JR. ENGINEER GRADE-I (CIVIL)

YEAR OF ADVT: 2019 DATE OF EXAM: 29-APR-2023

DO NOT BREAK THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

QUESTION BOOKLET

SERIES IV

Subjects: General English, General Knowledge, Civil Engineering

BOOKLET SERIAL NO.

50196

Marks: 300Time: $2^{1}/_{2}$ hours

Read the following instructions carefully before you begin to answer the questions.

INSTRUCTIONS TO CANDIDATES

1. This booklet contains **150 questions** to be answered in a separate OMR Answer Sheet using Black Ball Pen in following three parts:

Part-A-General English: 25 questions, Part-B-General Knowledge: 25 questions,

Part-C-Civil Engineering: 100 questions

- 2. All Questions are compulsory.
- 3. You will be supplied the Answer sheet separately by the invigilator. You must complete the details of particulars asked for.
- 4. Answers must be shown by completely blackening the corresponding circles in the Answer Sheet against the relevant question number by Black Ball Pen. OMR Answer Sheet without marking series/ double series marking shall not be evaluated.

Example:

Supposing the following question is asked:-

The Capital of Meghalaya is-

- A. Guwahati
- B. Kohima
- C. Shillong
- D. Delhi

You will have four alternatives in the Answer Sheet for your response corresponding to each question of the Question Booklet as below:-

(A) (B) (C) (D)

In the above illustration, if your chosen response is alternative C i.e. Shillong, then the same should be marked on the Answer Sheet by blackening the relevant circle with a Black Ball Point Pen only as below:

(A) (B) (D)

WHICH IS THE ONLY CORRECT METHOD OF ANSWERING

- 5. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any one question.
- 6. There will NOT be any negative marking for wrong answers.
- 7. The Answer Sheet must be handed over to the invigilator before you leave the Examination Hall.
- 8. No rough work is to be done on the Answer Sheet. Space for rough work has been provided in the question booklet.

PART-A-GENERAL ENGLISH

Marks:50

Each question carries 2 marks:

Directions: In the following questions, out of the four alternatives given, choose the word which is opposite in meaning to the underlined word:

- 1. Sane
- a) Refined
- b) Brief
- c) Inane
- d) Unbalanced
- 2. Bane
- a) Tact
- b) Excess
- c) Blessing
- d) Ruin
- 3. Treacherous
- a) Deceitful
- b) Messy
- c) Careful
- d) Loyal
- 4. Alert
- a) Allege
- b) Inattentive
- c) Similar
- d) Watchful
- 5. Altruistic
- a) Uncharitable
- b) Academic
- c) Rampant
- d) Generous

Directions: In the following questions, out of the four alternatives given, select the one that best expresses the meaning of the underlined word:

- 6. The Smiths lived in a modest home near Canterbury.
- a) Stylish
- b) Humble
- c) Stony
- d) Dingy
- 7. This classroom is better than that <u>awful</u> place we had before with the tiny windows.
- a) Shadowy
- b) Terrific
- c) Medieval
- d) Dreadful
- 8. She was exultant at her brilliant success.
- a) Delighted
- b) Disinterested
- c) Powerless
- d) Practical
- 9. There was a great dispute between the workers and the management.
- a) Derision
- b) Unhappiness
- c) Prospect
- d) Conflict
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- 10. The media is disseminating news of another
- a) Circulating
- b) Overlooking
- c) Exposing
- d) Restricting

Directions: In the following questions, out of the four alternatives given, choose the alternative which best expresses the meaning of the given idiom / phrase:

- 11. All roads lead to Rome
- a) Set out on a journey
- b) There are many different ways of reaching the same goal
- c) A public spectacle marked by barbarism
- d) Going down in estimation or favour
- 12. Better safe than sorry
- a) It is wiser to be careful than to be hasty and then do something that one may regret later
- b) It is preferable for something to happen or be done later than not at all
- c) Narrowly surpass a previous effort or achievement
- d) At a late stage in proceedings, too late to be useful
- 13. Where there's smoke, there's fire
- a) There is always some reason for a rumour
- b) Stimulate someone to work more enthusiasti-
- c) A powerful sense of ambition and determina-
- d) Something that is beyond repair
- 14. Sit on the fence
- a) Unreasonable or unacceptable
- b) An opportunity to achieve something
- c) Delay making a decision
- d) Criticise someone aggressively
- 15. Hit the hav
- a) Make good use of an opportunity while it lasts
- b) To go to one's bed in order to sleep
- c) Throw into confusion
- d) Leave quickly

Directions: In the following questions, fill

in the blanks with appropriate preposition from the options given below:						
16. I put a cloth	her head.					
a) At	b) Over					
c) Along	d) Across					
17. He is a member	r Parliament.					
a) At	b) In					

18. He was afraid ____ losing his money.
a) Of b) To

c) Off d) With

19. We need fewer workers ___ the weekend.

a) On b) By c) During d) In

20. I thought I heard someone ____ the door.

a) At

c) On

b) On

d) Of

c) By

d) From

Directions: In the following questions, out of the four alternatives given, choose the one which is similar in meaning to the underlined word:

21. Infallible

a) Dishonest

b) Twisted

c) Faultless

d) Merciful

22. Gruesome

a) Poisonous

b) Ghastly

c) Docile

d) Cruel

23. Vague

a) Unclear

b) Brave

c) Tasteless

d) Haughty

24. Hostile

a) Ailing

b) Miserable

c) Annoying

d) Unfriendly

25. Cryptic

a) Savage

b) Mysterious

c) Critical

d) Crucial

PART - B -GENERAL KNOWLEDGE

Marks: 50

Each question carries 2 marks:

26.	What	is	the	name	of	the	acid	present	in
lem	on?								

- a) Oxalic acid
- b) Lactic acid
- c) Ascorbic acid
- d) Citric acid
- 27. Who is the Women's Singles champion of the Australian Open 2018?
- a) Simona Halep
- b) Serena Williams
- c) Angelique Kerber
- d) Caroline Wozniacki
- 28. Who is the present Governor of the Reserve Bank of India?
- a) Raghuram Rajan
- b) Urit R. Patel
- c) Arvind Subramanian d) Shaktikanta Das
- 29. Who is the author of the famous novel 'War and Peace'?
- a) Leo Tolstov
- b) William Shakespeare
- c) Bertrand Russell
- d) V. S. Naipaul
- 30. What is the term of the Office of the Vice President of India?
- a) 4 Years
- b) 5 Years
- c) 6 Years
- d) 7 Years
- 31. Who was the first Chief Minister of Meghalaya?
- a) D. D. Pugh
- b) B. B. Lyngdoh
- c) P. A. Sangma
- d) Williamson A. Sangma
- 32. Which is the capital of the Union Territory of Dadra and Nagar Haveli?
- a) Panaji
- b) Port Blair
- c) Silvassa
- d) Kawarathi
- 33. MacMohan Line demarcates the boundary between -
- a) India and Pakistan
- b) India and Nepal
- c) India and China
- d) India and Myanmar
- 34. Where is the National Stock Exchange located?
- a) Chennai
- b) Mumbai
- c) New Delhi
- d) Kolkata

- 35. Who was the first woman president of the Indian National Congress?
- a) Kamala Nehru
- b) Sarojini Naidu
- c) Annie Besant
- d) Sucheta Kripalani
- 36. Which of the following blood groups is known as the universal blood donor?
- a) O

b) AB

c) B

- d) A
- 37. What degree of Fahrenheit does equal to zero degree Celsius?
- a) 22
- b) 32
- c) 42
- d) 52
- 38. Which of the following characteristics is not related to a federal government?
- a) Written Constitution
- b) Flexible Constitution
- c) Supremacy of the Constitution
- d) Independent Judiciary
- 39. Which country is known as the Land of the Rising Sun?
- a) Norway
- b) New Zealand
- c) Japan
- d) North Korea
- 40. Which year Shillong became the capital city of the composite Assam?
- a) 1829
- b) 1874
- c) 1887
- d) 1926
- 41. Loktak lake is located in the state of
- a) Meghalaya
- b) Mizoram
- c) Manipur
- d) Tripura
- 42. The largest ocean in the world is
- a) The Atlantic Ocean
- b) The Pacific Ocean
- c) The Antarctic Ocean
- d) The Indian Ocean
- 43. How many spokes are there in the Ashoka Chakra of our national flag?
- a) 20
- b) 22
- c) 24
- d) 26
- 44. In which year was Stephen William Hawking born?

a) 1942	b) 1944
c) 1946	d) 1948

45. Who is the creator of the painting The Potato Eaters?

a) Leonardo da Vinci

b) Pablo Picasso

c) Vincent van Gogh

d) Chris Owen

46. Which of the following states celebrate the Hornbill Festival?

a) Arunachal Pradesh

b) Nagaland

c) Mizoram

d) Manipur

47. Who are the 2017-18 Ranji Champion?

a) Mumbai

b) Vidarbha

c) Delhi

d) Tamil Nadu

48. What was the population of Meghalaya as per the 2011 Census?

a) 34.14 Lakhs

b) 29.64 Lakhs

c) 25.39 Lakhs

d) 24.91 Lakhs

49. Rabindra Nath Tagore received the Nobel Prize in Literature for

a) Gitali

b) Gitimalya

c) Gitanjali

d) Kabi-Kahini

50. Taj Mahal is located on the bank of the river

a) Ganges

b) Yamuna

c) Tapti

d) Cauvery

PART - C - CIVIL ENGINEERING

Marks:200

Each question carries 2 marks:

- **51.** In compaction the procedure for kneading action is suited for soil of
- a) Fine type
- b) Sandy type
- c) Organic type
- d) Plastic type
- **52.** When shearing force direction is perpendicular to the serrations of metal plates during soil test, this is done in case of
- a) Shear box test
- b) Unconfined compression test
- c) Triaxial test
- d) Vane shear test
- **53.** The difference in the slip line between active and passive state is
- a) Less than frictional angle of soil
- b) Half the frictional angle of soil
- c) Is zero
- d) Equal to the frictional angle of soil
- **54.** The intensity of loading that will cause a permissible settlement for the structure is known as
- a) Ultimate safe bearing capacity
- b) Net safe bearing capacity
- c) Allowable bearing pressure
- d) Safe bearing pressure
- **55.** When the ground is soft, the type of pile that is often adopted is
- a) Vibro pile
- b) Franki pile
- c) Western pile
- d) Simplex pile
- **56.** The masonry in steining of well should not be allowed to be built
- a) More than 2m height
- b) More than 4m height
- c) More than 5m height
- d) Less than 2m height
- 57. The boring methods which is suitable for all types of soil, boulders, rocks is
- a) Percussion boring
- b) Wash boring
- c) Auger shell boring
- d) Spiral shell boring
- 58. The strength of timber is more in a direction
- a) Perpendicular to the grain
- b) Parallel to the grain

- c) Parallel to the fibre
- d) None of the above
- **59.** In marine construction the type of cement that is mostly used is
- a) Rapid hardening cement
- b) Quick setting cement
- c) Pozzolana cement
- d) Sulphate resisting cement
- **60.** Feeble hydraulic lime it contains silica, alumina or iron oxide in the amount of
- a) Less than 5%
- b) Less than 10%
- c) Less than 15%
- d) More than 15%
- **61.** No slump in concrete corresponds to the compaction factor value of about
- a) 0.70
- b) 0.75
- c) 0.80
- d) 0.82
- **62.** The paint that is used in underground railways and mines is
- a) Colloidal paint
- b) Inodorous paint
- c) Graphite paint
- d) Cement paint
- **63.** The concrete flooring which is composed of cement, sand and specially selected aggregates is known as
- a) Cement concrete flooring
- b) Terrazzo flooring
- c) Mosaic flooring
- d) Granolithic flooring
- **64.** The windows which admits more air and light is known as
- a) Bay window
- b) Clere storey window
- c) Corner window
- d) Louvred window
- **65.** The type of lock that is used for thin doors is known as
- a) Mortise lock
- b) Pad lock
- c) Rim lock
- d) Latch lock
- **66.** The connection between the distribution pipe and the service connection for giving water connection to the customers is known as
- a) Goose neck
- b) Service pipe

c) Ferrule	d) Sluice valve	c) Friction force	d) Pressure force		
67. The concurrent for	ces may be	77. The Jayakar Committee for road develop-			
a) Coplanar	•	ment was formed in th	e year		
b) Non coplanar		a) 1925	b) 1927		
c) Either coplanar or no	on coplanar	c) 1928	d) 1929		
d) None of these					
		78. Due to excessive camber on highway there			
68. The value of a unit	vector dotted into itself	is a tendency of vehicle to			
is		a) Travel along the centre line			
a) One	b) Zero	b) Get inclined inward			
c) Both	d) None of these	c) Inclined outward			
		d) Form centrifugal force			
69. Self weight of a blo	ck resting on an inclined				
plane will act		79. The first step for h	79. The first step for highway survey project is		
a) Vertically downward	ls	a) Map study			
b) Horizontally		b) Reconnaissance sur	vey		
c) Along the incline pla	ne	c) Preliminary survey			
d) Normal to the incline	e plane	d) Location survey			
70. A properly supporte	ed truss structure is con-	80. The mutual rubbin	g of stones due to pave-		
	The sub element is made	ment deformation is known			
up of		a) Attrition	b) Rolling		
a) Two members	b) Three members	c) Impact	d) Crushing		
c) Four members	d) None of these	1			
		81. The road tar that is	s often used for grouting		
71. Frictional resistance	e generating from solid	purposes is			
and fluid surface is call		a) RT1	b) RT2		
a) Lift b) Drag		c) RT4	d) RT5		
	d) Thermal resistance	,	* 11.00		
7) 5.07.10.12.10.1		82. Lime stabilization s	suitable for subgrade soil		
72. Rolling friction is a	type of	of	76.7		
a) Static friction	b) Belt friction	a) Granular type	b) Coarse type		
c) Kinetic friction	d) Surface tension	c) Fine type	d) Plastic type		
73. To attain the condit.	ion of irreversibility of a	83. To reduce warping	stress in concrete pave-		
73. To attain the condition of irreversibility of a machine the value of mechanical efficiency is		ment is taken up by			
a) More than 0.50	b) More than 0.75	a) Filler joint	b) Expansion joint		
c) Exactly 1.0 d) Less than 0.50		c) Transverse joint	d) Construction joint		
74. Which of the follow	wing is / are not simple	84. A localized heaving up of pavement portion			

84. A localized heaving up of pavement portion is due to

a) Rutting

b) Shear failure

c) Frost action

d) Mud pumping

85. A zebra crossing is also known as

- a) Controlled crossing
- b) Uncontrolled crossing
- c) Guide crossing
- d) Non guide crossing

86. In a highway intersections a Clover leaf interchange is a very popular

a) Gravity force

machine (s)?

c) Screw

a) Two

force?

c) Three

a) Inclined plane

lation of a rigid body are

b) Bench vice

d) None of these

b) Spring force

d) Lever

b) Zero

75. Degrees of freedom in a pure planar trans-

76. Which of the following is not a conservative

- a) I leg interchange
- b) 2 leg interchange
- c) 3 leg interchange
- d) 4 leg interchange
- 87. For rough roads and uneven surface the tractor that is often used is
- a) Pneumatic wheel
- b) Crawler
- c) Smoothed wheel
- d) Bull dozer
- **88.** The first proposal for the construction of railway in India was in the year
- a) 1833
- b) 1838
- c) 1844
- d) 1853
- 89. Roaring of rails is due to the
- a) Slippage of rail surface
- b) Coning of wheel
- c) Friction at surface of rail
- d) Corrugation of head of rails
- 90. Duplex sleepers are commonly used at
- a) Rail joints
- b) Track
- c) Curve
- d) Bridge
- 91. The ballast materials obtained as a waste product from steam locomotive is known as
- a) Kankar
- b) Slag
- c) Granulated slag
- d) Cinders
- **92.** Discomfort to passengers may cause due to higher amount of
- a) Cant deficiency
- b) Speeds
- c) Slope friction
- d) Coning of wheel
- 93. The nose of crossing is formed by
- a) Splice rail
- b) Point rail
- c) Lead rail
- d) Tongue rail
- 94. For being able to change tracks in adjacent tracks in either direction is achieved by providing
- a) Gauntlet crossover
- b) Diamond crossing
- c) Obtuse crossing
- d) Scissors crossover
- 95. Hand held signals is a part of
- a) Operating characteristics
- b) Location
- c) Two aspects
- d) Single aspect

- 96. Shunting operation is carried out much quicker in
- a) Flat yards
- b) Gravitational yards
- c) Marshalling yards
- d) Hump yards
- 97. Soil deposited by wind is called
- a) Aeolian
- b) Aelian
- c) Lacustrine
- d) Alluvium
- 98. Medium plastic clay has liquid limit
- a) Below 30 percent
- b) Between 30 to 35 percent
- c) 35 to 50 percent
- d) 35 to 40 percent
- 99. A soil sample has a porosity of 40 percent, its void ratio is
- a) 0.667
- b) 1.5
- c) 0.55
- d) 0.76
- **100.** In sieve analysis, the size of fine fraction is determine if its content in the soil is
- a) Less than 5%
- b) More than 5%
- c) Less than 12%
- d) More than 12%
- 101. The critical velocities of flow for fine sands is about
- a) 0.000034 cm/sec
- b) 0.000045cm/sec
- c) 0.000097cm/sec
- d) 0.0010cm/sec
- 102. The water formation in a soil stratum which is not capable of transmitting or supplying significant quantity is known as
- a) Aquifuge
- b) Aquiclude
- c) Aquifer
- d) Artesian
- **103.** The upward flow will occur for a soil of specific gravity 2.7, void ratio 0.5, porosity 33 percent, the value for hydraulic gradient is
- a) 1.13
- b) 2.47
- c) 0.67
- d) 2.1
- **104.** For Secondary consolidation, is due to the forcing out between soil particles of
- a) Water particles
- b) Non viscous water
- c) Highly viscous water
- d) Collapsing of pore water
- 105. For making steel into thin sheets materials, the type of steel required is
- a) Hard and brittle type
- b) Cold rolled type

- c) Hot rolled type
- d) Malleable steel
- 106. The total energy line is always higher than the hydraulic grade line, the vertical distances between the two represents
- a) The datum head
- b) The pressure head
- c) The velocity head
- d) The piezometric head
- 107. The Buckingham-Pi theorem is widely used in the dimensional analysis and express the resulting equation in terms of
- a) The dependent and the independent variables
- b) N dimensionless parameters
- c) (N-M) dimensionless parameters
- d) Geometric, kinematic and dynamic variables
- **108.** Laminar flow through a circular tube was studied experimentally by
- a) Newton
- b) Pascal
- c) Hagen and Poiseuille d) Manning's
- 109. The causes of turbulence in the fluid flow may be
- a) High Reynolds number
- b) Abrupt discontinuity in velocity distribution
- c) Critical Reynolds number
- d) None of the above
- 110. The friction drag is primarily due to
- a) Pressure distribution over the body surface
- b) Shear stresses generated due to viscous action
- c) Weight of component in the direction of flow
- d) Separation of boundary layer
- 111. The specific energy in open channel is
- a) The total energy measured above a horizontal datum
- b) The total energy measured with respect to the channel bottom which is taken as datum
- c) The kinetic energy plotted above the free surface
- d) The total energy of a specified weight of liq-
- 112. The power which appears in the expression for the specific speed is the
- a) Water horse power
- b) The horse power develop by the runner
- c) The shaft horse power

- d) Power input to the turbine
- 113. The elevation of water equals to a spillway crest or the top of the spillway gates for most cases of the reservoir storage is known as
- a) Minimum pool level
- b) Normal pool level
- c) Maximum pool level
- d) Surcharge storage
- 114. When the water supply pipes are laid in the uneven bed of the river, the joint suitable for this type of condition is
- a) Flexible joint
- b) Spigot joint
- c) Bell joint
- d) Expansion joint
- 115. For public water supply the threshold number of odour for water test is
- a) Less than 1
- b) Equal to 1
- c) Between 1 and 3
- d) Between 1 and 5
- 116. In water bodies the organism that may be in the form of microscopic plants and animal life is
- a) Algae
- b) Fungi
- c) Diatomaceae
- d) Plankton
- 117 The water pressure is greater than atmospheric pressure in the case of
- a) Pressure filter
- b) Slow sand filter
- c) Rapid sand filter
- d) None of the above
- 118. Removing of permanent hardness of water can be carried out by
- a) Boiling
- b) Addition of lime
- c) Carbonate removal
- d) Lime soda process
- 119. Prevention of free circulation of water, which may lead to the stagnation and degradation of water quality is mostly occur in
- a) Dead end system
- b) Grid iron system
- c) Ring system
- d) Radial system
- 120. For potable water the desired temperature is
- a) Above 5 degree centigrade
- b) Less than 5 degree centigrade
- c) Around 8 degree centigrade
- d) Around 10 degree centigrade
- 121. When water is to be used with a direct flow from the hydrant without to be pump it should be in the head of

- a) 5 to 10m
- b) 10 to 20m
- c) 20 to 35m
- d) 35 to 50m
- 122. Non perennial irrigation is also known as
- a) Restricted irrigation
- b) Direct irrigation
- c) Indirect irrigation
- d) Bandhara irrigation
- 123. The time that the crop takes from the instant of its sowing to that of its harvesting is
- a) Base period
- b) Crop period
- c) Time allowance period
- d) Nurturing period
- **124.** The primitive and most inefficient method of irrigation is
- a) Wild flooding
- b) Free flooding
- c) Ordinary flooding
- d) Basin flooding
- 125. To protect the banks of the river from erosion and improve their alignment by stabilizing the river channel is known as
- a) Canal lining
- b) Canal construction
- c) Channel construction
- d) River training
- **126.** In a river bank to prevent its recession by caving then it is achieved by providing
- a) Revetment
- b) Apron
- c) Retaining wall
- d) Concrete bed surface
- 127. In canal lining to have a good hydraulic efficiency during construction
- a) The surface should be smooth
- b) Velocity should be more
- c) Velocity should be less
- d) The canal should be trapezoidal
- 128. For deformed bar the bond stress with respect to plain bar is
- a) More than 30 percent
- b) More than 40 percent
- c) More than 50 percent
- d) More than 60 percent
- 129. Bent up bars when provided their contribution towards shear resistance should
- a) Not be more than half of total shear rein-

forcement

- b) Be equal to half of total shear reinforcement
- c) Be more than half the total shear reinforcement
- d) Be equal to the total shear reinforcement
- **130.** The acceptable limit of safety and service-ability before failure is called as
- a) Ultimate state
- b) Limit state
- c) Failure state
- d) Serviceability limit
- 131. The point after which the bar is no longer required to resist flexure is called as
- a) Bent up point
- b) Point of contraflexure
- c) Theoretical curtailment point
- d) Practical curtailment point
- 132. For beams and slabs the vertical deflection limits may be assumed to be satisfy if the span to depth ratio upto 10m span for cantilever beam if span / effective depth is
- a) Less than 10
- b) Equal 10
- c) Less than 7
- d) Equal 7
- 133. In a stress strain curve of concrete, the correct one is value of
- a) Stress of design curve = $0.67f_{ck}/1.5$
- b) Stress of design curve = f_{ck}
- c) Stress of design curve = $0.67f_{ck}$.
- d) Stress of design curve = $0.87f_{ck}/1.5$
- 134. In Under Reinforced Section steel percentage is less than
- a) Neutral axis shift downwards
- b) Neutral axis remain in position
- c) Neutral axis shift upwards
- d) None of the above
- **135.** The excavation machinery that is superior from the following is
- a) Power shovel
- b) Drag lines
- c) Hoe
- d) Ditcher
- 136. The project activity that demands normal attention but allows for some freedom of action is
- a) When the float is positive
- b) When the float is negative
- c) When the float is zero
- d) Super critical activity
- 137. For concrete during handling and transport-

ing the equipment which are likely to create tendency of segregation of aggregates is

- a) Hand buggies
- b) Power buggies
- c) Buckets
- d) Chutes
- 138. The specific surface area of cement should not be
- a) Less than 2250 cm²/gm
- b) Less than 2000 cm²/gm
- c) More than 2250 cm²/gm
- d) Less than 1500 cm²/gm
- 139. Acidic bricks consist of
- a) Silica 50 to 60% silica
- b) Silica 95 to 97% silica
- c) Lime 10 to 20%
- d) Lime 20 to 30%
- **140.** In Survey work the error for angular measurements is defined by
- a) Angular error of closure / Square root of angles measured
- b) Standard error / Measured distance
- c) Error of closure / Total perimeter of traverse
- d) Probable error / Measured Distance
- 141. A rod having two short slots passing through the centre of section of a rod is called
- a) Ranging rod
- b) Offset rod
- c) Ranging pole
- d) Plasterer's rod
- 142. When the ground is rough and irregular the accuracy in linear measurement by using steel tape can be increased by
- a) Standardization correction
- b) Pull correction
- c) Sagging correction
- d) Taping in catenary
- 143. The magnetic bearing of a line is 78°40', if the magnetic declination is 5° East, the true bearing is
- a) 73°40°
- b) 83°40°
- c) 85°
- d) 16°20'
- 144. The vertical angle between the longitudinal axis of a freely suspended magnetic needle and the horizontal line is called
- a) Declination
- b) Dip
- c) Azimuth
- d) None of the above
- 145. In vernier theodolites the horizontal angle between two lines is generally measured

- a) Clockwise from the forward station
- b) Clockwise from the back station
- c) Counter clockwise from the forward station
- d) Counter clockwise from the back station
- **146.** The most accurate method of plotting a theodolite traverse is by
- a) Consecutive co-ordinates
- b) Independent co-ordinates
- c) Included angles
- d) Tangent method
- 147. Simpson's rule can be used for computations of areas when the number of offsets is
- a) Even
- b) Odd
- c) Any number
- d) Three
- 148. The dimension of dynamic viscosity is
- a) ML-1T-1
- b) ML-1T-2
- c) ML-1T1
- d) MLT-1
- 149. The piezometric head in a static liquid
- a) Remains constant in the horizontal direction, provided the liquid is non continous
- b) Varies only in the vertical direction
- c) Remains constant throughout the fluid
- d) Does not vary in the vertical direction
- 150. The flow in a river during the period of heavy rainfall is
- a) Steady, uniform, two dimensional
- b) Unsteady, uniform, three dimensional
- c) Unsteady, non uniform, and three dimensional
- d) None of the above
