केवल कार्यालयीन उपयोग हेतु

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भारत सरकार - GOVERNMENT OF INDIA

रेल मंत्रालय - MINISTRY OF RAILWAYS

कार्य मामलों पर प्रश्न बैंक

QUESTION BANK ON WORKS MATTER

केमटेक/2017/सि/क्यू.बी.-डब्लू./1.0

CAMTECH/2017/C/QB-W/1.0

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अअमा संRDS

रेल अग्रदूत Transforming Railways

An ISO 9001-2008 Certified Organisation

उच्च अनुरक्षण प्रौद्योगिकी केन्द्र

EXCELLENCE IN MAINTENANCE

Indian Railways

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प्राक्कथन

अभियांत्रिकी विभाग के फ़ील्ड के साथ साथ कार्यालय में कार्यरत कर्मचारियों को तमाम विषय जैसे कार्य संहिता, शैड्यूल ऑफ डाइमैन्शन, जल आपूर्ति, सफ़ाई, भूमि प्रबंधन, यात्री सुविधाओं की जानकारी होना जरूरी है क्योंकि यह उनके दिन प्रतिदिन की अनुरक्षण एवं अन्य कार्य गतिविधियों के लिए जरूरी है।

केमटेक की सिविल इंजीनियरिंग शाखा ने कार्य से संबन्धित गतिविधियों पर ज्ञान वर्धन हेतु "कार्य मामलों पर प्रश्न बैंक" बनाने का एक प्रयास किया है।

मुझे पूरी उम्मीद है कि यह प्रश्न बैंक निश्चित रूप से भारतीय रेल में अभियांत्रिकी विभाग के फ़ील्ड में कार्यरत कर्मचारियों के लिए उपयोगी सिद्ध होगा।

केमटेक, ग्वालियर **(टी.कुप्पन)**

31- अक्टूबर, 2017 **वरिष्ठ कार्यकारी निदेशक**

FOREWORD

Engineering staff working in field as well as in office required at a glance knowledge about on different topics like Work Manual, Schedule of Dimensions, Water Supply, Sanitation, Land Management, Passenger Amenities etc., because it is required in day to day maintenance and other works related activities.

"Question Bank on Works Matter" developed by Civil Engineering branch of CAMTECH is an attempt to bring out required knowledge on various works mater.

I am sure that this question bank will certainly prove to be useful for field staff of Engineering Department of Indian Railways.

CAMTech/Gwalior **(T. Kuppan)**
31- October- 2017 **Senior Executive Director**

भूमिका

केमटेक ने कार्य से संबन्धित विषयों पर एक वस्तुनिष्ठ प्रकार का "कार्य मामलों पर प्रश्न बैंक" उनके उत्तर सहित तैयार किया है। इसमे में कई कार्य विषय जैसे कार्य संहिता, बिल्डिंग सामग्री, सीमेंट कोंक्रीट एवं आर.सी.सी., भवनों का निर्माण एवं अनुरक्षण, सॉइल मैकेनिक्स, जल आपूर्ति एवं सैनिटरी अभियांत्रिकी, सर्वे, इंजीनियरिंग सर्वे एवं प्रोजेक्ट रिपोर्ट, रेल्वे स्टेशन एवं यात्री सुविधायें, भूमि प्रबंधन, शैड्यूल ऑफ डाइमैन्शन, इत्यादि शामिल हैं।

यह प्रश्न बैंक बनाने का उद्देश्य कई कार्य संबन्धित विषयों पर ज्ञान वर्धन है ओर यह प्रश्न बैंक विषय पर उपलब्ध रेल्वे बोर्ड, आर.डी.एस.ओ., मैनुअल, कोड के प्रचलित दिशा निर्देशों का स्थान नहीं लेती।

यह प्रश्न बैंक वैधानिक नहीं है और केवल मार्गदर्शन हेतु है। अधिकतर आंकड़ा कुछ अन्य प्रिंटेड रूप से अन्य पुस्तकों में उपलब्ध है। गहराई से जानकारी हेतु संबन्धित विषय के कोड एवं रिपोर्ट का संदर्भ लें।

हम पाठकों से किसी भी सुझाव का स्वागत करते हैं। ताकि प्रश्न बैंक को और अच्छा बना सकें।

केमटेक, ग्वालियर **(डी. के. गुप्ता)**

31 - अक्टूबर - 2017 **संयुक्त निदेशक / सिविल**

PREFACE

CAMTECH has prepared question bank on works matter which having the objective type questions with their answer. It covers various topics on works matter i.e. Work Manual, Building Material, Cement Concrete and RCC, Construction and Maintenance of Building, Soil Mechanics, Water Supply & Sanitation Engineering, Surveying, Engineering Surveys and Project Report, Railway Station and Passenger Amenities, Management of Railway Land and Schedule of Dimensions etc.

This question bank is prepared with the objective to provide knowledge of various works matter and does not supersede any existing instructions from Railway Board, RDSO, IRWM, BIS Code etc.

This question bank is not statutory and contents are only for the purpose of knowledge dissemination. Most of the data & information in some form or the other in various books and other printed matter. For more in depth information the relevant codes and report on the subject may be referred.

We welcome any suggestions from readers for further improvement of this handbook.

CAMTech/Gwalior **(D. K. Gupta)**
31 - October – 2017 **Joint Director/Civil**

विषय - सूची / CONTENT

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संशोधन पर्चियों का प्रकाशन
ISSUE OF CORRECTION SLIPS

इस लघु पुस्तिका के लिए भविष्य में प्रकाशित होने वाली संशोधन पर्चियों को निम्नानुसार संख्यांकित किया जाएगा।

The correction slips to be issued in future for this handbook will be numbered as follows:

केमटेक/2017/सि/क्यू.बी.-डब्लू./1.0/सी.एस.#XX दिनांक ……

CAMTECH/2017/C/QB-W/1.0/CS. # XX date .....

जहाँ ““XX” संबन्धित संशोधन पर्ची की क्रम संख्या है (01 से प्रारम्भ होकर आगे की ओर)

Where “XX” is the serial number of the concerned correction slip (starting from 01 onwards).

प्रकाशित संशोधन पर्चियाँ / Correction slips issued

क्र. सं. Sr. No.	प्रकाशन की तारीख Date of Issue	संशोधित पृष्ठ संख्या तथा मद संख्या Modified Page no. and Item No.	टिप्पणी Remarks

CHAPTER 1 - Works Manual

1) The schedule for painting of wood & steel work of interior area of building?
a) 5 to 7 yrs. b) 3 to 5 yrs.
c) Annual d) 2 yrs.

2) The minimum plinth area of type - II unit, without stair case is____ sq. m.
a) 45 b) 50
c) 40 d) 55

3) What is the schedule for colour washing for exterior plastering surface of hospital, where rain fall is more than 1500 mm per annum?
a) every year b) every two years
c) every three years d) every six months

4) What is the schedule of colour washing for exterior plastering surface of type-II staff quarters where rain fall more than 1500 mm per annum?
a) 2 yrs. b) Annual
c) 3 yrs. d) 6 months

5) The spacing between rain water out let pipe should not be more than _____ metre?
a) 6 b) 4
c) 3 d) 5

6) The standard height of booking window is ___m above floor level
a) 1.0 b) 0.75
c) 0.45 d) 0.5

7) The height of Dado in Kitchen of staff Canteen is _____ mm.
a) 1200 b) 750
c) 1000 d) 900

8) The Suburban stations are included in category station.
a) C b) D
c) B d) A

9) The standard width of booking window is_____m.
a) 0.60 b) 0.75
c) 0.45 d) 0.50

10) In vicinity of Railway line blasting operations within_____ metres of a running line should normally be carried under block protection
a) 100 b) 60
c) 50 d) 30

11) At non suburban Stations other than junctions and terminal stations waiting room should be provided only if the upper passengers dealt with daily are _____.
a) 25 or more b) 50 or move
c) 100 or more d) 20 or more

12) The schedule for interior white washing for hospitals is _____?
a) once in year b) 2 yrs.
c) 3 yrs. d) 6 months

13) The schedule for interior white washing for kitchen of hospital & running room?
a) once in year b) 2 yrs.
c) 3 yrs. d) 6 months

14) The specified platform shelter area of 400 sq. m. on each PF on 'A' category station considered as per :
a) Desirable amenities b) Minimum essential amenities
c) Recommended amenities d) Need basis

15) As per minimum essential amenities the no of taps to be provided on each platform of 'A' category station?
a) 12 b) 10
c) 6 d) 15

16) In a broad gauge section, the height of a high level platform is ____ mm above rail level.
a) 760 to 840 b) 800-840
c) 700-760 d) 460-760

17) At the end of platform ramp with a slope not steeper than?
a) 1in 12 b) 1in 8
c) 1in 6 d) 1in 4

18) The height of platform fencing at single facing platform ____ metres.
a) 1.8 b) 2
c) 1.6 d) 2.1

19) What is the criteria to provide drinking water taps on platforms?
a) one tap for two coaches b) 2 taps for two coaches
c) 4 taps for two coaches d) one tap for 4 coaches

20) How many no. of latrines and urinals to be provided for ladies on passenger platform?
a) 1/3 of total requirement b) 1/2 of total requirement
c) 1/4 of total requirement d) 3/4 of total requirement

21) The size of platform number board is ____ mm.
a) 600 x 600 b) 450 x 480
c) 450 x 450 d) 500 x 500

22) The colour combination of platform name board is?
a) Black figures on yellow back ground
b) Black figures on white back ground
c) White figures on blue back ground
d) None of them

23) The lowest over head clearance for movement in FOBs and subways is _____ metres.
a) 2.75 b) 3
c) 3.1 d) 2.4

24) The minimum waiting hall area required to be provided on 'A' category station ____ sq. m.
a) 100 b) 150
c) 200 d) 75

25) What is the slope of platform surface?
a) 1in 40 b) 1in50
c) 1in 60 d) 1in 80

26) At what distance from coping of platform the demarcation line will be drawn?
a) 1.80 mts. b) 1.2 mts.
c) 2 mts. d) 1.5 mts.

27) In a socket and spigot pipe line socket facing direction is?
a) Opposite to flow of water
b) Indirection of flow of water
c) Any where
d) None of them

28) The minimum residual chlorine required to be available at the farthest point is ____ PPM.
a) 0.2 b) 0.1
c) 0.3 d) 0.01

29) To conduct orthotolodine test what is the quantity of water sample required to add 1ml. of orthotolodine?
a) 100 ml b) 50 ml
c) 150 ml d) 40ml

30) When protection against viral infection is required, the minimum residual chlorine required is _____ PPM.
a) 0.5 b) 0.2
c) 0.1 d) 1

31) What rate the water closets required to be provide for male staff in factory? One for every ____ persons.
a) 10 b) 15
c) 20 d) 25

32) What is the periodicity of Sr. Section Engineer (Works) should inspect the buildings, water supply installation, sewage installation and drainage arrangements :
a) Once in year b) 6 months
c) 9 months d) None of them

33) From what depth of water, the sample is to be collected from open well?
a) 1 to 2 m from bottom level of well b) 1 to 2 m from top level of well
c) 2 to 3m from bottom level of well d) None of them

34) The requirement of minimum residual pressure in distribution system for single storied building at ferrule point is_____metre.
a) 7 b) 6
c) 2 d) 4

35) What is the permissible limit for PH value of drinking water ?
a) 6.5 to 8.5 b) 4.5 to 6.5
c) 8.5 to 10 d) none of them

36) What colour is to be painted on wood work in all important rooms in the health units?
a) White b) Grey
c) Blue d) none of them

37) The minimum width of path ways at the ends of platform where there is no FOBs or Sub Ways in the Stations is ____ metres?
a) 2 b) 2.5
c) 1.8 d) 2.4

38) What is the category of all Sub Urban stations?
a) 'C b) 'D
c) 'E d) 'B

39) The requirement of water supply to the health units is……..litres per bed per day.
a) 450 b) 400
c) 300 d) 200

40) Minimum height between PF and bottom of the Platform name board of the station is ____ metres.
a) 2 b) 2.1
c) 1.8 d) 2.4

41) Water required for apron washing is ____ litres per sq. m.
a) 10 b) 20
c) 15 d) 25

42) Water is required for maintenance of garden per hector of lawn area is ____ litres.
a) 22500 b) 20000
c) 10000 d) 30000

43) As per the Recommended Passengers Amenities water coolers are to be provided when passengers are exceeding per a day.
a) 1000 b) 2000
c) 5000 d) 15000

44) Mosquito proof shutters should be provided in staff quarters in
a) Type-III and above b) For all types of quarters
c) For type-V only d) For type-IV and above

45) The Sr. Section Engineer(Works) inspects all the buildings, water supply installations and drainage arrangements at least once in_____.
a) Three years b) 6 months
c) Two years d) One year

46) In Colony Care Committee in big colonies the following official is one of the members
a) Sr. DEN/DEN b) ADEN
c) DRM d) ADRM

47) The complaints in the petty repairs book will be entered by
a) Station Master b) SSE (Works)
c) Assistant Engineer d) Staff residing in colony.

48) The revised plinth area of Type-I quarters is ___ sq. m.
a) 45 b) 25.75
c) 83.6 d) 34.00

49) The frequency of periodical white washing inside the running room is once in
a) Year b) Six months
c) 2 years d) 4 years

50) The frequency of periodical distemper in Officers bungalows is once in _____.
a) 4 years b) A year
c) 2 years d) Six months

51) The height of letters in Principal & Secondary name boards on platforms is _____ cm.
a) 15 b) 25
c) 10 d) 30

52) All notice boards shall be erected and maintained by _____ Department.
a) Engineering b) Commercial
c) Concerned d) Medical

53) The size of platform number boards shall be_____mm square.
a) 300 b) 450
c) 500 d) 600

54) The bridge foundations and substructures shall be inspected by
a) SSE (Works) b) SSE (P.Way)
c) SSE (Bridges) d) None of above

55) The desirable PH value for drinking water is
a) 1.0 b) 0.4 to 0.60
c) 2 d) 6.5 to 8.5

56) The full form of "PPE" in the land management act is
a) Public prosecution Encroachment
b) Public parameter encroachment
c) Public premises eviction
d) Procedure for prosecution of encroachment

57) In Type V quarter car garages will be constructed for
a) All quarters b) 50% of quarters
c) 75% of quarters only d) None of the above

58) In station name boards, the spellings of different languages have to be approved by
a) Zonal Headquarter b) Railway Board
c) DRM d) State Government

59) The category "F' station is _____.
a) station where passenger earnings is less than 01 crore per year
b) less than l lakh per year
c) all suburban stations
d) all passengers halt stations

60) The ratio of latrines and urinals for gents and ladies will be
a) 2/3:1/3
b) 3/4:1/4
c) 1/2:1/2
d) None of the above

61) The length and width of the principal and secondary name boards on platform will be
a) 3.0 x1.20 m
b) 2.75 x 1.0 m
c) 4.0 m x 1.5 m
d) To accommodate total written material to be engraved/painted

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CHAPTER - 2 - Building Material

1) The rocks formed from molten lava are called:
   a) Sedimentary rocks b) Igneous rocks
   c) Metamorphic rocks d) Non of these

2) Sand stone is
   a) Sedimentary rock b) Metamorphic rock
   c) Igneous rock d) Volcanic rock

3) Dolomite is a lime stone which contains carbonate of magnesia up to
   a) 15% b) 20%
   c) 45 % d) 35%

4) Granite is obtained from
   a) Igneous rocks b) Sedimentary rocks
   c) Metamorphic rocks d) From any of them

5) Marble is obtained from
   a) Igneous rocks b) Sedimentary rocks
   c) Metamorphic rocks d) From any of them

6) Limestone is obtained from
   a) Igneous rocks b) Sedimentary rocks
   c) Metamorphic rocks d) From any of them

7) The rocks which are formed by cooling molten lava is known as
   a) Igneous rocks b) Sedimentary rocks
   c) Metamorphic rocks d) From any of them

8) Taj Mahal at Agra is made from the following stone
   a) White marble
   b) White sand stone
   c) Stone masonry with lime-surkhi white plaster
   d) None of them

9) A good building stone should not absorb water more than
   a) 5% b) 10%
   c) 15% d) 20%

10) The Standard size of modular bricks is
   a) 18 cm x 8 cm x 8 cm b) 19 cm x 9 cm x 9 cm
   c) 20 cm x 10 cm x 10 cm d) 21 cm x 11 cm x 11 cm

11) The term frog means
   a) an apparatus to lift the stone b) a depression on a face of brick
   c) vertical joint in a brick work d) soaking brick in water

12) The frog of a brick is normally made on its
a) top face b) bottom face
c) longer face d) shorter side

13) A 1st class brick immersed in water for 24 hours should not absorb water (by weight) more than that
a) 10% b) 15%
c) 20% d) 25%

14) Minimum crushing strength of the bricks is
a) 35 kg/cm^2 b) 55 kg/cm^2
c) 70 kg/cm^2 d) 105 kg/cm^2

15) Arrange the following operations of manufacture of bricks in proper order :
i) Preparation of clay ii) Moulding
iii) Burning iv) Drying
a) (i), (ii), (iii), (iv) b) (i), (iii), (ii), (iv)
c) (i), (iv), (ii),(iii) d) (i), (ii), (iv), (iii)

16) Crushing strength of good stone is about
a) 2000 to 2500 kg/cm^2 b) 1500 to 2000 kg/cm^2
c) 1000 to 1400 kg/cm^2 d) 500 to 800 kg/cm^2

17) Normal size of brick used in India is
a) 22 cm x 11.2 cm x 7 cm b) 25 cm x 16 cm x 8 cm
c) 19 cm x 12 cm x 9 cm d) None of them

18) The depth of frog in a brick is
a) 15 mm b) 10 mm
c) 6.25 mm d) 3 mm

19) The bulking of sand with 2% moisture content is about
a) 3% b) 10%
c) 15% d) 25%

20) The timber having maximum resistance against white ants, is obtained from
a) Chir b) Shisham
c) Sal d) Teak

21) According to IS 399 – 1963, the weight of the timber is specified at
a) 8% moisture content b) 10% moisture content
c) 12% moisture content d) 14% moisture content

22) The lime which contains mainly calcium oxide and slacks with water, is known as
a) fat lime b) quick lime
c) hydraulic lime d) poor lime

23) The property by virtue of which lime sets under water, is known as
a) Slacking b) Setting
c) Hydraulicity d) Calcining

24) Which of the following lime can set under water also
a) Fat lime b) Lean lime
c) Hydraulic lime d) All the above

25) Granite is not suitable for ordinary building purpose because
a) it cannot be polished b) it is not a fire proof material
c) it is costly d) it has less crushing strength

26) Sapwood consists of
a) innermost annular rings around the pith
b) portion of timber between heartwood and cambium layer
c) thin layers below the bark
d) thin fibre which extends from the pith outwards and holds the annular rings together.

27) Which of the following trees yield hard wood?
a) deodar b) chir
c) shishum d) pine

28) The moisture content in a well seasoned timber is
a) 4% to 6 % b) 10% to 12%
c) 15% to 20% d) 100%

29) Which of the following ingredients of the brick earth enables the brick to retain its shape?
a) alumina b) silica
c) iron d) magnesia

30) The process of mixing clay, water and other ingredients to make brick is known as
a) kneading b) moulding
c) pugging d) drying

31) Number of bricks required for one cubic metre of brick masonry is
a) 400 b) 450
c) 500 d) 550

32) Quick lime is
a) calcium carbonate b) calcium oxide
c) calcium hydroxide d) none of the above

33) Study the following statement.
(i) Hydraulic lime is suitable for white washing
(ii) Fat lime is suitable for whitewashing
(iii) Hydraulic lime is suitable for making mortar
(iv) Fat lime is suitable for making mortar

The correct answer is
a) (i) and (iv) b) (ii) and (iii)
c) (i) and (ii) d) (iii) and (iv)

34) The initial setting time for Ordinary Portland Cement (OPC) as per IS specifications should not be less than
a) 10 minutes b) 30 minutes
b) 60 minutes d) 600 minutes

35) For testing compressive strength of cement, each side of cube used is
a) 50 mm b) 70 mm
c) 100 mm d) 150 mm

36) After storage, the strength of cement
a) decreases b) increases
c) remains same d) may increase or decrease

37) Lime mortar is generally made with
a) quick lime b) fat lime
c) hydraulic lime d) white lime

38) Le-chatelier apparatus is used to determine which of the following for cement.
a) Soundness b) Initial setting time
c) Finances d) Compressive strength

39) Which of the following imparts plasticity to brick earth
a) Alumina b) Silica
c) Lime d) Magnesia

40) Plywood is obtained from
a) Bamboo b) Teak wood
c) Structural timber d) Commonly available timber

41) Distemper is used to coat
a) external concrete surfaces b) interior surfaces not exposed to weather
c) wood work d) compound wall

42) The Approximate ratio between the strengths of cement concrete at 7 days and at 28 days is
a) ¾ b) 2/3
c) ½ d) 1/3

43) How many days, a timber may be required for natural seasoning
a) 20 months b) 4-6 months
c) 1 year d) 2 year

44) The volume (Cum.) of a bag of cement is about
a) 0.035 cum. b) 0.053 cum
c) 0.35 cum. d) 0.53 cum.

45) Segregation in cement concrete is defined as
   a) Separation in coarser particles from mix.
   b) appearance of cement and water slurry surface of finished concrete
   c) formation of capillary pores in fresh cement concrete
   d) none of them

***

Chapter - 3 – Cement Concrete and R.C.C.

1) For foundation concrete the cement concrete mix should be of the following proportion
   a) 1:2:4 b) 1:3:6
   c) 1:4:8 d) 1:5:10

2) Strength of cement concrete 1:2:4 is about
   a) 50 kg/cm^2 b) 100 kg/cm^2
   c) 150 kg/cm^2 d) None of above

3) For one cubic metre of concrete 1:2:4 with water cement ratio as 0.64, the cement required is about
   a) 15 bags b) 10 bags
   c) 9.5 bags d) 6.4 bags

4) Slump test vessel is like frustum of cone & the top diameter (d1) & bottom diameter (d2) and the height of the vessel (h) is of the following height.
   a) 100 mm (dl), 200 mm (d2) & 300 mm (h)
   b) 100 mm (dl), 150 mm (d2) & 150 mm (h)
   c) 150 mm (dl), 200 mm (d2) & 200 mm (h)
   d) None of above

5) The recommended slump for RCC slab using vibrators is about
   a) 2 to 3 cm b) 6 to 8 cm
   c) 10 to 12.5 cm d) 15 to 18 cm

6) Load which can be applied to cement concrete structure after 7 days using Portland cement is ____% of designed load.
   a) 25% b) 50%
   c) 75% d) 100%

7) For under water construction, it is desirable to use the following type of cement.
   a) Pozzolana cement b) Quick setting cement
   c) Rapid hardening cement d) Any of them

8) S.C.C. is abbreviated for
   a) Special cement concrete b) Self compacting concrete
   c) Self crushing concrete d) None of above.

9) When a vertical load is applied on a beam the top & bottom layer of the beam are subjected to the following type of forces
   a) Top compression, bottom tension
   b) Top tension, bottom compression
   c) Top compression, bottom compression
   d) Top tension, bottom tension

10) In case of pre-stressed reinforced concrete, the reverse force is applied on the beam, which cause forces on top, bottom section of the following:
a) Top compression, bottom tension
b) Top tension, bottom compression
c) Top compression, bottom compression
d) Top tension, bottom tension

11) The minimum compressive stress for pre-tension PSC member should not be less than
a) 150 kg/sq.cm. b) 250 kg/sq.cm
c) 350 kg/sq.cm. d) 420 kg/sq.cm.

12) The minimum compressive force applied for PSC member for post tensioned system should be
a) 150 kg/sq.cm. b) 250 kg/sq.cm
c) 350 kg/sq.cm. d) 420 kg/sq.cm.

13) While handling cement, the cement bags should be stacked at least ……...mm clear of wall
a) 250 mm b) 500 mm
c) 1000 mm d) any where

14) Which cement should not be used for bridge slabs or RCC framed structure:
a) OPC
b) Portland pozzolana cement
c) Portland blast furnace slag cement
d) Rapid hardening cement

15) Rapid hardening cement can withstand full designed load after …….days of concreting:
a) 07 days b) 21 days
c) 14 days d) 28 days

16) Standard bag of cement is of …. kg. :
a) 30 kg b) 50 kg
c) 20 kg c) 52 kg

17) The height of stack of cement, while cement is being stored should not exceed:
a) 10 bags b) 15 bags
c) 20 bags d) None of above

18) The representative samples of cement should be sent to laboratory for testing for the cement which is stored for a period more than…..
a) 1 month b) 6 month
c) 12 months d) None of above

19) Maximum quantity of silt in sand shall not be more than …..%.
a) 20% b) 15%
c) 10% d) 8%

20) Fine sand shall have fineness modulus not less than:
a) 1.0 b) 2.0
c) 1.5 d) 2.5

21) Unless otherwise specified an overlap in the cold twisted bars for concrete mix M-15, in case of tension member shall be provided as:
a) 69D b) 55D
c) 59D d) 47D

22) Unless otherwise specified an overlap in the mild steel bars for concrete mix M-15, in case of Compression member shall be provided as
a) 69D b) 55D
c) 59D d) 47D

23) Unless otherwise specified an overlap in the mild steel bars for concrete mix M-15, in case of tension member shall be provided as:
a) 69D b) 55D
c) 59D d) 47D

24) Unless otherwise specified an overlap in the cold twisted bars for concrete mix M-15, in case of compression member shall be provided as:
a) 69D b) 55D
c) 59D d) 47D

25) The overlap in case of mild steel bars in compression should be:
a) 40D b) 47D
c) 54D d) 60D

26) If the side of concrete cubes is reduced from 15 cm to 5 cm the test results
a) are likely to be the same
b) will give increased strength
c) will give reduced strength
d) are independent of the side of the cube

27) Steam curing, accelerates attainment of strength in concrete because
a) More water is available for curing b) Rapid hardening occurs
c) Hydration of cement is faster d) None of the above

28) For concreting under water, minimum grade of concrete recommended by I.S. Code
a) M 10 b) M 15
c) M 20 d) M 25

29) The most suitable value of slump out of the following for pre-stressed concrete is
a) Zero b) 125 mm
c) 150 mm d) 100 mm

30) Workability and consistency of concrete can be measured by …..test
a) SPT b) OMC
c) SLUMP d) Vision

31) To avoid construction joints, it is desirable to place concrete up to…. Height in case of columns and walls:
a) Half b) Full
c) One-third d) One-Fourth

32) Height of metal mould of slump test is …..cm.
a) 10 cm b) 20 cm
c) 30 cm d) 60 cm

33) If vibrators are used for compacting of concrete, the concrete shall be laid in layers not exceeding.
a) 15 cm b) 30 cm
c) 20 cm d) 23 cm

34) Mass concrete is to be deposited in layers not exceeding …… cm thickness:
a) 10 cm b) 20 cm
c) 30 cm d) 60 cm

35) Which concrete mix you will prefer for foundations of light structures:
a) C.C. 1:2:4 b) C.C. 1:3:6
c) C.C. 1:1 ½ :3 d) C.C. 1:5:10

36) Slump required for mass concrete in RCC foundation, footing and retaining walls (which vibrators are not used)
a) 8 cm b) 10 cm
c) 12 cm d) 15 cm

37) During cold weather, temperature of concrete should be at least while laying:
a) 0 C b) 2 C
c) 4.5 C d) 8 C

38) During hot weather, precautions shall be taken to see that the temperature of wet concrete does not exceed:
a) 30 C b) 34 C
c) 38 C d) 42 C

39) Over the foundation concrete masonry may be started after:
a) 12 hrs. b) 24 hrs.
c) 48 hrs. d) 72 hrs.

40) The concrete to be laid under water due to unavoidable circumstances should have:
a) Equal quantity of cement as required for same mix placed in dry.
b) At least 10% more cement required for same
c) At least 20% more cement required for same
d) At least 25% more cement required for same

41) In case of rapid hardening cement concrete, full designed load can be applied after:
a) 7 days b) 10 days
c) 14 days d) 28 days

42) Form work for beams and slabs shall have camber of
a) 4 mm per metre b) 2 mm per metre
c) 8 mm per metre d) None of these

43) The form work for cantilever shall have camber of
a) 1/25 of projected length b) 1/75 of projected length
c) 1/50 of projected length d) None of these

44) Minimum period after which form may be struck for sides of foundations, beams, column and sand walls, with OPC is
a) 7 days b) 2 days
c) 5 days d) 14 days

45) Minimum period after which form may be struck for under sides of slabs up to 4.5 metre span, with OPC is
a) 7 days b) 2 days
c) 5 days d) 14 days

46) Minimum period after which form may be struck for sides of beams and arches up to 6 metre span, with OPC is
a) 7 days b) 2 days
c) 5 days d) 14 days

47) Completed form work shall be inspected and approved by
a) ICW b) Contractor
c) Engineer-in-charge d) None of above

48) The form work in contact with concrete shall be cleaned and thoroughly wetted and coated with
a) soap solution b) raw linseed oil
c) form oil of approved quality d) any one of the above

49) Shuttering of RCC work shall be supported on
a) Battens and beams and props of vertical ballies
b) Battens and beams and bricks pillars in mud mortar
c) Battens and beams and brick pillars in cement mortar
d) Either (a) or (b)

50) Suitable timber for shuttering for RCC work shall be
a) Kail wood
b) Such kind of timber which is not affected appreciably by contact with water
c) Either (a) or (b)
d) None of above

51) In shuttering ballies shall rest squarely on wooden sole plate of thickness
a) 40 mm b) 50 mm
c) 25 mm d) 35 mm

52) In case of structure with two or more floors, form work and concreting of the upper floor shall not be done until the concrete of lower has set for atleast.
a) 7 days b) 21 days
c) 10 days d) 14 days

53) In case of structure with two or more floors, the weight of concrete centering and shuttering of any upper floor shall be suitably supported on at least…….. floors below the same.
a) 1 floor b) 2 floor
c) ground floor d) none of above

54) The form work shall be properly designed for the self weight, weight of fresh concrete, weight of reinforcement and various live loads during the construction process, if span of form work exceeded…m and height exceeded……m
a) 3 m, 3 m b) 3.5 m, 4.5 m
c) 4.5 m, 3.5 m d) none of above

55) In shuttering ballies used for centering shall be of diameter not less than
a) 100 mm measured at mid length and 80 mm at thin end
b) 100 mm measured at mid length and 90 mm at thin end
c) 90 mm measured at mid length and 80 mm at thin end
d) 100 mm measured at mid length and 75 mm at thin end

56) In shuttering minimum spacing of ballies used for centering should normally be
a) 1 m b) 1.2 m
c) 1.4 m d) 1.5 m

57) To avoid shrinkage cracks vertical sides of forms of slabs, beams and columns may be struck after minimum…….
a) 7 days b) 2 days
c) 24 hours d) 36 hours

58) The number of cement bags required for casting one cum 1:2:4 mix cement concrete is….
a) 8.26 b) 4.49
c) 3.41 d) 6.36

59) The number of cement bags required for casting one cum 1:3:6 mix cement concrete is….
a) 8.26 b) 6.36
c) 4.49 d) 3.41

60) The number of cement bags required for casting one cum 1:4:8 mix cement concrete is….
a) 8.26 b) 6.36
c) 4.40 d) 3.41

61) The concrete shall not be placed in water having a temperature
a) 4.5^0 C b) Below 4.5^0 C
c) Above 4.5^0C d) None of the above

62) Slump test for concrete is carried out, to determine
a) strength b) durability
c) workability d) water content

63) Quantity of water per 50 kg. of cement for M 20 grade of nominal mix concrete shall be
a) 45 litre b) 34 litre
c) 32 litre d) 30 litre

64) Consider the following statements : Higher water Cement ratio in concrete results in
i) Stronger mix ii) better workable mix
iii) a weak mix iv) less bleeding of these statements
a) (i) and (ii) are correct b) (ii) and (iii) are correct
c) (iii) and (iv) are correct d) (i) and (iv) are correct

65) For the manufacture of Portland cement, the proportions of raw materials used, are
a) lime 63%; silica 22%; other ingredients 15%
b) silica 22%; lime 63%; other ingredients 15%
c) silica 40%; lime 40%; other ingredients 20%
d) silica 70%; lime 20%; other ingredients 10%

66) Segregation in cement concrete is defined as
a) separation of coarser particles from mix
b) appearance of cement and water slurry surface of finished concrete
c) formation of capillary pores in fresh cement concrete
d) none of above

67) When cement content in cement mortar is reduced, the
a) slump increase
b) consistency decreases
c) compressive strength decreases
d) tensile strength decrease

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Chapter - 4 – Construction & Maintenance of Building

1) F.A.R. is abbreviated for
   a) Floor and Roof ratio
   b) Floor area ratio
   c) Free area Ratio
   d) None of the above

2) Mud Phuska treatment of roof consists of
   a) A layer of hot bitumen 80/100 mm or equivalent on the top of roof slab.
   b) A coat of mud phuska of 100 mm average thickness
   c) A layer of 25 mm of tile land on top
   d) All the above

3) DBM is abbreviated for
   a) Dust bound Macadam
   b) Directed building maintenance
   c) Do, build & maintenance
   d) None of the above

4) Records to be maintained by Directed Building Maintenance team are :
   a) Inspection of colony record
   b) Master plan of repair
   c) DBM Register
   d) All of them

5) Water absorption after 24 hours immersion in cold water for second class bricks
   a) Not more than the weight of the brick
   b) Not less than 20%
   c) Not more than 20%
   d) None of the above

6) Bricks before being used in work must be soaked in water for a period not less than
   a) A full night
   b) 6 hours
   c) 10 hours
   d) None of the above

7) Brick work which is to be plastered or pointed should be raked to a depth of
   a) 10 mm
   b) 15 mm
   c) 20 mm
   d) 25 mm

8) Thickness of joints in 1st Class & IInd Class brick work are kept …. & ….. mm respectively
   a) 10 mm & 12 mm
   b) 12 mm & 10 mm
   c) 12 mm & 12 mm
   d) None of the above

9) Number of bricks required for one cubic metre of brick masonry is
   a) 400
   b) 450
   c) 500
   d) 550

10) Expansion joints in masonry walls are provided in wall lengths greater than
   a) 10 m
   b) 20 m
   c) 30 m
   d) 40 m

11) The proportions of lime and sand in the mortar normally used in brick construction are
   a) 1:2
   b) 1:4
   c) 1:6
   d) 1:8

12) Sum of tread and rise for stairs must lie between
a) 300 to 350 mm b) 400 to 450 mm
c) 500 to 550 mm d) 600 to 650 mm

13) Distemper is used to coat
a) external concrete surface b) interior surfaces not exposed to weather
c) wood work d) compound wall

14) Pick up the correct statement from the following :
a) D.P.C. should be continuous
b) D.P.C. should be of good impervious material
c) D.P.C. may be horizontal or vertical
d) All the above

15) In horizontal D.P.C. thickness of cement concrete (1:2:4) is
a) 2 cm b) 4 cm
c) 6 cm d) 8 cm

16) The brick laid with its length parallel to the face of the wall is a known as
a) header b) stretcher
c) closer d) none of these

17) The position of a brick when laid on its side 9 cm x 9 cm with its frog in the vertical place, is called
a) brick on edge b) brick on end
c) brick on bed d) brick held vertically

18) The arrangement made to support an unsafe structure temporarily, is known as
a) shoring b) scaffolding
c) underpinning d) jacking

19) To obtain good bonding in brick masonry
a) first class bricks are used
b) vertical joints in alternate courses are kept in plumb line
c) bricks bats are used where necessary
d) all the above

20) To stagger vertical joints in successive courses of a wall, a piece of brick is generally used at the end of the course, which is known as :
a) bat b) header
c) stretcher d) closer

21) The bond in which headers and stretchers are laid in alternate courses and every stretcher course is started with a three fourth brick bat, is known as
a) English cross bond b) Dutch bond
c) Monk bond d) Rat-trap bond

22) The stone masonry of finely dressed stones laid is cement or lime, is
a) random rubble masonry b) coursed rubble masonry
c) dry rubble masonry d) ashlar masonry

23) The type stone masonry in which stones of same height are laid in layers is called
a) random rubble masonry b) course rubble masonry
c) uncoursed rubble masonry d) ashlar masonry

24) A wall constructed to resist the pressure of an earth filling, is called
a) retaining wall b) breast wall
c) buttress d) parapet wall

25) Weep holes are provided in retaining and breast walls
a) to drain off the water from the filling
b) to ventilate the stone masonry
c) to add architectural beauty
d) to reduce the weight of the earth retained

26) In case of arch bridge, crown is located at
a) highest point on the extrados of the arch
b) highest point on the intrados of the arch
c) skew-back of the arch
d) none of these

27) An arch may fail due to
a) uneven settlement of abutments b) sliding of voussoirs
c) crushing of the material d) all the above

28) The platform at the end of a series of steps, is known as
a) platform b) relief
c) rest d) landing

29) The minimum width of a stair in residential building, is
a) 55 cm b) 70 cm
c) 85 cm d) 100 cm

30) A floor constructed with the 4 to 6 mm marble chips, is known
a) reinforced marble floor b) terrazzo floor
c) marble floor d) mosaic floor

31) For plastering the exposed brick walls, the cement sand mortar should be
a) 1:2 b) 1:3
c) 1:4 d) 1:8

32) The service areas in a building means the area occupied by
a) stairs b) toilets
c) light and shafts d) all the above

33) Pick up the correct statements from the following:
a) cracks appear on the plastered surface in the form of hair cracks
b) in brick work, the efflorescence is removed by applying a solution of zinc sulphate and water
c) excessive thermal variations in the backing or plaster causes the plaster to fall
d) all the above

34) The least bearing capacity of soil is that of
a) hard rock b) moist clay
c) soft rock d) laminated

35) The PVC doors and windows are preferred as they are
a) rust proof b) water proof
c) termite proof d) all of these

36) The type of bond in a brick masonry containing alternate course of stretchers and headers, is called
a) Flemish bond b) English bond
c) Stretcher bond d) Header bond

37) Dampness causes
a) efflorescence b) bleaching of paints
c) crumbling of plaster d) growth of termites

38) The members which support covering material of a sloping roof, are
a) rafters b) purlins
c) battens d) struts

39) The type of pointing in which upper side of mortar joints is kept about 12 mm inside the face of the masonry and bottom is kept flushed with face of wall, is
a) tuck pointing b) recessed pointing
c) struck pointing d) grooved pointing

40) A roof which slopes in four directions, is called
a) shed roof b) gable end roof
c) hipped roof d) gambrel roof

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Chapter - 5 - Soil Mechanics

1) OMC stands for
   a) Ordinary mineral clay
   b) Optimum moisture content
   b) Optimum moisture content
   d) Optimum mineral content

2) Silt is classified as
   a) Fine grained soil
   b) Coarse grained
   c) Organic soil
   d) None of above

3) The limit of minimum water content at which the soil can be rolled into a thread approximately 3 mm in dia without breathing is called
   a) Liquid limit
   b) Plastic limit
   c) Shrinkage limit
   d) Any of them

4) The minimum water content at which a part of soil cut by a grove of standard dimensions will close for a distance of about 12 mm at the bottom of grooves under an impact of 25 blows is called
   a) Liquid limit
   b) Plastic limit
   c) Shrinkage limit
   d) Any of them

5) The numerical difference between the liquid limit & plastic limit is called
   a) Plasticity index
   b) liquid index
   c) soil index
   d) none of above

6) The ratio of difference between natural water content of the soil & plastic limit is called
   a) Liquid limit
   b) Liquidity index
   c) Shrinkage limit
   d) Any of them

7) To improve the safe bearing capacity of available poor soil, the following method is engaged
   a) By increasing the depth of foundation
   b) By blending granular materials such as sand gravel or crushed stone
   c) By providing sand piles
   d) all the above

8) Uniformity coefficient of a soil
   a) Always less than 1
   b) Always equal to 1
   c) Equal to or less than 1
   d) Equal to or greater than 1

9) If the natural water content of soil mass lies between its liquid limit and plastic limit, the soil mass is said to be in
   a) Liquid state
   b) Plastic state
   c) Semi-solid state
   d) Solid state

10) If the plasticity index of a soil mass is zero, the soil is
   a) Sand
   b) Silt
   c) Clay
   d) Clayey silt

11) Coarse grained soils are best compacted by a
a) drum roller b) rubber tired roller
c) sheep's foot roller d) vibratory roller

12) The maximum dry density up to which any soil can be compacted depends upon
a) Moisture content only
b) Amount of compaction energy only
c) Both moisture content and amount of compaction energy
d) None of the above

13) A soil having particles of nearly the same size of known as:
a) well graded b) Uniformly graded
c) poorly graded d) gap graded

14) Undisturbed soil samples are required for conducting
a) hydrometer test b) shrinkage limit test
c) consolidation test d) specific gravity test

15) Which one of the following tests cannot be done without undisturbed sampling?
a) shear strength of sand b) shear strength of clay
c) determination of compaction d) specific gravity test

16) Pick the correct statement from the following:
a) The void space between the soil grains, is filled partly with air and partly with water
b) In perfectly saturated soil, the voids are completely filled with water
c) In dry soil, the voids are completely filled with air
d) All the above

17) The soil which contains finest grain particles, is
a) coarse sand b) fine sand
c) silt d) clay

18) Minimum size of the particles of silt soil is
a) 0.02 mm b) 0.04 mm
c) 0.06 mm d) 0.10 mm

19) The water content of soil is defined as the ratio of
a) Volume of water to volume of given soil
b) Volume of water to volume of voids in soil
c) Weight of water to weight of air in voids
d) Weight of water to weight of solid of given mass of soil

20) The bearing capacity of soil depends upon
a) Size and shape of the particles
b) Cohesive properties of particles
c) Internal frictional resistance of particles
d) all the above

21) Soils containing organic matters
a) are of spongy nature
b) swell with decrease of moisture
c) shrink with increase of moisture content
d) none of these

22) For determining the ultimate bearing capacity of soil, the recommended size of a square bearing plate to be used in load plate test should be 30 to75 cm square with a minimum thickness of
a) 5 mm b) 10 mm
c) 15 mm d) 25 mm

23) Liquid limit of a soil indicates its
a) compressibility b) permeability
c) optimum moisture content d) shear strength

24) The bearing capacity of footing in sandy soil from settlement consideration is not much affected by
a) relative density b) intensity of load
c) width of footing d) position of water table

25) Immediately on driving a pile in clayey soil, it will have
a) high point resistance
b) high skin friction
c) low point resistance
d) improvement of structure of surrounding soil

26) The bearing capacity of footing on sand depends mainly on
a) width of footing b) thickness of footing
c) length of footing d) shape of footing

27) It is proposed to conduct the following field tests in connection with sub-surface exploration work in sandy stratum
(i) Plate load test
(ii) Vane shear test
(iii) Standard penetration test
a) (i) and (iii) are appropriate b) (i), (ii) and (iii) are appropriate
c) (i) and (ii) are appropriate d) (ii) and (iii) are appropriate

28) Compaction of earth work should be done at
a) natural moisture content b) optimum moisture content
c) +/- 2% of optimum moisture d) none of these

29) OMC stands for
a) other moisture content b) optimum moisture content
c) optimum moisture clay d) none of these

30) MDD stands for
a) minimum dry density b) mean dry density
c) maximum dry density d) moisture dry density

31) Porosity is also known as:
a) percentage voids b) percentage air voids
c) percentage water voids d) percentage of soil solids

32) For fully saturated soil degree of saturation will be:
a) Zero percent b) 100%
c) 1% d) between 0 to 100%

33) For perfectly dry soil degree of saturation will be :
a) 1% b) 100%
c) zero percent d) less than zero percent

34) Dry unit weight is used as a measure of the
a) water content b) dryness
c) denseness d) shrinkness

35) Bulk density of a saturated soil Sample is known as
a) saturated density b) submerged density
c) saturated dry density d) None of above

36) Standard proctor test is used to know
a) dry density of the soil in the field
b) dry density of the soil in the laboratory
c) maximum dry density of the soil in the field
d) maximum dry density of the soil in the laboratory

37) Standard proctor test is suitable for
a) coarse grained soil b) fine grained soil
c) any type of soil d) none of the above

38) As compared to coarse grained soil fine grained soils have …… values of natural moisture content:
a) Higher b) Lower
c) Equal d) Either (a) or (b)

39) The void ratios of fined grained soils are generally…….. than hose of coarse grained of soil:
a) Higher b) Lower
c) Equal d) Either (a) or (b)

40) The black cotton soil
a) undergoes volumetric changes
b) swells excessively when wet
c) shrinks excessively when dry
d) all the above

41) Black cotton soil is unsuitable for foundations because its
a) Bearing capacity is low
b) Permeability is uncertain
c) Particles are cohesive
d) Property to undergo a volumetric change due to variation of moisture content

42) The piles which supports the load due to friction between pile face ad surrounding soil is generally known as
a) bearing pile b) friction pile
c) sheet pile d) battered pile

43) Pick up the incorrect statements from the following :
a) The function of foundations is to distribute the load of super structure over a large bearing area
b) No timbering is required for shallow trenches
c) Shallow foundations can be constructed on made-up soil
d) Black cotton soil is very good for foundation bed

44) The foundations are placed below ground level to increase
a) strength b) workability
c) stability of structure d) all the above

45) Pick up the correct statement from the following:
a) the pile driven in sand is called sand pile
b) the drilled hole filled with sand is called sand pile
c) the sand piles are used for bearing purpose
d) none of these

46) Well foundation can be of following shape
a) Circular b) Rectangular
c) Square d) Any of them

47) Minimum clear cover (in mm) to the main steel bars in slab, beams, column and footing respectively are
a) 10, 15, 20, 25 b) 15, 25, 40, 75
c) 20, 25, 30, 40 d) 20, 35, 40, 75

48) The permissible stress to which structural member can be subjected to, is known as
a) bearing stress b) working stress
c) tensile stress d) compressive stress

49) The ratio of shear stress to shearing strain elastic limit is known as
a) modulus of elasticity b) shear modulus of elasticity
c) bulk modulus of elasticity d) tangent modulus of elasticity

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Chapter - 6 – Water Supply Engineering

1) While taking sample of water from tap
   a) The mouth of tap is heated for 3 minutes
   b) The mouth of tap is heated for 10 minutes
   c) The mouth of tap is not heated
   d) None of the above

2) While taking sample of water from well, sample is collected
   a) About 2 metre above the bottom of well
   b) About 1 metre above the bottom of well
   c) About 1 metre below the bottom of well
   d) None of the above

3) Per capita demand of water for residential houses (for officers & staff on railways)
   a) 200 litres b) 180 litres
   c) 140 litres d) 150 litres

4) Requirement of water for railway offices per capita is …….
   a) 30 litres b) 38 litres
   c) 45 litres d) 55 litres

5) Requirement of water for railway workshops is ……. per capita
   a) 20 litres b) 30 litres
   c) 35 litres d) 45 litres

6) Requirement of water for railway hospital is ……. per capita
   a) 150 litres b) 300 litres
   c) 450 litres d) 600 litres

7) Demand of water for passengers on railway station is …….
   a) 10 litres per passenger b) 15 litres per passenger
   c)` 20 litres per passenger d) 25 litres per passenger

8) Requirement of treated water
   a) It should be colourless b) It should be odourless
   c) It should be clear & tasty d) All the above

9) Peak hour demand of water is taken as …… times the average daily demand.
   a) 1.50 b) 1.90
   c) 2.25 d) 2.75

10) Yield of a well is measured as
   a) Amount of water flowing into the well b) Litres per minutes
   c) Cubic metres per day d) Any of them

11) Recuperation test is done to find out
a) draw down depth b) safe yield of well
c) water table level d) none of them

12) The capacity of high storage tank with efficient stand by pump should be higher of the following figures
a) ¼ the maximum water consumption in 24 hours
b) 1/3 the normal water consumption in 24 hours
c) ¼ the normal water consumption in 24 hours
d) a) or b)

13) The pumping system of water supply should be capable of supplying
a) In 12 hours of less, the normal quantity of water required for 24 hours
b) In 16 hours of less, the present maximum quantity of water required in 24 hours
c) In 20 hours of less, the estimated maximum future requirement of water required in 24 hours
d) All of them

14) Potable or wholesome water should have following quality
a) Clear, odourless and colourless
b) Free from harmful and disease producing bacteria
c) Free from objectionable substances
d) All of them

15) Alum in water supply scheme is used as
a) Coagulant b) Flocculants
c) Preliminary step to filtration d) Any of them

16) The average capacity of high level storage tank in water supply system without stand-by-pump should be as follows:
a) One-third the maximum water consumption in 24 hours
b) One-half the normal consumption in 24 hours
c) Higher of a or b
d) Lower of a or b

17) With regard to standard of quality of drinking water as laid down by Indian Railway, the requirement (desirable) limit of turbidity in NTU scale should be
a) 5.0 b) 7.5
c) 10.0 d) 12.5

18) With regard to standard of quality of drinking water as laid down by Indian Railway, the requirement (desirable) limit of total dissolved solids should not be more than ……mg/l.
a) 200 b) 300
c) 400 d) 500

19) With regard to standard of quality of drinking water as laid down by Indian Railway, the desirable limit of total dissolved solids should not be more than ……mg/l.
a) 200 b) 300
c) 400 d) 500

20) With regard to standard of quality of drinking water as laid down by Indian Railway, the requirement (desirable) limit of total hardness solids should not be more than ……mg/l.
a) 200 b) 300
c) 400 d) 500

21) With regard to standard of quality of drinking water as laid down by Indian Railway, the permissible limit of total hardness solids should not be more than ……mg/l.
a) 200 b) 300
c) 500 d) 600

22) The valves which are check valves or non return valves and allow water to go in one direction only are called……..
a) Sluice valves or gate valves b) Air Valve
c) Relief Valves d) Reflex valve

23) R.O. with regards to water supply is abbreviated for
a) Reserve Over head tank b) Released ozone
c) Reverse osmosis d) None of them

24) From distribution of 40 mm size, number of service pipe of 15 mm can be taken off are ……
a) 3 b) 6
c) 10 d) 12

25) From distribution main of 40 mm size, number of service pipe of 20 mm size can be taken off are ……..
a) 3 b) 6
c) 10 d) 12

26) From distribution main of 40 mm size, number of service pipe of 25 mm size can be taken off are ……..
a) 3 b) 6
c) 10 d) 12

27) From distribution of 50 mm size, number of service pipe of 15 mm can be taken off are ……
a) 3 b) 6
c) 10 d) 20

28) From distribution main of 50 mm size, number of service pipe of 20 mm size can be taken off are ……..
a) 3 b) 6
c) 10 d) 12

29) From distribution main of 50 mm size, number of service pipe of 25 mm size can be taken off are ……..
a) 3 b) 6
c) 10 d) 12

30) From distribution of 65 mm size, number of service pipe of 20 mm can be taken off are ……
a) 3 b) 6
c) 10 d) 12

31) From distribution main of 65 mm size, number of service pipe of 25 mm size can be taken off are ……..
a) 3 b) 6
c) 10 d) 12

32) Thickness of sand in rapid sand filter is
a) 60 – 75 cm b) 60 – 90 cm
c) 90 – 120 cm d) None of the above

33) Frequency of washing in rapid sand filter is
a) Once in 2 months b) Once in 2 months
c) Once in 15 days d) Once in 24 – 48 hours

34) The most ideal disinfectant used for drinking water throughout the world, is
a) alum b) lime
c) chlorine d) nitrogen

35) Air inlet valve in water mains, is generally provided at
a) summit of the pipe b) upstream of sluice valve
c) down stream of sluice valve d) Both a& c above

36) If pH value of water is
a) 7, it is said to be neutral b) less than 7 it is said to be acidic
c) more than 7 it is said to be alkaline d) all the above

37) Disinfection of drinking water, is done to remove
a) odour b) bacteria
c) turbidity d) colour

38) Aeration of water is done to remove
a) odour b) colour
c) bacteria d) hardness

39) Requirement of water for residential purpose is:
a) 200 Ltr./head/day b) 180 Ltr./ Head/day
c) 13.5 Ltr./head/day d) None of these

40) Requirement of water for platform washing:
a) 5 Ltr. per Sqm. Per day b) 10 Ltr. per Sqm. Per day
c) 15 Ltr. per Sqm. Per day d) None of these

41) Requirement of water for apron washing:
a) 5 Ltr. Per Sqm. Per day b) 10 Ltr. Per Sqm. Per day
c) 15 Ltr. Per Sqm. Per day d) None of these

42) The pumping system should be capable of supplying the normal quantity of water required in 24 hrs. in :
a) 12 hrs. or less b) 16 hrs. or less
c) 20 hrs. or less d) 8 hrs. or less

43) The pumping system should be capable of supplying the present maximum quantity of water required in 24 hrs. in :
a) 12 hrs. or less b) 16 hrs. or less
c) 20 hrs. or less d) 8 hrs. or less

44) The pumping system should be capable of supplying the estimated maximum quantity of water required in 24 hrs. in :
a) 12 hrs. or less b) 16 hrs. or less
c) 20 hrs. or less d) 8 hrs. or less

45) Minimum residual chlorine available at the farthest end should be :
a) 0.1 mg. per ltr. b) 0.2 mg. per ltr.
c) 0.4 mg. per ltr. d) None of these

46) Number of 25 mm dia connection from 50 mm mains shall be:
a) 3 b) 12
c) 5 d) 6

47) Number of 15 mm dia connection from 50 mm mains shall be:
a) 3 b) 12
c) 20 d) 6

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Chapter - 7 – Sanitary Engineering

1) Sewerage system of a railway colony may be
   a) Combined system b) Separate system
   c) Partially combined system d) Any of them

2) Self cleaning velocity of a sewer line depends upon
   a) Diameter of sewer
   b) Gradient of sewer line
   c) Type of sewerage
   d) All of them

3) Match the most appropriate alternatives between List I and List II

List I (Item)	**List II (Definition)**
A. Sewage	1. It indicates the liquid waste of society including sullage industrial waste, storm water and discharge from urinals, latrines etc.
B. Garbage	2. It indicates the dry refuse of society including paper pieces, decayed fruit and vegetable, grass leave etc.
C. Sewerage	3. It involves collecting and carrying sewage by water carriage system through sewers is known as sewerage.
D. Ret use	4. It indicates, the rejected, worthless and waste matter from society.

Alternatives for correct answer:

	A	B	C	D
a)	1	2	3	4
b)	1	2	4	3
c)	3	4	2	1
d)	4	3	1	2

4) Which section of the sewer is more efficient for variable flows where there is much differences between the maximum and the normal flow.
   a) Circular section b) Egg Shaped section
   c) Rectangular Section d) Horse shoe section

5) For design of sewers for sullage, minimum velocity of …….. metres per second is taken.
   a) 1.0 m sec b) 1.5 m sec
   c) 2.0 m sec d) 2.5 m sec

6) For design of sewers for sullage, maximum velocity of …….. metres per second is taken.
   a) 1.0 m sec b) 1.5 m sec
   c) 2.0 m sec d) 2.5 m sec

7) For achieving self-cleaning velocity, a minimum velocity of …… mps. is desirable for design peak flow
a) 0.6 mps b) 0.8 mps
c) 1.0 mps d) 2.0 mps

8) For achieving self-cleaning velocity, a minimum velocity of …… mps. is desirable for present peak flow
a) 0.6 mps b) 0.8 mps
c) 1.0 mps d) 2.0 mps

9) The term which indicates the liquid waste of society including sullage industrial waste storm water and discharge from urinals, latrines etc. is called.
a) Refuse b) Sewage
c) Sewerage d) Garbage

10) The term which involves collecting and carrying sewage by water carriage system through sewers is known as……..
a) Refuse b) Sewage
c) Sewerage d) Garbage

11) The system in which sanitary sewage and storm water are allowed to enter jointly in a common sewer for disposal is called……..
a) Combined system b) Separate system
c) Partially combined system d) Any of them

12) The system in which sewers are designed as a sanitary sewer but sufficient quantity of storm water is also allowed to flow in the sewer is called……..
a) Combined system b) Separate system
c) Partially combined system d) Any of them

13) Effective depth of septic tank for 10 users is about
a) 1.0 m b) 1.2 m
c) 1.7 m d) 2.0 m

14) Free board given in septic tank is about……..
a) 100 mm b) 200 mm
c) 300 mm d) 500 mm

15) As per Indian Standard Specification, the spacing of man hole is at …… for sewer of more than 300 mm.
a) 45 m b) 75 m
c) 90 m d) 120 m

16) As per Indian Standard Specification, the spacing of man hole is at …… for sewer of more than 300 mm to 500 mm.
a) 45 m b) 75 m
c) 90 m d) 120 m

17) As per Indian Standard Specification, the spacing of man hole is at …… for sewer of more than 501 mm to 900 mm.
a) 45 m b) 75 m
c) 90 m d) 120 m

18) The sewer line may be tested for leakage by the following method
a) Air test b) Water test
c) Smoke test d) Any of them

19) The depth of water seal in most of the traps is
a) 25 mm b) 50 mm
c) 100 mm d) None of them

20) Match list I with list II and select the most appropriate option.

List I (Type of trap)		**List II (Type of use)**
A. Floor trap	1.	These are used for admitting waste water (sullage) from the floors of rooms, kitchens, baths, etc. into the sullage pipe.
B. Gully trap	2.	Though these traps the sullage enter the chamber through the side inter called back inlet and the water from the room floor or from the roof or courtyard enters from the top.
C. Intercepting trap	3.	These are provided at the junction of a house sewer so as to intercept the foul gas from the municipal sewer into the house drainage system.

Options:

	A	B	C
a)	1	2	3
b)	1	3	2
c)	2	1	3
d)	3	2	1

21) The sludge does not contain waste water from
a) bath rooms b) wash basins
c) kitchen sinks d) toilets

22) The sewerage system originates from
a) house sewers b) lateral sewers
c) branch sewers d) main sewers

23) Before discharging the foul sewage into rivers, it is generally treated by
a) screening b) sedimentation
c) oxidation d) all the above

24) Clogging of sewers, is caused due to
a) silting b) low discharge
c) greasy and oily matters d) all the above

25) If the PH value of sewage is 7
a) it is acidic b) it is alkaline
c) it is neutral d) none of these

26) The minimum diameter of sewers adopted in the designs is
a) 10 cm b) 12.5 cm
c) 15 cm d) 25 cm

27) In septic tanks decomposition of organic bacteria, is done by
a) anaerobic bacteria b) aerobic bacteria
c) both type of bacteria d) none of these

28) In sewers the velocity of flow should not be
a) more than the self cleansing velocity
b) less than the self cleansing velocity
c) less than 10 m/sec
d) more than 20 m/sec

29) Which of the sewer line carries finally sewage to the river for disposal?
a) house sewer b) main sewer
c) outfall sewer d) none of these

30) For the design of sewers in India, the percentage of sewage discharge, is assumed as :
a) 25 – 30 % of water supplied from water works.
b) 75 – 80 % of water supplied from water works.
c) 100 % of water supplied from water works.
d) None of these

31) The flow velocity in a sewer does depend on:
a) its grade b) its length
c) its hydraulic mean depth d) its roughness

32) A septic tank is :
a) a settle tank b) a digestion tank
c) both (a) and (b) d) none of these

33) An intercepting trap is provided at the junction of:
a) a house sewer and a municipal sewer
b) an unfoul house drain and a foul house drain
c) any two house drains
d) None of these

34) Manhole covers are made circular:
a) to strengthen the cover
b) to make the entry convenient
c) for architectural reasons
d) to prevent falling of the cover in to the manhole

35) Traps are used in household drainage systems to
a) prevent entry of foul gases in the houses
b) restrict the flow of water
c) provide partial vacuum
d) trap the solid wastes

36) Which is the correct option of the various statements for septic tank?
1) Septic tank acts as sedimentation cum – digestion tank
2) Anaerobic digestion takes place in septic tank
3) Aerobic digestion takes place in septic tank
4) The surplus effluent goes in soak pit

Correct option

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

37) For a housing colony of about 100 users, the size of septic tank is about (L x B x H)
a) 2 m x 1m x 1 m
b) 5 m x 2 m x 1 m
c) 8 m x 2.6 m x 1 m
d) None of them

38) The sewer pipes
a) carry sewage as gravity conduits
b) are designed for generating self-cleaning velocities at different discharge
c) should resist the wear and tear caused due to abrasion
d) all the above

39) With self cleaning velocity of sewers
a) Silting occurs at bottom
b) Scouring occurs at bottom
c) Both silting and scouring occur at bottom
d) Neither silting nor scouring occurs at bottom

40) A manhole is generally provided at each
a) bend & junction
b) change of gradient
c) change of sewer diameter
d) all the above

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Chapter - 8 – Surveying

1) Give the matching options between List I and List II

List I (Type of survey)

A. Chain Surveying
B. Compass Surveying
C. Plane Table Surveying
D. Levelling

List II (Methodology of Surveying)

1. Linear measurements are taken
2. Horizontal angles are measured
3. Determines the directions of various lines
4. Relative elements or level of various points in the vertical plane is given.

Options

	A	B	C	D
a)	1	2	3	4
b)	1	2	4	3
c)	4	3	2	1
d)	3	4	1	2

2) Indicate which of the statement is wrong in case of compass surveying

1. Horizontal angles are measured
2. Vertical angles are measured
3. Linear measurements are taken

Options

	A	**B**	**C**
a)	1	2	3
b)	2	3	-
c)	1	2	-
d)	1	3	-

3) Distance between two points is measured by

a) Chaining b) Pedometer
c) Passometer d) All the above

4) The following instrument is used to set out a right angles.

a) Cross staff b) Optical Staff
c) Prism square d) All the above

5) Alidade is used for following type of survey work

a) Used for leveling b) Centering the level
c) Used for sighting d) None of them

6) Make out the matching option between List I and List II

List I (Type of adjustment of levelling instrument)

A. Adjustment of level tube
B. Adjustment of Cross hairing
C. Adjustment of line of sight

List II (Details of Adjustment)

1. The axis of the bubble tube should be Perpendicular to the vertical axis.
2. The horizontal cross hair should lie in a plane perpendicular to the vertical ones.
3. The line of collimation of the telescope should be parallel to the axis of the bubble tube.

Options

	A	B	C
a)	1	2	3
b)	1	3	2
c)	3	2	1
d)	2	1	3

7) Permanent adjustment of leveling instrument is required in the following cases:

a) The axis of the bubble tube should be perpendicular to the vertical axis
b) The horizontal cross hair should lie in a plane perpendicular to the vertical ones.
c) The line of collimation of the telescope should be parallel to the axis of the bubble tube.
d) All the above

8) In order to do fly levelling the following type of methodology is adopted

a) Rise and fall method
b) Height of instrument method
c) Both the above
d) None of the above

9) For locating an inaccessible point with the help of only a plane table, one should use

a) traversing b) resection
c) radiation d) intersection

10) Method of plane tabling commonly used for establishing the instrument station is a method of

a) radiation b) intersection
c) resection d) traversing

11) The temporary adjustments of a prismatic compass are

1. Centering
2. Leveling
3. Focusing the prism

The correct order of adjustments is

a) 1, 3, 2 b) 1, 2, 3
c) 2, 3, 1 d) 3, 1, 2

12) A metallic tape is made of :
a) steel b) invar
c) linen d) cloth & wires

13) The position of a point can be fixed more accurately
a) cross staff b) optical square
c) oblique square d) perpendicular offset

14) The main difference between an optical square and prism square is
a) difference in principal of working
b) that optical square is more accurate than prism square
c) that no adjustment is required in a prism square since the angle between the reflecting surface cannot be changed
d) all the above

15) Cross staff is an instrument used for:
a) measuring approximate horizontal angles
b) setting out right angles
c) measuring bearing of the lines
d) none of the above

16) If the R.L. of a B.M. is 100.00 m, the back sight is 1.215 me and the foresight is 1.870 m, the R.L. of the forward station is
a) 99.345 m b) 100.345 m
c) 100.665 m d) 101.870 m

17) Height of instrument method of leveling is
a) more accurate than rise and fall method
b) less accurate than rise and fall method
c) quicker and less tedious for large number of intermediate sights
d) none of the above

18) Dumpy level is more suitable when
a) the instrument is to be shifted frequently
b) fly leveling is being done over long distance
c) many readings are to be taken from a single setting of the instrument
d) all the above

19) The back staff reading on a B.M. of R.L. 500.000 m is 2.685 m. If foresight reading on a point is 1.345 m, the reduced level of the point, is
a) 502.685 m b) 501.345 m
c) 501.340 m d) 504.030 m

20) The first reading from a level station is
a) foresight b) intermediate sight
c) back-sight d) any sight

21) Which of the following instruments is generally used for base line measurements?
a) chain b) metallic tape
c) steel tape d) invar tape

22) 'Ranging' is the process of
a) fixing ranging rods on the extremities of the area
b) aligning the chain in a straight line between two extremities
c) taking offsets from a chain line
d) chaining over a range of mountains

23) Therodolite is an instrument used for
a) tightening the capstan-headed units of level tube
b) measurement of horizontal angles only
c) measurement of vertical angles only
d) measurement of both horizontal and vertical angles only

24) While doing leveling in undulating terrain, it is preferable to set the level on
a) the top of summit b) the bottom of a valley
c) one side of the slope d) any where

25) Which of the following methods of plane table surveying is used to locate the position of an inaccessible point
a) radiation b) intersection
c) traversing d) resection

26) After fixing the plane table to the tripod, the main operation which are needed at each plane table station are :
i) Leveling ii) orientation
iii) centering
The correct sequence of these operations is
a) i), ii), iii) b) i), iii), ii)
c) iii), i), ii) d) ii), iii), i)

27) For locating an inaccessible point with the help of only a plane table, one should use
a) travelling b) resection
c) radiation d) intersection

28) In case the value of contour is decreasing towards the middle of closed loops, it represents following type of topography of ground is indicated.
a) Depression or lake b) Hillock
c) Steep area d) None of above

29) In case, the centre contour has higher elevation value following type of topography of ground is indicated.
a) Depression or lake b) Hillock
c) Steep area d) None of above

30) In leveling operation
   a) When the instrument is being shifted, the staff must not be moved.
   b) When the staff is being carried forward, the instrument must remain stationary
   c) Both a & b
   d) Neither a nor b

31) A theodolite may be used for
   a) Laying off horizontal angles
   b) Locating points on lines
   c) Determining difference in elevation
   d) Setting out curves

32) In a theodolite a condition arising when the image formed by the objective is not in a plane of cross hairs is known as
   a) Parallax b) Out of sight
   c) Out of plane d) Transiting

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Chapter - 9 – Engineering Surveys and Project Reports

1) What is the purpose or reason of constructing a new line from Jammu to Kashmir Valley
   a) Strategic reason b) Development of back ward area
   c) Shorten existing rail link d) None of the above

2) Which of the following survey are required to be done before the construction of new railway line.
   a) Traffic survey b) Reconnaissance & Preliminary survey
   c) Final location survey d) All the above

3) What is the sequence of carrying out the four important surveys before constructing a new line?
   a) Preliminary, Traffic, Reconnaissance, Final location survey
   b) Traffic, Reconnaissance, Preliminary, Final location survey
   c) Reconnaissance, Traffic, Preliminary, Final location survey
   d) No sequence is necessary, these can be done in the sequence as decided by the engineer.

4) Give the most appropriate matching option out of the List I and List II

List I (Railway Line)

A. Jammu to Kashmir Valley
B. Assam Rail line
C. Konkan Railway line

List II (Reason of Constructing Railway Line)

1. Strategic reasons
2. To shorten the existing rail link
3. Development of backward area

Options

	A	B	C
a)	1	2	3
b)	1	3	2
c)	3	2	1
d)	2	1	3

5) What does RECCE stand for
   a) Regional Engineering College of Civil Engineering
   b) Results of Civil Engineering Examination
   c) Reconnaissance Survey
   d) None of them

6) Which of the instruments is not used in Reconnaissance survey
   a) Prismatic compass b) Dumpty level
   c) Aneroid Barometer d) Pedometer

7) Which of the instruments is not used in Preliminary survey
   a) Theodolite b) Tachometer
   c) Dumpy level d) None of them

8) While doing final location survey, the centre line is fully marked with pegs at …..metre distance.
a) 10 m b) 20 m
c) 30 m d) 50 m

9) The project report of final location survey gives tabulated statement of the follow
a) Curve Abstract b) Gradient Abstract
c) Bridge Abstract d) All the above

10) While doing preliminary survey, the survey normally covers a width of ……..metres on either side of proposed alignment.
a) 50 m b) 100 m
c) 150 m d) 200 m

11) The project report of the reconnaissance survey should be accompanied by index map area at a scale of 1 cm = ……..km
a) 2.5 km b) 5.0 km
c) 10.0 km d) 15.0 km

12) Traffic survey of new line should include the following
a) The most promising route for the railway in the area
b) The possible traffic the railway line will carry
c) Standard of railway line to be followed
d) All the above

13) Which of the following statement is incorrect with regard to preliminary survey for a new railway line
1. The alignment is fully staked with the help of theodolite.
2. All working drawings are prepared
3. An abstract estimate of the cost of the line surveyed is prepared which is accompanied by an abstract estimate of junction arrangements.
4. Detailed estimates for land, tunnels, bridges one km. of permanent way, rolling stock and general charges are made.

Option for incorrect statement
a) 1, 4 b) 1, 2
c) 2, 4 d) 2, 3

14) While carrying out preliminary survey, the estimate of cost is prepared, which covers the following?

Item covered
1) Land 2) Tunnels & bridges
3) One km of track 4) Rolling stock
5) General changes

Options for item covered
a) 1, 2, 4, 5 b) 2, 3, 4, 5
c) 1, 2, 5 d) 1, 2, 3, 4, 5

15) 'Pedometer' is used to measure
a) Distance b) Angle
c) Height d) None of the above

16) The purpose of the Reconnaissance survey
a) To determine technical feasibility of the line
b) To assess whether such a line is required or not
c) To decide the final alignment of the railway line
d) None of the above

17) Traffic survey is done to find out
a) The most promising route for the railway in the area
b) The possible traffic the railway line will carry
c) Standard of railway line to be followed
d) All the above

18) The survey instrument used for reconnaissance survey
a) Theodolite & Dumpty level
b) Prismatic compass & Aneroid barometer
c) All the above
d) None of them

19) Final location survey is done to decide
a) Whether there is need for a railway line or not
b) Whether the proposed railway line is financially viable or not
c) To give alternate alignments for the proposed railway line
d) To give the final layout for constructing the proposed railway line

20) In which of the survey the centre line of the proposed railway line is marked at 20 metres interval
a) Reconnaissance survey b) Traffic survey
c) Preliminary survey d) Final location survey

21) A detailed project report of the proposed railway line is made after
a) Preliminary survey b) Reconnaissance survey
c) Final location survey d) Traffic survey

22) Aerial Photographs of various areas are available with
a) Indian Railway b) CPWD
c) Air Authority of India d) Survey of India

23) Project report gives details of
a) Characteristic of the project area b) Route selection
c) Project Engineering d) All the above

24) Survey of major projects is done by
a) Chief Engineer
b) Chief Administrative Officer (CAO), Construction
c) Divisional Railway Manager
d) Railway Board

25) The index map of preliminary report should be to a scale of
a) 1 cm to 0.5 km b) 1 cm to 1.0 km
c) 1 cm to 2.5 km d) 1 cm to 10.0 km

26) Various surveys conducted to lay a new railway line are
a) Reconnaissance & Traffic survey b) Preliminary survey
c) Final Location survey d) All the above

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Chapter - 10 - Railway Stations and Passenger Amenities

1. A railway stand is provided for the following purpose
   a) to entrain or detrain the passenger
   b) to load or of load the goods or parcel
   c) to enable the faster train to overtake the slower train
   d) all the above

2. For A category station the annual passenger earning should be
   a) Rs. 10 crore and more b) Rs. 6 crore or more
   c) Rs. 3 crore and more d) less than Rs. 3 crore

3. For B category station the annual passenger earning should be
   a) Rs. 6 to 10 crore b) Rs.3 to 6 crore
   c) Rs. 1 to 3 crore d) less than Rs. 1 crore

4. The minimum essential facility at each type of station A to F consist of
   a) Booking facility b) Drinking water facility
   c) Waiting hall/ shed d) All the above

5. No. of taps on each platform of A category station as per norms for minimum essential facility criteria are
   a) 6 b) 8
   c) 12 d) 15

6. No. of taps on each platform of B category station as per norms for minimum essential facility criteria are
   a) 6 b) 8
   c) 12 d) 15

7. No. of taps on each platform of C category station as per norms for minimum essential facility criteria are
   a) 6 b) 8
   c) 12 d) 15

8. No. of latrines on A category of station as per norms for essential amenities is
   a) 2 b) 4
   c) 6 d) 10

9. No. of latrines on B category of station as per norms for essential amenities is
   a) 2 b) 4
   c) 6 d) 10

10. No. of latrines on C category of station as per norms for essential amenities is
    a) 2 b) 4
    c) 6 d) 10

11. No. of latrines on D category of station as per norms for essential amenities is
a) 2 b) 4
c) 6 d) 10

12. A model station on railway should have
a) Minimum essential facility b) Desirable amenities
c) Recommended amenities d) All the above

13. As per norms for recommended facility water cooler should be provided which total number of inward & outward passenger is more than
a) 10000 per day b) 5000 per day
c) 2000 per day d) 1000 per day

14. For A category station it is necessary to provide
a) High level platform b) Medium level platform
c) Rail level platform d) All the above

15. For B category station as per minimum essential facility it is necessary to provide
a) High level platform b) Medium level platform
c) Rail level platform d) All the above

16. Foot over bridge must be provided on the following type of station as per minimum essential facility criteria
a) A,B,C & D class station b) A,B & C class station
c) A & B class station d) only A class station

17. Latrines and urinals must be provided on these type of station as per minimum essential facility criteria
a) A,B,C,D, E & F class station b) A,B,C, D & E class station
c) A,B,C & D class station d) A, B & C class station

18. No. of taps to be provided on each platform of A category station as per norms for minimum essential facility criteria are
a) 20 b) One tap on each platform
c) 12 d) 15

19. Numbers of urinals & latrines to be provided on E category station as per norms of minimum essential facility are
a) 15 b) 10
c) 8 d) 6

20. Waiting hall/ shed to be provided on B category station as per norms of essential facility
a) 100 sq. m. b) 80 sq. m.
c) 50 sq. m. d) 40 sq. m.

21. Platform shelter to be provided on each platform for C class station should have minimum area of sq. m.
a) 400 sq. m. b) 300 sq. m.
c) 200 sq. m. d) 100 sq. m.

22. As per recommended level of amenities, numbers of counter for booking passenger on A & B class station are
a) one window for per 100tickets/hr b) one window for per 800 tickets/hr
c) one window for per 500 tickets/hr d) at the discretion of DRM

23. Ndb stands for design figure for number of passenger for
a) A,B,C,D & E class station b) A,B & C class station
c) A & B class station d) E class station

24. Urinals for A& B stations as per norms for recommended level of facility at railway station
a) Ndb/500 b) Ndb/300
c) Ndb/200 d) none of them

25. Numbers of taps on platforms per norms of recommended level of facility
a) one for every coach b) one for alternate coach
c) one for every 200 m distance d) at the discretion of DRM

26. Which of the following do not exist at halt station?
a) facility for stopping the train b) facility for small waiting
c) facility for crossing the train d) facility for book of passenger

27. Size of cubical of booking office is kept a
a) 1.20 x 1.50 m b) 1.50 x 1.20 m
c) 1.50 x 1.80 m d) 1.80 x 1.50 m

28. H eight of high level platform for passenger for BG is
a) 0.455 m b) 0.560 m
c) 0.650 m d) 0.760 m

29. Height of low level platform for passenger for BG is
a) 0.455 m b) 0.560 m
c) 0.650 m d) 0.760 m

30. If Ndb is design figure for numbers of passenger for A and B stations and N max is average no. of passenger at any time during peak including the inward and out ward passenger (Exceeding mela traffic) then Ndb is……. Nmax
a) 0.15 b) 0.30
c) 0.45 d) 0.60

31. If Ndb is design figure for numbers of passenger for C, D and E stations and N max is average no. of passenger at any time during peak including the inward and out ward passenger (exceeding mela traffic) then Ndb is….. Nmax
a) 0.15 b) 0.30
c) 0.45 d) 0.60

32. Numbers of urinals to be provided for railway stations other than A and B stations are… as per norms of recommended scale for provision of facilities
a) Nds/100 b) Nds/200
c) Nds/300 d) Nds/250

33. Numbers of latrines to be provided for railway stations other than A and B stations are … as per norms of recommended scale for provision of facilities.
a) 4XNds/100 b) 4XNds/200
c) 4XNds/300 d) 4XNds/250

34. Numbers of seat as seating arrangement to be provided for Railway station on A and B stations are ____ as per norms of recommended scale for provision of facilities.
a) 0.25 Ndb b) 0.40 Ndb
c) 0.28 Nmax d) 0.40 NDs

35. As per norms of desirable facility as given to model station the refreshment rooms should be provided on stations classified as:
a) A & B b) A, B and C
c) A, B,C and D d) A, B,C,D and E

36. As per norms of desirable facility as given to model station the book stall should be provided on stations classified as
a) A & B b) A, B and C
c) A, B, C and D d) A, B, C, D and E

37. As per norms of desirable facility as given to model station the public address system should be provided on stations classified as
a) A & B b) A, B and C
c) A, B, C and D d) A, B, C, D and E

38. As per norms of desirable facility as given to model station the parking facility/ circulating are should be provided on stations classified as
a) A & B b) A, B and C
c) A, B, C and D d) A, B, C, D and E

39. As per norms of desirable facility as given to model station the water coolers should be provided on stations classified as
a) A & B b) A, B and C
c) A, B, C and D d) A, B, C, D and E

40. As per norms of desirable facility as given to model station the clock room should be provided on stations classified as
a) A & B b) A, B and C
c) A, B,C and D d) A, B, C, D and E

41. As per norms of desirable facility as given to model station the retiring room should be provided on stations classified as
a) A & B b) A, B and D
c) A, B,C and D d) A, B, C, D and E

42. Separate waiting room with bath room facility for ladies & gents should be provided as stations
a) A & B b) A, B and C
c) A, B,C and D d) A

43. How many urinals should be reserved for ladies at station
a) 1/2 of total urinals b) 1/3 of total urinals
c) 3/4 of total urinals d) 1/4 of total urinals

44. Effort should be made to cover entire platform
a) Category A station b) Category B station
c) Category C station d) Category A & C station

45. Norms for no. of seats at recommended level at category A stations
a) 0.4 Ndb b) 0.4 Nds
c) 0.4 Nmax d) 100 on each platform

46. Norms for no. of seats at recommended level at category B stations
a) 0.4 Ndb b) 0.4 Nds
c) 0.4 Nmax d) 75 on each platform

47. Norms for no. of seats at recommended level at category C stations
a) 0.4 Ndb b) 0.4 Nds
c) 0.4 Nmax d) 20 on each platform

48. Norms for no. of seats at recommended level at category D stations
a) 0.4 Ndb b) 0.4 Nds
c) 0.4 Nmax d) 50 on each platform

49. Norms for no. of seats at recommended level at category E stations
a) 0.4 Ndb b) 0.4 Nds
c) 0.4 Nmax d) 10 on each platform

50. Height of counters of booking windows from floor level shall be
a) 1 m b) 1.2 m
c) 0.90 m d) 0.76 to 0.80 m

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Chapter - 11 - Management of Railway Land

01. The ownership of Railway land held by the railway vests in the
a) Zonal Railway b) Divisional Railway
c) Central Government d) State Government

02. Indian Railway own total land about in lakh hectares.
a) 10.50 b) 8.75
c) 6.40 d) 4.30

03. The Track and structure utilize about in % of total land on Indian Railway.
a) 50 % b) 60 %
c) 80 % d) 95 %

04. Vacant land on Indian Railway is about in lakh hectares.
a) 0.50 b) 0.45
c) 0.25 d) 0.18

05. Land under encroachment on Indian Railway is about in lakh hectares
a) 0.25 b) 0.16
c) 0.10 d) 0.02

06. What does RLDA stand for
a) Rules for Leave & Discipline admissibility
b) Reduced Level for Datum Azimuth
c) Rail Land development authority
d) Regulatory Land development administration

07. GMF is abbreviated for
a) Government Monitory Fund b) Grow More Food
c) General Management Fund d) None of them

08. PPE is stand for
a) Permanent Premises Eviction b) Public Premises Eviction
c) Position of Permanent Encroachment d) Public Prosecutor of Encroachment

09. Preparation of necessary plan for acquisition of is the responsibility of
a) Zonal Railway b) Engineering Department
c) State Government d) Railway Board

10. Permanent land is shown on the land plan by colour
a) Yellow b) Pink
c) Blue d) None of the above

11. Temporary land can be acquired for the maximum period of
    a) one year
    b) two years
    c) three years
    d) as required by railway administration

12. Temporary land is the land required for
    a) Temporary work b) Temporary track
    c) As required by railway administration d) none of the above

13. The land plan should give following information
    a) Existing road & small building b) Boundary of land
    c) Position of boundary marks d) all the above

14. Land record register are kept in
    a) Head quarter office b) SSE/Works office
    c) DRM office d) all the above

15. Land record register is a register in which
    a) Land boundary are shown
    b) All transaction of acquisition and relinquishment are made
    c) Both a & b
    d) None of the above

16. Maximum distance between two boundary stone should be
    a) 100 m b) 200 m
    c) 300 m d) 400 m

17. Hard type of encroachment is
    a) category A b) category B
    c) category C & D d) category A & B

18. Standing committee of land rates consist of
    a) CE/G, FA & CAO, CSC b) CE/MRTS, CE/G, FA & CAO
    c) CE/MRTS, FA & CAO, CCM d) CCM, CE/G, FA & CAO

19. Out side encroachment falls in category of encroachment as
    a) category A & C b) category C & D
    c) category B & D d) category A & B

20. Within station premises who is responsible for encroachment
    a) SM & RPF inspector b) SSE/Works
    c) SSE/Works & SSE/P.Way d) all the above

21. Records of ownership of land states other than UP is
    a) Musabi b) Khasra
    c) Jamabandi d) None of these

22. Land can be acquired in case of emergency under the section
a) section 9 b) section 6
c) section 14 d) section 26

23. Annual license fee for city booking of here is…….
a) 5% b) 6%
c) 10% d) 14%

24. Annual license fee for laying a private siding is ……% of land value
a) 5% b) 6%
c) 8% d) 10%

25. Annual license fee for retail oil depots is…….. % of land value
a) 5% b) 10%
c) 20% d) 25%

26. Annual license fee for temporary Structure for stacking in covered area would be….. % of land value.
a) 6% b) 7.5%
c) 10% d) 20%

27. Annual license fee for 'Çoal dump' would be……% of land value
a) 6% b) 7.5%
c) 10% d) 20%

28. Annual license fee for 'Oil depot' would be……. % of land value
a) 6% b) 7.5%
c) 10% d) 20%

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Chapter - 12 - Schedule of Dimensions

1. The new schedule of dimensions for 1676 mm gauge has following schedule.
   a) Schedule I only b) Schedule I & II
   c) Schedule I, II & III d) None of them

2. Schedule ii of schedule of dimension for BG caters for the followings.
   a) Dimensions for MG b) Recommended dimensions
   c) Existing infringement schedule d) none of them

3. Minimum distance from centre to centre of tack for BG for existing work is
   a) 4450 mm b) 4265 mm
   c) 4500 mm d) 4625 mm

4. Minimum distance centre to centre of track for new work/alteration to existing work for BG track is.
   a) 4200 mm b) 5300 mm
   c) 4350 mm d) none of them

5. Any deviation from the schedule of dimensions will require prior sanction of
   a) Zonal Railway b) Railway Board
   c) CRS d) all of them

6. The maximum gradient in station yard should be___ unless special safety devices are adopted and or special rules enforced for existing work..
   a) 1 in 400 b) 1 in 500
   c) 1 in 1000 d) none of the above

7. The maximum gradient in the yard for BG for new work is
   a) 1 in 1000 b) 1in 1200
   c) 1 in 1500 d) 1 in 1800

8. The minimum distance centre to centre for new work for BG is
   a) 4.5 m b) 5.3 m
   c) 6.0 m d) 5.65 m

9. For BG the minimum radius of a curve is
   a) 150 m b) 175 m
   c) 200 m d) 225 m

10. The minimum width of embankment for BG single line straight track is.
    a) 6.5 m b) 6.85 m
    c) 7.5 m d) 7.95 m

11. The minimum width of cutting excluding side drains for BG single line is.
    a) 6.0 m b) 6.25 m
    c) 6.5 m d) 6.85 m

12. The minimum width of embankment for BG double line straight track is.
a) 6.5 m b) 12.15m
c) 7.5 m d) 7.95 m

13. The minimum width of cutting excluding side drains for BG double line single line is.
a) 6.0 m b) 11.55 m
c) 6.5 m d) 6.85 m

14. Check rail should normally provided where radius is……m or less in BG.
a) 150 m b) 200 m
c) 218 m d) 225 m

15. Maximum clearance of check rail at a level crossing on BG is.
a) 51 mm b) 57 mm
c) 65 mm d) 54 mm

16. Minimum depth of space for wheel flange from rail level in BG is.
a) 35 mm b) 38 mm
c) 42 mm d) 45 mm

17. Minimum height above rail level for a distance of 915 mm on either side of the centre of track for BG for over head structures is.
a) 4500 mm b) 4850 mm
c) 4875 mm d) 5250 mm

18. Maximum clearance of check rail at a level crossing on BG is.
a) 51 mm b) 57 mm
c) 65 mm d) 54 mm

19. The minimum horizontal distance from centre of track to face of passenger platform coping for BG is.
a) 1650 mm b) 1670 mm
c) 1676 mm d) 1685 mm

20. The minimum distance from centre of track to face of goods platform coping for BG is.
a) 1650 mm b) 1660 mm
c) 1670 mm d) 1090 mm

21. The maximum height above rail level for BG goods platform is.
a) 1000 mm b) 1050 mm
c) 1065 mm d) 5250 mm

22. Minimum horizontal distance of any building on BG passenger platform from centre line of track from platform level to 305 mm above platform level is.
a) 5100 mm b) 5150 mm
c) 5180 mm d) 5250 mm

23. The minimum horizontal distance from centre of track to a pillar, column, lamp or similar isolated structures on a passenger platform or any building on a goods s platform from platform level to 305 mm above platform level for BG is.
a) 3950 mm b) 4720 mm
c) 3970 mm d) 4250 mm

24. A pillar or column which has area more than in plan for BG must be classed building and not as isolated structures.
a) 3700 cm^2 b) 3705 cm^2
c) 3716 cm^2 d) 3725 cm^2

25. What is the maximum height above rail level for goods platform excluding end loading platform for BG is.
a) 1100 mm b) 1065 mm
c) 1295 mm d) 1500 mm

26. What is the minimum distance of a 3 metre high building on passenger platform from centre of track for BG.
a) 5000 mm b) 5330 mm
c) 5660 mm d) 6000 mm

27. What is the minimum horizontal distance from the centre of track to any structure from rail level to 305 mm above rail level for BG in station yard.
a) 1500 mm b) 1675 mm
c) 1800 mm d) 1925 mm

28. What is the maximum height above rail level for low level passenger platform for BG.
a) 300 mm b) 455 mm
c) 525 mm d) 550 mm

29. Maximum clearance of check rail opposite nose of crossing.
a) 30 mm b) 48 mm
c) 51mm d) 57 mm

30. What is the distance of speed breakers from gate on the approaches of unmanned level crossing.
a) at a distance of 10 m from gate b) at a distance of 15 m from gate
c) at a distance of 18 m from gate d) at a distance of 20 m from gate

31. In tunnel, through and semi through girder bridges, the minimum distance centre to centre of track for new work and alteration to existing work for BG shall be.
a) 4600 mm b) 4725 mm
c) 4800 mm c) 5000 mm

32. For BG maximum height above rail level of any part of interlocking or signal gears for a width of 1600 mm is.
a) 50 mm b) 58 mm
c) 64 mm d) 72 mm

33. Minimum clearance of check rail opposite nose of crossing.
a) 30 mm b) 44 mm
c) 51mm d) 57 mm

34. Minimum clearance of check rail for BG at level crossing should be.
a) 48 mm b) 57 mm
c) 51 mm d) 44 mm

35. ODC stand for
a) On Direct Current b) Over Dimensioned Consignment
c) None of them d) Out Dated Consignment

***

Answer - Sheet

Chapter - 1 - Works Manual

BACK TO CHAPTER

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

Chapter – 2 - Building Material

BACK TO CHAPTER

1. b	2.a	3.c	4.a
5.c	6.b	7.a	8.a
9.a	10.b	11.b	12.a
13.c	14.c	15.d	16.c
17.a	18.c	19.c	20.d
21.c	22.b	23.c	24.c
25.c	26.b	27.c	28.b
29.b	30.a	31.c	32.b
33.b	34.b	35.a	36.a
37.c	38.a	39.a	40.c
41.b	42.b	43.b	44.a
45.a			

Chapter - 3 – Cement concrete and R.C.C.

BACK TO CHAPTER

1. c	2.c	3.d	4.a
5.c	6.b	7.b	8.b
9.a	10.b	11.d	12.c
13.b	14.b	15.c	16.b
17.a	18.b	19.d	20.a
21.a	22.d	23.c	24.b
25.b	26.b	27.c	28.c
29.a	30.c	31.b	32.c
33.b	34.b	35.d	36.a
37.c	38.c	39.c	40.b
41.c	42.a	43.c	44.b
45.a	46.d	47.c	48.d
49.d	50.c	51.a	52.d
53.b	54.c	55.a	56.b
57.b	58.d	59.c	60.d
61.b	62.c	63.d	64.b
65.a	66.a	67.a	

Chapter - 4 – Construction & Maintenance of Building

BACK TO CHAPTER

1.b	2.d	3.b	4.d
5.c	6.b	7.c	8.a
9.c	10.d	11.a	12.b
13.b	14.d	15.b	16.b
17.b	18.a	19.d	20.d
21.b	22.d	23.b	24.a
25.a	26.a	27.d	28.d
29.c	30.b	31.c	32.d
33.d	34.b	35.d	36.b
37.d	38.a	39.c	40.c

Chapter - 5 – Soil Mechanics

BACK TO CHAPTER

1.b	2.a	3.b	4.a
5.a	6.b	7.d	8.d
9.b	10.a	11.d	12.c
13.b	14.c	15.b	16.d
17.d	18.a	19.d	20.d
21.a	22.d	23.d	24.c
25.c	26.d	27.a	28.c
29.b	30.c	31.a	32.b
33.c	34.c	35.c	36.d
37.b	38.a	39.d	40.d
41.d	42.b	43.d	44.c
45.a	46.d	47.b	48.b
49.b			

Chapter - 6 – Water Supply Engineering

BACK TO CHAPTER

1. a	2.b	3.a	4.c
5.b	6.c	7.d	8.d
9.c	10.d	11.b	12.d
13.d	14.d	15.a	16.c
17.c	18.d	19.d	20.b
21.d	22.d	23.c	24.d
25.b	26.a	27.d	28.c
29.b	30.d	31.c	32.a
33.d	34.c	35.a	36.d
37.b	38.a	39.a	40.a
41.b	42.a	43.b	44.c
45.b	46.d	47.c	

Chapter - 7 – Sanitary Engineering

BACK TO CHAPTER

1. d	2.d	3.a	4.b
5.a	6.c	7.b	8.a
9.b	10.c	11.a	12.c
13.a	14.c	15.a	16.b
17.c	18.d	19.b	20.a
21.d	22.a	23.d	24.d
25.c	26.c	27.a	28.b
29.c	30.b	31.b	32.b
33.a	34.b	35.a	36.b
37.c	38.d	39.d	40.d

Chapter - 8 – Surveying

BACK TO CHAPTER

1.a	2.b	3.d	4.a
5.c	6.a	7.d	8.c
9.d	10.b	11.b	12.d
13.d	14.c	15.b	16.a
17.c	18.c	19.c	20.c
21.d	22.b	23.d	24.c
25.b	26.b	27.d	28.a
29.b	30.c	31.d	32.a

Chapter - 9 – Engineering Surveying & Project Report

BACK TO CHAPTER

1.a	2.c	3.b	4.b
5.c	6.b	7.d	8.b
9.d	10.d	11.a	12.d
13.b	14.d	15.a	16.a
17.d	18.b	19.d	20.d
21.c	22.d	23.d	24.b
25.c	26.d		

Chapter - 10- Railway Stations and Passenger amenities

BACK TO CHAPTER

1.d	2.b	3.b	4.a
5.c	6.c	7.a	8.d
9.c	10.a	11.b	12.b
13.d	14.a	15.b	16.b
17.b	18.c	19.b	20.c
21.c	22.a	23.c	24.c
25.b	26.c	27.d	28.d
29.a	30.b	31.c	32.b
33.b	34.b	35.a	36.b
37.b	38.c	39.c	40.a
41.b	42.d	43.b	44.d
45.a	46.a	47.b	48.b
49.b	50.a		

Chapter 11 - Management of Railway Land

BACK TO CHAPTER

1.c	2.d	3.c	4.b
5.d	6.c	7.b	8.b
9.b	10.b	11.c	12.c
13.d	14.d	15.b	16.b
17.a	18.d	19.d	20.a
21.c	22.c	23.b	24.b
25.b	26.b	27.b	28.c

Chapter 12- Schedule of Dimensions

BACK TO CHAPTER

1.b	2.c	3.b	4.b
5.c	6.a	7.b	8.b
9.b	10.b	11.b	12.b
13.b	14.c	15.b	16.b
17.c	18.a	19.b	20.c
21.c	22.c	23.b	24.c
25.b	26.b	27.b	28.b
29.b	30.d	31.b	32.c
33.b	34.c	35.b	

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संदर्भ / REFERENCE

1	**Indian Railway Works Manual**
2	**Engineering Code**
3	**Schedule of Dimension**
4	**Objective Railway Engineering by M.M.Agarwal**
5	**Internet websites**

टिप्पणी/NOTES

गुणवत्ता नीति

रेलों में यात्री और माल यातायात की बढ़ती माँग को पूरा करने के लिए गुणवत्ता प्रबंध प्रणाली में अनुसंधान, डिज़ाइनों और मानकों में उत्कृष्टता तथा सतत सुधारों के माध्यम से सांविधिक और नियामक अपेक्षाओं को पूरा करते हुए सुरक्षित, आधुनिक और किफ़ायती रेल प्रौद्योगिकी का विकास करना।

QUALITY POLICY

To develop safe, modern and cost effective Railway technology complying with Statutory and Regulatory requirements, through excellence in Research, Designs & Standards and Continual improvements in Quality Management System to cater to growing demand of passenger and freight traffic on the Railways.

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हमारा उद्देश्य

अनुरक्षण प्रौधौगिकी और कार्यप्रणाली को उन्न्यन करना तथा उत्पादकता और रेलवे की परिसम्पत्तियों एवं जनशक्ति के निष्पादन में सुधार करना जिससे अंतर्विषयों में विश्वसनीयता, उपयोगिता और दक्षता प्राप्त की जा सके।

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Our Objective

To upgrade Maintenance Technologies and Methodologies and achieve improvement in productivity and performance of all Railway assets and manpower which inter-alia would cover Reliability, Availability, and Utilisation.

If you have any suggestion & comments, please write to us:

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