are girls.

III. Some students could be boys.

IV. Some boys are not healthy.

- a. I, II and III follow



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- b. I, II, III and IV follow
- c. II, III and either I or IV follow
- d. None of the conclusions follow

40. If  $A + B$  means A is the mother of B;  $A - B$  means A is the brother of B;  $A \% B$  means A is the father of B and  $A * B$  means A is the sister of B, which of the following shows that P is the maternal uncle of Q?
- a.  $Q - N + M \% P$
  - b.  $P + S * N - Q$
  - c.  $P - M + N * Q$
  - d. None of the above

Read the paragraph below, and answer Questions 41 and 42

**Paragraph 1:** There have been hints in the past of Dhoni quitting, considering his recent performances. He seemed to have lost his magical touch as a dependable finisher. When international cricket is all about agility and sharp reflexes, a marginal deficiency in the performance of a player can have a bearing on the outcome of a limited-overs match. It will not be surprising if Dhoni retires from international cricket soon; the relinquishment of captaincy is only a precursor to this intention.

41. Which of the following statements, if true, would weaken the author's argument the most?
- a. The growing pressures of captaincy and constant media scrutiny were weighing down Dhoni's performances.
  - b. On past record, Dhoni is among the greatest finishers of all time in limited overs cricket.
  - c. Dhoni is among Indian cricket's most successful captains and has been one of its fittest players.
  - d. Dhoni's retirement from cricket has been a matter of great media debate over the last year or so.
42. **Paragraph 2:** It has always been difficult to read Dhoni's mind, for the media and the opposition alike. Retirement cannot be ruled out, not least because it is not in Dhoni's DNA to eke out a career beyond his prime. But the real question is whether he is indeed past his prime as a player. Or has he merely been worn out by the constant, and often undue, public scrutiny over his every performance of late? Perhaps the resurgence of Dhoni the player and finisher lies in his relinquishment of the captaincy.

Which of the following is true about Paragraph 2?

- a. It extends the argument made by the author in Paragraph 1
- b. It concludes the argument made by the author in Paragraph 1
- c. It reverses the argument made by the author in Paragraph 1
- d. It reiterates the argument made by the author in Paragraph 1



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Read the three passages below, and answer Questions 43 to 59

An increasingly ubiquitous feature of the world we live in is democracy, as are corruption, inequality and high-pressure, high-stress environments. Thus, we live in a world where every now and then, we are tempted to ask: Is democracy overrated?

*The following two passages are excerpts from a four-part debate between Professor Jason Brennan, from Georgetown University, and Professor Philip Pettit, from Princeton University, on the merits of democracy as a system of social order.*

### 1) Excerpts of Professor Jason Brennan's views

Yes, democracy is overrated.

I agree that democracy is the best performing, most functional system we've tried so far. But while most philosophers approach democracy with religious reverence, I see it as nothing but a tool—a means to an end—and a flawed one at that. It's merely a useful decision-making procedure that tends to produce reasonably just outcomes.

But if we can find a better tool, we should feel free to use it. In my view, democracy is nothing more than a hammer, and no one insists on using a hammer when a wrench works better.

One of the defects of democracy is that it spreads out power widely among voters. And while this feature of democracy does disincentivize voters from acting selfishly, it also disincentivizes them from acting wisely. Since individual votes count for so little, each voter can afford to be ignorant and misinformed about politics, or to indulge her worst biases and delusions. Imagine if a professor in a 1000-person class told her students she would average their final exam grades together and they'd each get the same grade. They wouldn't bother to study, and the average grade would be an F.

### 2) Excerpts of Professor Philip Pettit's views

My counterpart Jason Brennan describes democracy as “merely a useful decision-making procedure”. By this, he means that democracy is an electoral mode of selecting the principal agents of the polity or state, presumably with a constraint under which the other more or less independent agents and agencies—in the U.S., for example, the judiciary, the Bureau of the Census, the Federal Reserve, etc.—are appointed by those elected.

If democracy requires nothing more than an electoral system of this kind, then it is certainly overrated. Consider democracy in the form it has assumed in the Russian Federation or the Republic of Turkey, where the elected leadership in each case has prioritized the importance of their electoral mandate but sought to remove or disable complementary institutions. The institutions marginalized are mainly devices of the sort associated with the civic republicanism Jason supports. These devices include various checks and balances, the separation of powers, rights of speech, assembly, and open contestation, courts of appeals, limits on campaign finance and lobbying, and the like.



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Institutions like these are “contestatory” in nature or function, meaning that they give citizens the opportunity to contest the decisions of their representatives, and Jason agrees that such institutions can help to “reduce the amount of domination to which citizens are subject” at the hands of government. They will do this by putting obstacles or costs or difficulties in the way of any authorities who try to abuse their power.

Jason and I may even agree that there is a broad sense of the term in which “democracy” requires contestatory *as well* as electoral institutions—my preferred account—and not just elections alone. But even if he does, we will still divide on a crucial issue. He is committed to the claim, not just that a purely electoral democracy is overrated, but that this is so of any richer package that includes elections. Whatever the merits of the package, he is opposed to the idea that it “requires *universal, equal* adult suffrage”.

On this crucial issue, I disagree with him. And I disagree despite acknowledging that the observations he makes about voter ignorance and irrationality are broadly correct. But if I acknowledge those aspects of voter performance, how can I hold that universal, equal voting—conducted, as we may presume, under an open, regular and competitive system—is an important part of the democratic package?

The answer, in brief, is that universal suffrage is essential for promoting what, under the best account of things, is the purpose of democracy.

### 3) *Democracies of the World – this is compiled and edited from Data, The Hindu, October 18, 2017, Statistica and Pew Research*

Among citizens living in entrenched democracies, Indians’ commitment to a representative democracy is the lowest, as Pew Research’s survey shows. The scatter diagram, reproduced from the report, plots the democracy index score vs. commitment to representative democracy for different income groups. People in higher income democracies have greater commitment.

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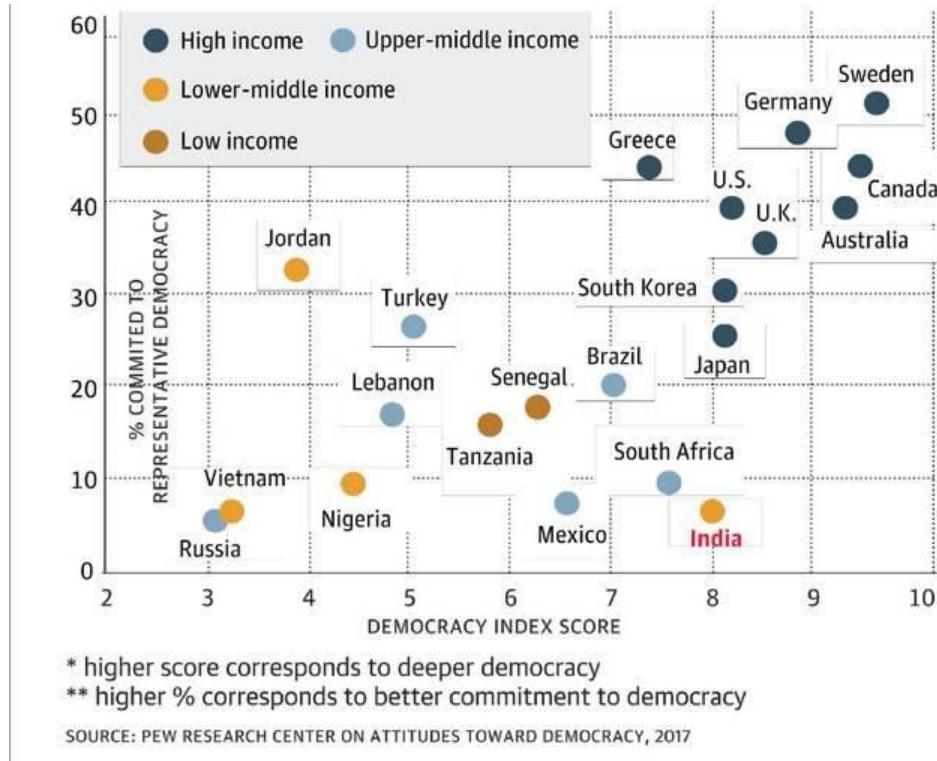


Figure 01

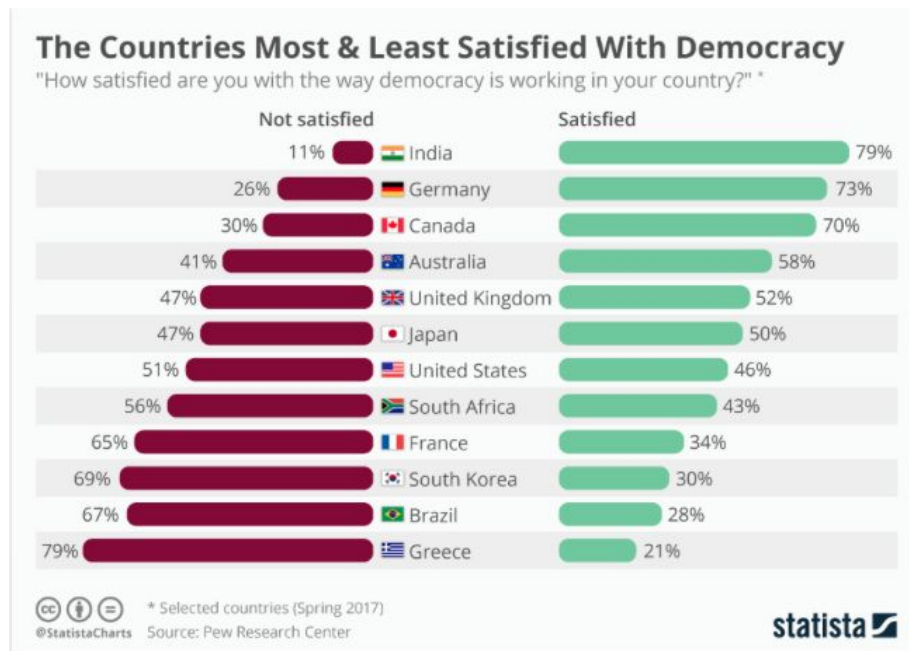


Figure 02



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*Note: The percentages depicted for “Not satisfied” in the graph above are the sum of the percentages for “Not at all satisfied” and “Not too satisfied” in the underlying survey. The percentages for “Satisfied” are the sum of the percentages for “Very satisfied” and “Somewhat satisfied”.*

In course of the same research, it was found that support for a strong leader who is unchecked by the judiciary or parliament is highest in India. While 55% of people in India view rule by a strong leader as a good way to govern, this form of governance remains less popular than direct democracy (viewed favorably by 76% of respondents), representative democracy (75%) and rule by experts (65%).

43. Winston Churchill had said: ““Democracy is the worst form of government, except for all the others.” Which of the following statement(s) from the passages above is/are supported by Churchill’s view?

Statement I: “But if we can find a better tool, we should feel free to use it.”

Statement II: “If democracy requires nothing more than an electoral system of this kind, then it is certainly overrated.”

- a. I only
  - b. II only
  - c. Both I and II
  - d. Neither I nor II
44. Based on your reading, which of the following is, in the opinion of Professor Pettit, most likely to be the purpose of democracy?
- a. To establish contestatory institutions
  - b. To reduce the domination citizens are subjected to
  - c. To allow an electoral voice to everyone
  - d. To ensure economic growth and development
45. Professor Brennan’s statement: “One of the defects of democracy is that it spreads out power widely among voters.”
- Professor Pettit’s conclusion: “He is opposed to the idea that it “requires *universal, equal* adult suffrage.”
- Which of the following statements best describes the above situation?
- a. Professor Pettit’s conclusion follows from Professor Brennan’s argument
  - b. The two statements were made in unrelated contexts
  - c. Professor Pettit’s statement grossly exaggerates Professor Brennan’s argument
  - d. Professor Pettit misinterpreted Professor Brennan’s argument and has reached an inaccurate conclusion
46. According to Professor Brennan, which of the following is a disadvantage of the current form of democracy?
- a. It results in centralisation of power within some particular group of people
  - b. It incentivizes voters to make informed choices
  - c. It muffles the voice of an individual voter
  - d. It can be susceptible to corruption





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47. According to Professor Pettit, which of the following statement(s) is/are necessarily true?  
Statement I: The backbone of a functioning democracy is the existence of contestatory as well as electoral institutions, and their independence from one another.  
Statement II: Without a fair election procedure, democracy cannot function properly.
- a. I only
  - b. II only
  - c. Both I and II
  - d. Neither I nor II
48. According to Professor Brennan, which of the following sentiments best encapsulates civic republicanism?
- a. A system where no single party can become all-powerful
  - b. The ability to speak and assemble freely
  - c. Peaceful debate and disagreement, and recourse to justice in case of wrongdoing
  - d. All of the above
49. Which of the following statement(s) is / are true?  
Statement I: Figure 01 supports Professor Brennan's views on democracy.  
Statement II: Figure 02 supports Professor Pettit's views on democracy.
- a. I only
  - b. II only
  - c. Both I and II
  - d. Neither I nor II
50. When democracy is referred to as a '**hammer**', which of the following is the closest implication?
- a. Democracy is a dispensable tool
  - b. Democracy is an imperative tool
  - c. Democracy is a powerful tool
  - d. Democracy hits the nail on the head
51. Which of the following is least complementary to the idea of a contestatory democracy?
- a. A free and fair media
  - b. A censor board that allows politically incorrect content to be placed in the public domain
  - c. A government that bans certain books in the interest of national solidarity
  - d. A judge who does not comply with the government's needs, even during turbulent times



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52. Which of the following can be inferred from the above passages, read together?

Statement I: Universal voting rights are essential for any democracy, despite irrational and/or misinformed voters

Statement II: The fact that Indians are most satisfied with the functioning of democracy in their country implies that they are committed to the idea of democracy.

- a. I only
- b. II only
- c. Both I and II
- d. Neither I nor II

53. Which of the following statement(s) is supported by the information given in the passages?

Statement I: For the set of all countries shown in Figure 01, the democracy index score roughly increases as the country's commitment to democracy increases.

Statement II: Indians would have been more committed to representative democracy had India been a high income country.

- a. I only
- b. II only
- c. Both I and II
- d. Neither I nor II

54. Based on the data presented, which of the following statement(s) is/are true?

Statement I: Some of the respondents for the survey underlying Figure 02 did not respond to the question about satisfaction level with democracy.

Statement II: Of the countries given, India is least committed to democracy.

- a. I only
- b. II only
- c. Both I and II
- d. Neither I nor II

55. If all the countries analysed in figure 01 are arranged in ascending order on the basis of their commitment to democracy, which country will attain the median value?

- a. India
- b. South Korea
- c. Lebanon
- d. Japan

56. Based on the evidence provided in Figure 02, what would you say about the satisfaction level, with democracy, of the average (or median) Brazilian citizen?

- a. Very satisfied
- b. Somewhat satisfied
- c. None of the above
- d. Cannot be determined



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57. Which of the following statement(s) correctly described the comparison between India and Germany with regard to their attitudes towards and satisfaction levels with democracy?

Statement I: Both India and Germany are amongst the countries most satisfied with the functioning of democracy

Statement II: Both India and Germany score high on the democracy index.

Statement III: Germany is less committed to democracy than India

- a. I only
- b. I and II only
- c. II and III only
- d. None of the above

58. Based on the data presented, which of the following statement(s) is/are true?

Statement I: The high support for a strong leader unchecked by judiciary or parliament is perhaps a key reason for India's low score on commitment to democracy.

Statement II: The majority of Indians (55%) prefer being ruled by a strong leader to all other forms of governance.

- a. I only
- b. II only
- c. Both I and II
- d. Neither I nor II

59. According to the scatter diagram presented above, let  $x$  be the average democracy index score of all the upper middle income countries and let  $y$  be the average democracy index score of all the low income countries. What is the relation between  $x$  and  $y$ ?

- a.  $x > y$
- b.  $x = y$
- c.  $x < y$
- d. Cannot be determined

Read the passage below, and answer Questions 60 to 65.

Agitations over the distribution of water in the Cauvery river are not new or surprising given the extreme dependence on agricultural and economic activity in the river basin. Karnataka and Tamil Nadu are fighting over water in a drying river, paying little attention to framing long-term solutions.

South India has always been highly dependent on the monsoon, which is uncertain and risky. Over the past few decades, the south-west monsoon has become unpredictable and has reduced in intensity. What does this mean for the Cauvery? The amount of water the river receives during the summer rains is becoming increasingly unreliable. In good years, when the river receives enough rainfall, there is no discord between the two States. In bad years, like the one we are facing now, it turns into a gargantuan political crisis. Unfortunately, the number of bad years is only going to worsen.

The Cauvery river's fertile basin has encouraged the growth of forests, agriculture and industry, all of which coexist in an uneasy manner and are now threatened. We need to pay attention to land use at the



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regional level. Dense forest cover once helped reduce the likelihood of flash flooding, retaining water on hill slopes to enable slow percolation and recharge of the tributaries. Deforestation across the basin has contributed to reduction in rainfall, soil erosion, and flooding, with hundreds of thousands of trees being decimated to make way for plantations, urban construction, and agriculture. In the place of forests, plantations of water-hungry trees such as eucalyptus and acacia are further reducing the water table. In Coorg, local groups have agitated against the felling of lakhs of trees for the construction of a new railway line from Mysuru, and a high-tension power line. They have received little support from the local and national administration despite warning of the effect on the river. These are not isolated incidents; deforestation is widespread along the length and breadth of the river. Tree clearing is now threatening even previously protected sites on mountain heights and steep slopes, sensitive zones where soil erosion further impacts river recharge.

Rapid urbanisation has converted fertile agriculture, forests and wetlands into concreted areas that are unable to retain rainwater or channel them into tributary streams that feed the Cauvery. Urbanisation demands concrete; concrete requires sand. In the districts surrounding the Cauvery, rampant sand mining has altered the natural topography of the river, eroding its banks, widening the river, and altering water flow patterns. Despite warnings from environmentalist groups and farmer coalitions, and interventions by the court, this practice continues unchecked. It is no surprise that the wells that replenish farms across the basin are running dry — or that desperate farmers are reduced to abandoning agriculture and renting their farms to sand contractors for sand storage, thus becoming complicit in their own destruction.

The large number of dams across the river contribute to a significant decrease in the river's capacity for water storage. Siltation in dams and connecting river channels has reached alarming proportions. Industries along the Cauvery and its tributaries send large volumes of polluted water that, far from being of use to farmers, destroy their land beyond redemption. There is no farming activity for kilometres on the side of tributaries such as the Noyyal, polluted by Tiruppur's textile industry. The toxic sludge from industrial effluents builds up on the river bed, further reducing its capacity for storage. Despite abundant discussion, government funding for de-siltation of the river's channels remains conspicuous by its absence.

Widespread changes in farming and agricultural patterns exacerbate the problem. Once an area of millet cultivation, the Cauvery basin has transformed into a location for the cultivation of high-yield paddy and sugarcane, both water-intensive crops. There needs to be a redesign of the farming system, keeping in mind in particular the water requirements of the crops planted after the onset of the south-west monsoon.

What are Karnataka and Tamil Nadu planning to do in terms of developing more water-smart agricultural strategies? There is little discussion on this. Though a politically charged topic, it is one that must be addressed through conversations with farmers who seem well aware of these issues. They need better alternatives and greater state assistance in facilitating explorations of alternative cropping strategies, including an examination of a possible return to millet farming (which is more nutritious as well as water-efficient), or to multi-cropping of vegetables, or even to the development of more water-efficient varieties of paddy.



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While Karnataka and Tamil Nadu struggle to find workable solutions to the distribution of water in the river during years of drought, the writing on the wall is clear. As climate change makes its impact visible, we are going to face many more seasons of drought and points of conflict. It is important that we think long term and in a coordinated fashion across the basin. We need to find ways to recharge the river, increase inflow of water, clean up hotspots of pollution, and increase the efficiency of water use. For this, we must take up afforestation along the river on a war footing, move to water-efficient cropping, limit industrial pollution of rivers, ban excessive sand mining, and limit the growing consumption of water for cities and towns along the river. This requires conversation and cooperation across the basin, not reactive conflict. Given the politically charged minefield that the Cauvery water-sharing issue has become, can we hope for reasoned, concerted action?

*(When the river weeps, The Hindu, by Harini Nagendra, August 6, 2017)*

60. Which of the following statement(s) is/are true?

Statement I: The use of the term 'water-intensive' in the passage indicates the need for an in-depth analysis of crops on the aspect of water supply

Statement II: The use of the phrase 'reactive conflict' in the passage refers to hostility triggered by an act of another entity.

- a. (i) only
- b. (ii) only
- c. Both (i) and (ii)
- d. Neither (i) nor (ii)

61. Which of the following can be said to be the author's main aim behind writing the passage?

- a. Highlighting the short-termism and apathy on display from Karnataka and Tamil Nadu on the Cauvery issue
- b. Outlining the environmental degradation precipitated by anthropogenic actions
- c. Talking about the imminence of climate change and its associated perils
- d. Rallying readers to take concerted action to remedy the ill-effects of human activity on forests and rivers

62. Which of the following statements is the author most likely to agree with?

Statement I: The amount of water required in a paddy field varies based on variety.

Statement II: Now that the Cauvery issue has been politicised, reasoned and well thought-out, solutions and policy measures will become evident.

- a. (i) only
- b. (ii) only
- c. Both (i) and (ii)
- d. Neither (i) nor (ii)



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63. Which of the following would not be a good way to address the Cauvery issue?
- Cultivation of water-efficient crops
  - Afforestation
  - Preservation of biodiversity in the Cauvery basin
  - Discussions with farmers
64. Based on the passage, place the following in the correct order in terms of cause-and-effect:
- Sand mining
  - Deforestation
  - Alteration of the river's natural course
  - Urbanisation
- (iv) leads to (ii) which leads to (i) which leads to (iii)
  - (iv) leads to both (ii) and (i), and (i) leads to (iii)
  - (iv) leads to both (ii) and (i), which lead to (iii)
  - None of the above
65. Which of the following is likely to be the most direct consequence of climate change?
- Increased agitation from local groups
  - Exacerbation of the Cauvery dispute
  - Deforestation
  - More seasons of drought

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END OF PAPER



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**ANSWER KEY TO SAMPLE QUESTION PAPER**

Section A				Section B			
Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	d	17	b	32	c	49	d
2	c	18	d	33	a	50	a
3	d	19	d	34	c	51	c
4	a,b,c	20	c	35	d	52	d
5	c	21	c	36	a	53	d
6	b	22	c	37	a	54	a
7	a,c	23	b	38	c	55	d
8	d	24	a	39	a	56	c
9	a	25	b	40	c	57	b
10	a	26	c	41	a	58	a
11	c	27	d	42	c	59	c
12	c	28	a	43	a	60	b
13	b	29	a	44	c	61	a
14	c	30	d	45	a	62	a
15	a	31	d	46	c	63	c
16	a,b			47	a	64	b
				48	d	65	d