

## General Studies & Engineering Aptitude

### Model Questions

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1. Five candidates A, B, C, D and E had written an examination and the relationship between their marks was as follows:

- D scored twice as many marks as E.
- Marks obtained by C were equal to the average of those of A and B.
- A scored 23 marks more than E
- B scored 5 marks less than D

If E scored 42 marks, then the marks of C were:

- (a) 42
- (b) 65
- (c) 72
- (d) 79

2. The UN Conference on Environment and Development, known as Rio Summit, led to the final development of which international treaty?

- (a) Kyoto Protocol
- (b) World Environment Treaty
- (c) Environment Treaty of the G8 Nations
- (d) Universal Environment Treaty

3. Consider the following statements regarding definition of 'moral':
1. Being or acting in accordance with standards and precepts of goodness
  2. Arising from conscience or a sense of right and wrong
  3. A concisely expressed precept or general truth, a maxim
  4. The principles of conduct governing an individual or a profession, standards of behaviour

Which of the above statements are correct?

- (a) 1, 2, 3 and 4
- (b) 1, 2 and 4 only
- (c) 3 and 4 only
- (d) 1, 2 and 3 only

4. In a project, in which four roads A, B, C and D were to be completed:

- A was not completed first
- B was not completed last
- C was completed ahead of D
- D was not completed last

Then, which road was completed last?

- (a) B
- (b) A
- (c) C
- (d) D

5. Consider the following statements regarding the responsibilities of the National Securities Depository Limited (NSDL):

1. To keep an electronic record of ownership of shares
2. To supplement electronic trading by introducing the concept of electronic scrips
3. To facilitate physical delivery of securities
4. To facilitate transmission of shares

Which of the above statements are correct?

- (a) 1, 2 and 3
- (b) 1, 3 and 4
- (c) 1, 2 and 4
- (d) 2, 3 and 4

6. Consider the following statements regarding safety in workplace:

1. It attracts visitors and tourists
2. It enhances the profit margin
3. It provides comforts and confidence in workers

Which of the above statements is/are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

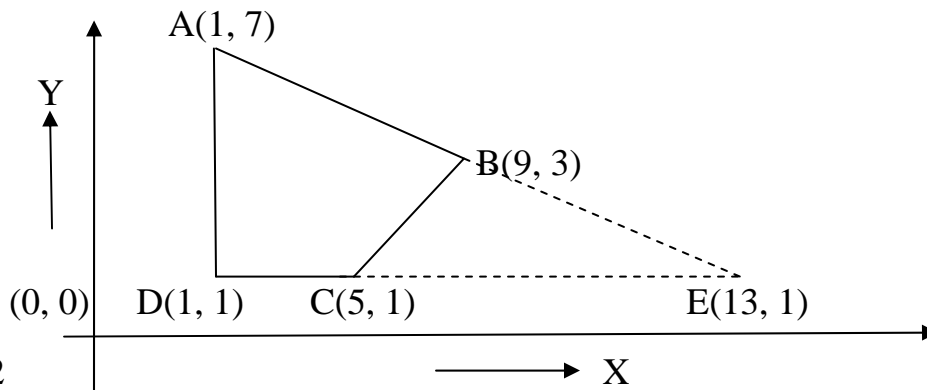
7. The sales figures of a small company are listed as follows:

| Year             | 2011  | 2012  | 2013  | 2014  | 2015  |
|------------------|-------|-------|-------|-------|-------|
| Sales (in units) | 85000 | 87500 | 90100 | 92810 | 95625 |

What would be the sales projection (in units) for the year 2016?

- (a) 98575
- (b) 98545
- (c) 98510
- (d) 98475

8. What is the area of quadrilateral ABCD shown below?



- (a) 12
- (b) 28
- (c) 36
- (d) 38

9. Consider the following statements:
1. An organization can function efficiently only if a formal authority system exists. This has to be strengthened by informal bases of power and influence to bring in effectiveness.
  2. Cooperation of supporting officials depends on the senior's range of knowledge, experience and leadership abilities.
  3. If one's own actions or examples, directly or indirectly, cause a change in the behaviour or attitude of another person or group, this is called influencing.
  4. Requiring compliance with instructions without being able to influence is tantamount to power vested in the one who instructs.

Which of the above statements conform to ethical practice?

- (a) 1, 2 and 3 only
- (b) 1, 2 and 4 only
- (c) 3 and 4 only
- (d) 1, 2, 3 and 4

10. Which of the following are classifiable as non-destructive testing methods?

1. Harness testing
2. Liquid penetrant method
3. Magnetic particle inspection
4. Concrete test hammer

Select the correct answer using the codes given below:

- (a) 1, 2 and 3 only
- (b) 1, 2 and 4 only
- (c) 3 and 4 only
- (d) 1, 2, 3 and 4

11. The main purpose of preventive maintenance of construction equipment is to:

- (a) Prevent or delay failure
- (b) Reduce repair time
- (c) Allow for easy servicing
- (d) Remedy minor defects

12. Consider the following steps which are used while solving the design problems:

- 1. Analyze and select optimum solution
- 2. Identify the problem and gather pertinent information
- 3. Test and implement the solution
- 4. Generate multiple solutions

What is the correct sequence of order for the design process?

- (a) 2, 1, 4 and 3
- (b) 1, 4, 3 and 2
- (c) 2, 4, 1 and 3
- (d) 1, 4, 2 and 3

13. Consider the following:

1. Flood moderation
2. Flow channelization
3. Bank protection
4. Sediment control

Which of the above are relevant in the design of river training works?

- (a) 1 and 3
- (b) 1 and 4
- (c) 2 and 3
- (d) 2 and 4

14. Consider the following statements regarding the generation of biomass energy:

1. It is generated from organic material, plant or animal waste
2. It is easily available
3. Biomass boilers are less expensive than gas or oil boilers

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

15. Cement is used in a precast plant at the rate of 30 tons/month continuously. The cost of cement is Rs. 2600 per ton. The ordering cost per order is Rs. 125 and the holding cost including wastage is about 4.5% of the average inventory cost. The Economic Order Quantity of cement is

- (a) 4 ton / order
- (b) 7 ton / order
- (c) 8 ton / order
- (d) 12 ton / order

16. Which of the following items will be relevant to properly conduct the needful Environmental Impact Assessment at a locality for any project coming up there?

- 1. The lay of the land, particularly large depressions which may hold water of any source
- 2. Prevailing or predominant wind directions throughout the year in the locality
- 3. Food habits of the local population
- 4. Whether sanitary fills for disposal of Municipal wastes are in the neighbourhood
- 5. Nearness to National Highways
- 6. Availability of higher educational institutions in the vicinity

Select the correct answer using the codes given below:

- (a) 2, 3 and 6
- (b) 1, 3 and 5
- (c) 1, 2 and 4
- (d) 2, 4 and 6



17. Consider the following statements regarding Cash Reserve Ratio (CRR):

1. Percentage of bank deposits which every bank is required to keep with RBI in the form of reserves and/or balances.
2. Higher the CRR with the RBI, the lesser will be the liquidity in the banking system

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

18. Consider the following statements regarding metamaterials:

1. They are not naturally occurring materials
2. Electromagnetic metamaterials may show negative refractive index
3. Optical metamaterials may show negative refractive index
4. These can be used to design planar lenses

Which of the above statements are correct?

- (a) 1, 2, 3 and 4
- (b) 1, 3 and 4 only
- (c) 2 and 4 only
- (d) 3 and 4 only

19. Consider the following characteristics in respect of intrinsic semiconductor:

1. It behaves as conductor at absolute zero temperature
2. The conductivity can be changed by adding impurities
3. It has narrower band-gap between valance and conduction band compared to that in insulators
4. It can be used in power transmission line

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 3 and 4 only
- (d) 1, 2, 3 and 4

20. Consider the following statements regarding Cloud computing:

1. Private cloud describes a 'cloud services' that can be accessed only by a pre-defined group of people
2. Private cloud provides elastic behaviour as well as scalability
3. Scalability is that feature of cloud computing which alters the service to change in size or volume so as to meet user's needs
4. A cloud environment can be accessed from anywhere in the world so long as the user has access to the internet

Which of the above statements are correct?

- (a) 1, 2 and 3 only
- (b) 1, 3 and 4 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

21. Consider the following statements:

A ferromagnetic piece of iron has been magnetized. In this condition, the large number of domains therein will be such that:

1. All the spin magnetic moments get oriented in a specific direction
2. The net magnetization of this total mass of ferromagnetic material is zero

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

22. Consider the following statements regarding employing ICT tools in engineering projects as by current practice:

1. They must, and do, provide a clearer overview of the project details and interfaces
2. They must be capable of sharing of information appropriately
3. They must help to cut down the overall cost of the project with effective monitoring to safeguard against delays

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

23. Consider the following objectives being addressed by e-governance:

1. Dissemination of information about policies and schemes of the Government
2. Follow-up on implementation of Government's welfare schemes
3. Providing information on public queries
4. Facilitating settlement of dues to the Government

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 and 4 only
- (d) 1, 3 and 4

24. Which of the following is a software distribution model in which the applications are hosted by a service provider and are made available to users over a network?

- (a) Information as a service
- (b) Platform as a service
- (c) Software as a service
- (d) Platform and Software jointly as a service

25. Consider the following statements regarding plagiarism:

Plagiarism is

1. Using intellectual property of others without their permission
2. It is ethically incorrect

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**Directions: --**

Each of the next **Five (05)** items consists of two statements, one labelled as 'Statement (I)' and the other as 'Statement (II)'. Examine these two Statements carefully and select the answers to these items using the codes given below:

**Codes:**

- (a) Both Statement (I) and Statement (II) are individually true; and Statement (II) is the correct explanation of Statement (I)
- (b) Both Statement (I) and Statement (II) are individually true; but Statement (II) is **NOT** the correct explanation of Statement (I)
- (c) Statement (I) is true; but Statement (II) is false
- (d) Statement (I) is false; but Statement (II) is true

26. Statement (I): Human Rights for All cannot be realized comprehensibly without Right to Development.

Statement (II): Right to Development ensures the realization of Human Rights.

27. Statement (I): Project anatomy may not need an initiation stage.

Statement (II): The life-cycle cost of operating any item of machinery should be considered for its investment appraisal.

28. Statement (I): Denuding of forest cover followed by quarrying and/or terrace levelling may cause landslides.

Statement (II): These activities aid in recharging into the ground water storage locally.

29. Statement (I): The anchoring concept of Web 2.0 is 'Data is the king', i.e., we can create a web Mashup by dragging data from other websites or services.

Statement (II): Web Services refers to a loosely-coupled distributed computing architecture.

30. Statement (I): Greenhouse gases increase the earth's surface temperature.

Statement (II): Greenhouse gases help to retain the incoming heat energy from the Sun.