5th Sem. COMMON 2020(W)

Th1- Entrepreneurship and Management & Smart Technology

Time- 3 Hrs

Full Marks: 80

Answer the questions as per the instruction.
Figures in the right hand margin indicates marks

2 x 10

1. Answer **All** questions

   a. Write the full form of NABARD.

   b. Enlist at least four characteristics of an entrepreneur.

   c. Why should an entrepreneur prepare the project himself?

   d. Define financial management.

   e. Distinguish between debit and credit.

   f. Define market.

   g. Why does an organization need advertisement?

   h. Differentiate a manager with a leader.

   i. Define IoT.

   j. Define IPR (Intellectual Property Right).

5 x 6

2. Answer **Any Six** Questions

   a. Differentiate entrepreneur with manager.

   b. What are the factors to be taken into account to select a technology for an enterprise?

   c. Write the objectives of financial management.

   d. Write the different functions of marketing.

   e. Briefly discuss different types advertising media.

   f. Briefly explain the functions of HRM.

   g. Briefly discuss the smart transportation system, the advantages and

disadvantages related to it.

h. Explain the Maslow's theory of motivation.

3 Answer any three questions 10x3

a. Briefly explain different barriers in entrepreneurship.

b. How do you select a business opportunity? Explain different components (at least five) related to business opportunity.

c. What is PPR (Preliminary Project Report)? Briefly explain the structure of PPR.

d. Explain the five functions of management briefly.

e. Briefly explain the general recruitment process in an organization.

f. Briefly explain different types of budgets.

5TH SEM /CIVIL/2020(W)NEW

Th2- Structural Design-II

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks
IS800:2007, IS 883-1970, SP 20, IS 806-1968,IS 1161-1998 and steel table are allowed in examination.

1. Answer **All** questions 2 x 10

a. Define crinkling in tubular Steel compression member.

b. Define structural Steel.

c. Define gauge distance

d. What do you mean by slot weld and plug weld?

e. Differentiate between web buckling and web crippling of beams.

f. What is effective length of a column?

g. Define net sectional area of a tension member.

h. What is slenderness ratio of a masonry wall?

i. For what type of structure is the tubular Steel sections are suitable?

j. What do you mean by mortar and what are the types of mortars?

2. Answer **Any Six** Questions 6 x 5

a. Write down the advantages and disadvantages of steel structure.

b. Explain block shear failure in tension members.

c. Explain different types of butt welds with neat sketch.

d. A ground floor masonary wall is 4m clear height up to bottom of roof slab. Height of plinth above foundation footing is equal to 0.8 metre. If the wall thickness is 30 cm, calculate effective height and slenderness ratio for partial restraint on both ends condition.

e. Determine the tensile strength of a roof Truss 100×75× 10 mm connected to the gusset plate with 100 mm leg by 5 mm fillet weld with length of weld equal to 200 mm. Take fy=250N/mm2.

f. Determine the plastic moment capacity of unsymmetrical I section. Given specifications are:

Top flange- 100 mm × 20 mm
Bottom flange- 200 mm × 20 mm
Web- 200 mm × 20 mm

g What do you mean by slip critical connection? Explain the principle of high strength friction grip bolts.

3 Find the maximum force that can be transmitted through a double bolted chain lap joint consisting of 6 bolts in two rows at pitch and gauge distances of 40mm. Given that M16 bolts are of grade 4.6 and plates of fe410 are used. The thickness of the plates connected are 10mm and 12 mm. Take end distance and edge distance as 30mm. 10

4 A laterally supported beam ISMB 600 @1226 N/m is placed between two supports. Determine the safe uniformly distributed load the beam can carry for an effective span of 8 m. Take fy=250N/mm2. Neglect web buckling and web crippling. 10

5 Design a column section to carry a working axial load of 400 KN. The column is 4 metre long and effectively held in position and restrained against rotation at both ends. Consider fy=250N/mm2. 10

6 Write the codal provisions of design consideration for masonry walls under eccentric loading. 10

7 A tie member of a roof Truss consists of two ISA 100 75,8 mm. The angles are connected to either side of a 10mm gusset plate and the member is subjected to a working pull of 300 KN. Design the welded connection, assuming connections are made in workshop. 10

5TH SEM./CIVIL ENGG./ 2020(W) NEW
TH3 RAILWAY & BRIDGE ENGINEERING

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 1(
   a. What do you mean by crossing?
   b. Define gauge. Mention different types of gauges.
   c. What is maximum value of superelevation provided in a track as per railway board?
   d. List the different types of rail joints
   e. What do you mean by gradient?
   f. Differentiate between square & skew alignment
   g. Write Dicken's & Ryve's formula for the determination of flood discharge.
   h. What is a culvert?
   i. What do you mean by coffer dam?
   j. Define afflux

2. Answer **Any Six** Questions 6 x 5
   a. Write the advantages of railway
   b. Mention the function of ballast.Also state the requirement of good ballast.
   c. List the requirement of an ideal rail joint.
   d. Write down the requirement & characteristics of an ideal bridge site.
   e. Explain afflux with Marriman's formula and Molesworth's formula.
   f. Give a brief description of various types of causeway in use.
   g. Explain pile driving methods

3 Write the necessity of track maintenance & advantages of maintenance. 10

4 Explain various types of crossing in use on Indian Railways. 10

5 Describe briefly about the selection of gauge. 10

6 Describe the components of a bridge with neat sketch. 10

7 What are the different types of bridge foundation? Describe open foundation and raft foundation with neat sketch. 10

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Th4 - Water Supply And Waste Water Engineering

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10

a. Explain the term per capita demand?
b. What is the yield of a well?
c. Define specific yield?
d. What is self cleaning velocity?
e. What are the different methods for calculating population growth?
f. What is sewage?
g. What do you mean by hardness of water?
h. Mention different types of traps in sewage system?
i. What is screening?
j. Define sewage farming.

2. Answer **Any Six** Questions 6 x 5

a. Explain the type of water demand.
b. Explain break point chlorination.
c. Differentiate between slow sand filter and rapid sand filter?
d. What are the preventive measures to avoid sewage sickness?
e. Determine the velocity of flow in a circular sewer of diameter 150cm.Laid on slope of 1 in 500 while running full by using Chezy's formula. The value of C =70.
f. Explain manhole with sketch?
g. Discuss roof top rain water harvesting with figure.

3. The population of 5 decade from 1930 to 1970 are given below. Find out the population after one, two and three decade beyond the last known decade, by using arithmetic increase method. 10

Year	1930	1940	1950	1960	1970
Polutation	25000	28000	34000	42000	47000

4. Sketch and describe in details the working of slow sand filter. 10

5. Describe about the factors affecting per capita demand? 10

6. Describe the process of primary treatment of sewage with help of flow diagram. 10

7. Write down various types of sewer appurtenance. 10

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Th5 Estimating & Cost Evaluation- II

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10

a. What do you mean by Technical sanction?

b. Define special repair with example.

c. Define E.M.D.

d. Calculate the standard weight of 12mm dia mild steel bar of 3m length.

e. Calculate the quantity of stone grit 20mm gauge @ 1.3cum % sqm and binder @210kg % sqm for a road of length 2K.m and metalled width is 4m.

f. Find the area of temporary land required for 2km length of a road having formation width 8m, average height of bank is 1.5 m. Side slope is 2(horizontal):1(vertical). Depth of borrow pit is 20 cm.

g. Find the quantity of stone pitching along the side slopes of a portion of road from the following data. The depth of bank at two ends being 3m and 4m. Side slope is $1\frac{1}{2}$:1. Thickness of stone pitching 15 cm. Length of road is 300m.

h. Define "Imprest Money".

i. What is "RERA"? Write down the date of establishment of RERA in Odisha.

j. Differentiate between isolated & combined footings.

2. Answer **Any Six** Questions 6 x 5

a. Write down different method of execution of work in P.W.D.

b. Calculate the quantity of pointing works involved from **Figure -2.**

c. Calculate the quantity of 1st class brickwork in Figure -1.

d. What do you mean by Tender? Write a notice inviting tender for any work.

e. Write short notes on Muster roll and Acquittance roll.

f. Estimate the quantity of fundamental items involved for the construction of a tube well having following data.
Dia of tube well =40mm, depth = 40m . The length of strainer is 3m. The pipe is projected 20 cm above G.L . One ordinary hand pump and four sockets are used.

g What do you mean by building bye-law? Write down the objectives of it.

3 Estimate the cost of earthwork for a portion of road of 1 Km length from the following data. The cost of earthwork is Rs.600/- per cum for banking and Rs. 750/- per cum for cutting. Also draw the longitudinal section and typical section. 10

Formation width of a road is 10 metre and side slope is 2:1 in banking and $1\frac{1}{2}$:1 in cutting. Length of chain is 40m.

Station	25	26	27	28	29	30	31	32	33	34	35
R L of ground	52.0	51.9	51.5	51.8	51.6	51.7	52.2	52.4	52.3	52.0	51.6
R L of formation	53.0	<.....downward gradient of 1 in 200.....>									

4 Estimate the items involved for the construction of a new state highway of WBM road from the following data. 10

Length of road=200 m
Metalled width= 6m
Thickness of grade 1 metal soling=80mm
Wearing coat of grade –II metal =12cm loose and compacted to 8c.m
Surface to be finished with 2 coats of bitumen as given below.
First finishing coat= 12mm chips @.018m^3 and bitumen @1.32kg per m^2 of road surface.
Second finishing coat=6mm chips @0.010m^3 and bitumen @1.36kg per m^2 of road surface.
Consumption of fuel @ 0.45kg per kg of bitumen.

5 Calculate the quantity of "Earthwork in Excavation" for the construction of a canal fall from the drawing given in **Figure-1.** 10

6 Prepare a quantity estimate for the following items of works of a slab culvert given in **Figure-2.** 10

(a)Earthwork in excavation [3]
(b) Cement concrete works in foundation [2]
(c) 1st class brick work in cement mortar [5]

7 Calculate the quantity of reinforcement for a R.C.C slab of size 4m×5m×12c.m thick. 10mm dia rods are placed in short span@20c.m c/c with one side 45° crank with end hooks. 10 mm dia rods are placed in long span @ 25c.m c/c with one side 45° crank with end hooks. 4 nos 10mm dia bars along short span and 4 nos along long span are provided as top bars . Provide clear cover = 25mm and side cover =40 mm. 10

Fig.1