Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: English   Code:M101

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 A) Do as directed (any ten)   **10**

a. The Times of India is more popular than any other newspaper (change the degree)

b. Raj is a clever boy, (add question tag).

c. Our classrooms are swept by the students. (Change the voice)

d. Wisdom is better than richness. (Make interrogative)

e. The box was too heavy for him to lift. (Remove 'too').

f. As soon as the bell rang the boys assembled. (Make negative)

g. What a beautiful picture! (Make it assertive)

h. We went to the station in a hurry, the train was late. (Join with proper conjunction)

i. After sometimes the teacher _____(call) me. (use the correct form of verb)

j. I met him _____ Delhi. (use proper preposition)

k. He is a very brave boy. (Make it exclamatory)

Q1 B) Fill in the blank with suitable articles (Any four)   **04**

1. He wants to be _____ doctor.

2. _____ book we want is not available.

3. Honesty is _____ best policy.

4. That book is _____ interesting one.

5. He reads _____ Bible every day.

6. She is_____ artist.

Q1 C) Fill in the blanks with following pronouns (any 4)(who, whose, whom, which, that)   **04**

1. There was an old man _____ lived in the hut.

2. I like the person _____ nature is good.

3. This is the girl _____stood first in the class.

4. This is the person_____I suspected.

5. This is the house _____ my father built.

Q2 A) correct the following sentence (any four)   **04**

1. Tom is an extremely horrible judge of character.

2. I am waiting here for the last two hours.

3. Did you remember to lock the door?

4. I had written a letter to her last week.

5. They will come if you will invite them

6. I have many works to do.

Q2 B) Add Suffix and Prefix (any six)   06

a. Fast_____
b. Class_____
c. Symbol_____
d. Develop_____
e. Smart_____
f. Drive_____
g. _____appear
h. _____operate
i. _____act
j. _____form
k. _____mobile
l. _____conduct

Q2 C) fill in the blank with proper prepositions (any 4)   04

1. I have nothing to dig_____.
2. What have you been dreaming _____?
3. The mat is _____ the bed.
4. The cat was _____the tree.
5. That is what I was searching _____
6. I have been studying here _____last year.

Q3 A) use following phrases in your on sentences (any seven)   14

a. Hold on
b. Look into
c. Fall in
d. Cut off
e. Take down
f. Wind up
g. Go through
h. Fix up
i. Pull down
j. Keep up

Q4 A) Do as directed (any four)   04

1. I heard <u>of</u> his success. (Replace the underline word with noun clauses)
2. You must work hard as I. (Write with adverb clause of comparison)
3. Give me some food to eat. (Change with adjective clauses)
4. He must work very hard to win the prize. (Change to compound sentence).
5. He must not be late, or he will be punished. (Change to simple sentence)

Q4 B) Write short imaginary conversation between a leader and a common man   04

Q4 C) Write a letter to your father asking for money which you will require for project work.   08

Q5 A) Read the passage carefully and answer the questions given below.   **12**

      Our country gave birth to a mighty soul and he shone like a beacon not only for India but also for the whole world. And yet he was done to death by one of our own brothers and compatriots. How did this happen? You might think that it was an act of madness, but that does not explain this tragedy. It could only occur because the seed for it was sown in the poison of hatred and enmity that spread throughout the country and affected so many of our people. Out of that seed grew this poisonous plant. It is the duty of all of us to fight this poison of hatred and ill-will. If we have learnt anything from Gandhiji, we must bear no ill-will, or enmity towards any person. The individual is not our enemy, it is the poison within him that we should fight and which we must put an end to.

Answer the following questions
1. Who is the mighty soul referred to in this passage?
2. Why was he done to death?
3. What do we learn from Gandhiji?
4. What should we fight against in the individual?
5. What is the poison referred to in this passage?
6. Write a suitable title for the passage.

Q5 B) Write summary of the above passage   **06**

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Communication Skill   Code:M102

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**

a. What is communication? Explain the elements of communication.
b. What are the different types of barriers to communication? Explain.
c. Differentiate between oral and written communication.
d. What are the principles of effective communication?
e. Explain the types of listening.
f. Write the advantages of graphical communication.
g. Explain the role of artifact in non verbal communication.

Q2 Write an essay in about 250 words (any one).   **12**

a. Most creative person – my mother.
b. The role of friendship in my life.
c. If I could go back in time.

Q3 Answer any two questions.   **12**

a. As a general secretary of student council, draft a memo for the students on the following points
   1) Subject- Maintaining discipline during social gathering
   2) Purpose- Warning of stern action
b. Draft a notice for the students regarding the forthcoming 'Book exhibition' organized by the student committee of your polytechnic .
c. One of the students received burn injuries while performing a welding job in the workshop. Draft an accident report as the workshop in-charge to the head of the institute.

Q4 a) Answer the following questions.   **06**

I) Write a letter of application along with your resume to 'Tata Motors Pvt Ltd', Andheri, Mumbai; for the post of a Junior Engineer

Or

II) Write a letter of application to Crompton Greaves India Pvt Ltd, Mumbai for the post of Junior engineer with resume.

Q4 b) What are the writing skills?   **06**

Q5 Read the following passage carefully and answer the questions given below.   **08**

a.   Plastic is a scourge that is polluting cities in alarming proportions. As you open the gate of your home to go out, you will probably stopover used plastic bags, empty biscuit wrappers or even empty pan masala pouches strewn everywhere on the street. All over the street, in the drains and on the pavements, there are discarded plastic packets and bottles, used packaging and numerous packets with wasted food from the surrounding eateries. The reason why plastic is an environmental hazard is because it is one of the few modern chemical materials that is not biodegradable. Polythene, polystyrene are the composition base in the manufacturer of plastic.

Plastic is resistant to biodegradation. A discarded plastic bottle can remain in a landfill for millions of years, so just consider the thousand of plastic bottle we discard on daily basis. The average human in India uses 3 kg of plastic per person per year that is far lower than European who consumes 60 Kg per year and American who consume 80 Kg.

Because we are so populous, the amount of plastic consumed is mind boggling and our disposal habit makes it a health hazard.

Question

1. What type of plastic material is found on the streets?
2. How is plastic an environmental hazard?
3. Compare the use of plastic by Indians, European and American people?
4. How has plastic spoiled the land?

b) Attempt a summary of the above passage and suggest a suitable title.   **04**

Q6 Answer the following questions.   **08**
a.   I) Draft a speech to be delivered on the importance of cleanliness.
<div align="center">Or</div>
II) As a secretary of EVS committee, draft a speech that you would make on the occasion of "Environmental day".

b. **Write a short notes on**   **04**
I) Verb   II) Noun

<div align="center">--</div>

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Basic Science   Code:M103

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any four of the following questions.   **20**
a. Define unit. What is the need of unit for measurements?
b. Classify the following quantities in fundamental & derived quantities.-Mass, Velocity, Length, Force, Temperature, Acceleration, Area, Luminous intensity, Pressure, Time.
c. Define the terms i) motion ii) speed iii) velocity iv) acceleration
d. Explain the terms i) Reflection ii) Refraction
e. State two industrial & two medical applications of LASER.
f. Write one example of each i) strong &weak acid ii) strong & weak base.
g. Define viscosity. State its significance in printing.

Q2 Answer any two of the following questions.   **12**
a. State Newton's second law of motion & show that F=ma
b. State and explain Arrhenius theory of electrolytic dissociation.
c. Define strong & weak electrolytes & state two examples of each.

Q3 Answer any two of the following questions.   **12**
a. Define the term i) Electrolysis ii) Ionization iii) Electroplating
b. Explain the mechanism of electrolysis of sodium chloride solution using platinum electrode with schematic representation of reaction.
c. Define the term –Work, Power and Energy and state their S.I.units

Q4 Answer any two of the following questions..   **12**
a. Define force. Explain centripetal and centrifugal forces.
b. Define Angle of contact. Explain the rise of capillary tube with labeled diagram.
c. Explain the Lewis concept of acid and base with examples.

Q5 Answer any two of the following questions.   **12**
a. Establish the relation between chemical and electrochemical equivalent – A solution of the metal salt was electodysed for 10 min with a current of 1.5 Amp. The weight of metal deposited was 0.685 gm. What is the equivalent weight of the metal?
b. What are purposes of electroplating? Explain the process of electroplating with labeled diagram
c. State and explain the properties of LASER.

Q6 Answer any two questions.   **12**
a. State and explain i) Newton's law of viscosity ii) Stoke's law of viscosity
b. Explain the terms polarization and diffraction of light with neat diagram.
c. Define pH. State the relation between pH & pOH. Explain the pH-Scale.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Basic Engineering   Code:M104

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
a. State Kirchhoff's current and voltage law.
b. List any two advantages and two disadvantages of hydraulic system
c. Describe in brief, Charles law.
d. Draw schematic of single and double acting compressors.
e. Describe mechanical advantage with suitable example.
f. Explain Ohm law.
g. Differentiate upto 4 points –conductors and insulators of electricity.

Q2 Answer any two questions.   **12**
a. Draw schematic representing general hydraulic system. Also mention one function of each component
b. Compare group drive with individual drive upto six points.
c. Describe any two types of lubricants.

Q3 Answer any two questions.   **12**
a. Describe with schematic, working of belt drive.
b. State laws of friction and state relationship between frictional force and normal reaction.
c. Describe working and advantages of decentralized compressed air system.

Q4 Answer any two questions.   **12**
a. Describe importance of friction. Also calculate frictional force if coefficient of friction is 0.25 and weight applied is 25 kg.
b. Draw schematic of any three types of arms.
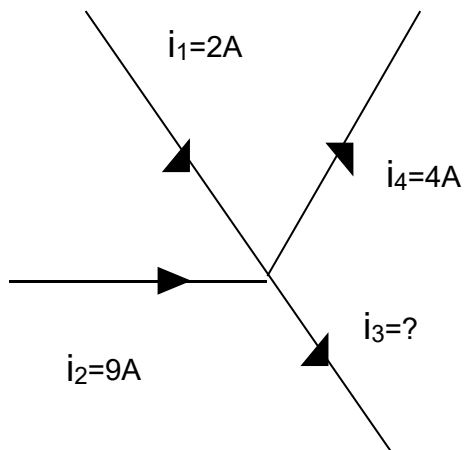c. Describe resistivity and state factor affecting resistivity.

Q5 Answer any two questions.   **12**
a. With schematic diagram show pitch circle diameter, addendum, Dedendum, pitch circle diameter.
b. Draw schematic showing general circuit of pneumatic power system and state one function of each component.
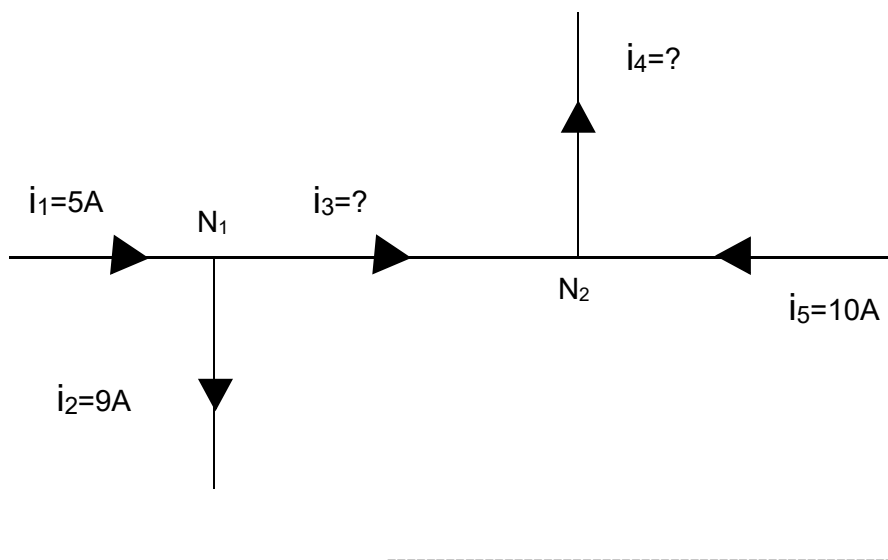c. Draw circuit diagram for star and delta connection and state power calculator formula for them

Q6 Answer any two questions.   **12**
a. Draw schematic of spur, helical, bevel gears along with one application each.
b. I) Calculate mechanical advantages for a load of 40N when required force to lift the is 15N.
   II) What is the effort required to lift a load of 500N by using a lever with a mechanical advantage of 1.6.
   III) A hydraulic machine has mechanical advantages of 10. It is used to lift a load 200 kg find the required effort.

c. i) Find current i3 at the node shown below

$i_1=2A$

$i_4=4A$

$i_3=?$

$i_2=9A$

ii) Find the currents i3 and i4 in the nodes N1 andN2

$i_4=?$

$i_1=5A$ $i_3=?$

N_1

N_2

$i_5=10A$

$i_2=9A$

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Printers Mathematics   Code:M106

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**

a. Find the ratio of 90 cm to 1.5 meters.
b. Are the ratios 8:10 and 7:10 in proportion?
c. In how many years will a sum of Rs.2000 yield an interest (Simple) of Rs.560 at the rate of 14% per annum?
d. Calculate a trapezoid area whose height is 5 cm and the bases are 14 cm and 10 cm.
e. Shweta obtained 18 marks in a test of 25 marks. What was her percentage of marks?
f. In a firm of 400 employees, the percentage of monthly salary saved by each employee is given into the following table, construct a bar graph.

Saving percentage	20	30	40	50
No. of employees	105	200	30	65

g. The daily earning of 12 workers in workshop are 16,19,12,14,13,16,17,19,20,15,13,16. Calculate the mean of earnings.

Q2 Answer any three questions.   **12.**

a. 9 taps can fill a tank in 4 hours. How long will it take if we have 12 taps with the same water flow?
b. Ram borrowed Rs.14,000 from his friend at 8% per annum (simple Interest), he returned the money after 2 years. How much did he pay back all together?
c. The area of trapezoid is 322 square inches. If the length of the two parallel sides of the trapezoid are 19 inch & 27 inches. Calculate the height of trapezoid.
d. Convert each of the following fractions into a percent i) 12/25 ii) 9/20 iii) 5/12 iv)125/625
e. The table shows the humidity level recorded in Mumbai for 7 days. Construct a line graph, which best demonstrates the humidity level for each day.

Day	1	2	3	4	5	6	7
Humidity level	50	55	60	70	65	60	55

Q3 Answer any three questions.   **12**

a. If 'y' is directly proportional to the square of 'x'. Also when y=24, x=2. Find the value of y when x=4.
b. 66 cubic centimeter (cm^3) of silver is drawn in a wire of 1 mm in diameter. Calculate the length of the wire in meter.
c. Find the compound interest on a sum of Rs.2000 for two years when the interest is compounded. annually at 10% per annum.
d. A shopkeeper buys an article for Rs.360 and sells it for Rs.270. Calculate the gain or loss in percentage.

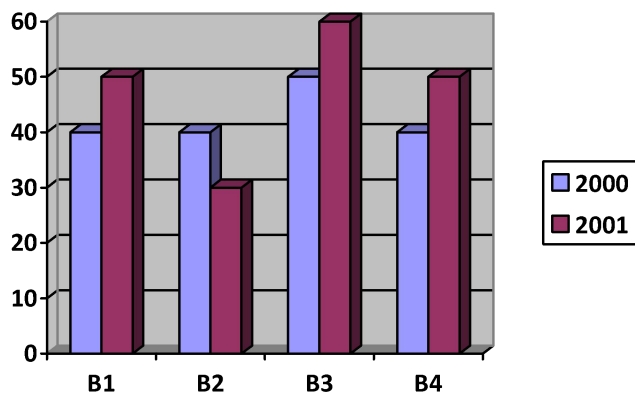**Q4 Answer any three questions.**   **12**

a. 'I' can do a piece of work in 7 days and 'J' can do the same work in 35 days and if 'I','J' &'K' together complete the work in 5 days, then calculate the time taken by 'K' alone to complete the work.

b. Find the volume of the cylinder whose radius is 8 cm and height is 35 cm.

c. Write each of the following percentage as a fraction i) 53% ii) 85% iii) 70% iv) 6.25%

d. Define bar graph. Write the types of bar graph.

e. Find the mode of the following data
4,7,9,11,13,17,9,21,22,9,22,11,4,9,4

Q5 Answer any three questions.   **12**

a. A car travels a distance of 540 kms in 6 hours. How many km will be traveled in 10 hours with the same speed?

b.   A right angled triangle with sides 3 cm, 4 cm and 5 cm is rotated along a side of 3 cm to form a cone. Calculate the volume of cone

c. State the steps to draw a pie chart.

d. Calculate the median of the following data
4,17,77,25,22,23,92,82,40,24,14,12,67,23,29.

Q6 Answer any two questions.   **12**

a. At what rate percentage per annum will a sum 15,625 become 17,576 in three years when the interest is compounded annually?

b. Calculate the volume of cone of height 7cm and the base radius is 9 cm.

c. The bar graph provided below gives the sales of book (in thousand numbers) from 4 branches B1, B2, B3 and B4 of publishing the company during 2 consecutive years 2000 and 2001. Answer the questions based on the graph

d.
   i) Find the total sales of branches B1 and B3 for the year 2001.
   ii)What is the average sale of B2 & B4 for the year 2000

e.   If the mean of 9,18,10,x,12 is 15. Find the value of x.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Basic Prepress   Code:M202

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
a. Define FM screening and explain its working principle.
b. Differentiate upto two points between digital photography and conventional photography. Also state two applications of camera.
c. Define original and state any 3 factors governing selection of the graphic original.
d. Write three characteristics of subtractive colour theory? State example of its application.
e. State the working principle of densitometer.
f. Explain any two different recording media used in graphic reproduction.
g. Define colour wavelength. & write human vision spectrum range.

Q2 Answer any three questions.   **12**
a. Define electronic media and state two applications of the same.
b. Define ultraviolet light and infrared light.
c. Explain the photo sensors used in digital camera.
d. State all the terminologies of magnification of originals.
e. State the characteristics of hybrid screening technique and its application.

Q3 Answer any three questions.   **12**
a. Which colour theory is derived from light? State its 2 application.
b. With the help of formula explain the term magnification.
c. Define SD card and memory stick.
d. Define focal length and depth of field.

Q4 Answer any two questions.   **12**
a. Describe CCD & its function.
b. What is screen angle? Mention application.
c. What is flare? Write its 2 causes.
d. State the characteristics of line originals.

Q5 Answer any three questions.   **12**
a. Differentiate between subtractive colour theory and additive colour theory. Upto 4 points
b. Write two physical and optical properties each associated with different types of original.
c. Write four advantages of digital recording.
d. Define dpi and lpi.
e. Why do we use densitometer? State its advantages.

Q6 Answer any two questions.   **12**
a. State the construction of a digital camera with neat diagram.
b. With the help of diagram explain the construction of densitometer.
c. State 3 advantages and 3 disadvantages of print media.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Binding and Finishing   Code:M203

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
a. Write the names of binder aids and their uses (any four).
b. Write four advantages of ISO paper sizes.
c. Draw schematic diagram of buckle folding machine.
d. Write four advantages of perfect binding.
e. Write any 2 merits and 2 applications of three knife trimmer.
f. Describe working of gathering machine.
g. Write 4 requirements of ideal adhesive.

Q2 Answer any two questions.   **12**
a. Name three type of board and their one application each.
b. Write name and function of any six parts of single knife guillotine machine.
c. Describe foil stamping and its two applications.

Q3 Answer any two questions.   **12**
a. Describe working of book sewing machine.
b. Define Die cutting. Explain different types of dies.
c. Write, along with use, any three securing material used in binding.

Q4 Answer any two questions.   **12**
a. Define adhesive, adhesion and adherents.
b. Describe three factors on which strength of perfect binding depends.
c. Differentiate between cold and hot lamination upto three points.

Q5 Answer any two questions.   **12**
a. Write the stages involved in automatic perfect binding machine.
b. Write the safety device used in single knife cutting machine and their function (any three).
c. Explain working and construction of three knife trimmer.

Q6 Answer any three questions.   **12**
a. Describe working of knife folding with diagram.
b. What is slitting and trimming?
c. Write two advantages of gathering machine.
d. Name two adhesives used for binding. And write two properties of each.
e. Define i) binding ii) finishing. State one application each.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Printing Processes - I   Code:M204

Duration: 02.00 Hours   Marks:40

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any four questions.   **16**
   a. Define print media & write three advantages of printing.
   b. What is original? Name two types of original.
   c. What is graining? Why it is required in plate making?
   d. Discuss perfect binding process.
   e. Name four basic raw material requirements in binding.
   f. Describe binding cloth & binding Adhesive.
   g. State relationship between ream, quire & gross.

Q2 Answer any three questions.   **12**
   a. Name of four conventional printing processes.
   b. Describe working of any one method of obtaining impression.
   c. Name any two plate making equipment. Describe whirler.
   d. Draw a label diagram of single colour sheetfed printing machine.

Q3 Answer any two questions.   **12**
   a. Name 4 substrates used in commercial printing. Classify them.
   b. Explain types of ink and formulation of ink.
   c. What is measuring unit of paper? Write the sizes for following in inches (any two)
       i) Fullscape   ii) Demy   iii) Royal   iv) Crown

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Printing Process II   Code:M205

Duration: 02.00 Hours   Marks:40

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any eight questions.   **16**
a. State 2 applications of flexography process.
b. State 2 characteristics of stack type machine.
c. State 2 applications of gravure process.
d. Draw schematic diagram of gravure process.
e. State 2 applications of screen printing process.
f. Write 2 characteristics of screen image carrier.
g. State 2 applications of digital printing process.
h. State 2 advantages of digital printing process.
i. Write names of any 2 graphic software.
j. Write names of 2 vector based graphic software.
k. Write any 2 ISO paper sizes in mm.
l. State 2 advantages of ISO paper sizes.

Q2 Answer any three questions.   **12**
a. Draw schematic diagram of common impression cylinder type machine and write its 2 characteristics
b. State in sequence, 4 steps in gravure image carrier production.
c. Write name and purpose of any 4 materials used in screen printing process.
d. Write working principle of a) Electrophotography b) Inkjet Process.

Q3 Answer any three questions.   **12**
a. Write 2 characteristics each of image carrier used for letterpress and flexography.
b. Compare gravure with flexography upto 4 points.
c. Write names of 4 companies manufacturing digital printing machine.
d. Compare screen printing with digital printing upto 4 points.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Printing Material Science   Code:M207

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
a. Write 4 properties of mechanical pulp.
b. Define caliper and grammage of paper with unite.
c. State any 4 factors affecting cost of paper.
d. State 2 properties each of i) food grade paper ii) tissue paper.
e. Define i) viscosity ii) tack
f. Explain rub and scuff resistance property of ink.
g. Explain radiation drying technique of ink.

Q2 Answer any two questions.   **12**
a. Write short note on : i) FSC ii) Green Printing.
b. State effect of moisture content on printability of paper.
c. Write short note on organic and inorganic pigments in ink.

Q3 Answer any two questions.   **12**
a. Explain with diagram paper manufacturing process.
b. Define i) opacity ii) gloss iii) brightness of paper
c. State 2 functions each of ink ingredients i) vehicles ii) resin iii) solvent.

Q4 Answer any two questions.   **12**
a. List 3 sources of cellulose fibers and 3 non-fibrous additives
b. Explain smoothness and bursting strength of paper.
c. List any 3 ink additives and state one purpose each.

Q5 Answer any two questions.   **12**
a. Differentiate upto 4 points between mechanical pulping and chemical pulping.
   State 2 advantages of recycled paper.
b. Describe with diagram 3 roll mill of ink manufacturing.
c. Write short note on i) absorption ink drying ii) oxidation polymerization ink drying method.

Q6 Answer any two questions.   **12**
a. State 3 properties each of i) cigarette paper ii) security paper.
b. Write 3 general requirements each of offset ink and flexographic ink.
c. Explain mixing and milling of liquid ink.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Image Carrier Plano   Code:M209

Duration: 02.00 Hours   Marks:40

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Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any four questions.   **16**
   a. Define Imposition and name any two types.
   b. Explain any one surface treatment for lithographic image carrier.
   c. Define relative humidity and density.
   d. Differentiate PS positive plate making from negative plate making.
   e. What are the changes applied in modern offset machine from traditional lithographic machine.
   f. Sate the application of gum Arabic and plate finisher.

Q2 Answer any three questions.   **12**
   a. Describe anodizing process.
   b. State four optical properties of photographic positive and negative.
   c. State workflow of CTP plate making.
   d. State the working principle of image carrier used in waterless lithography.

Q3 Answer any three questions.   **12**
   a. Explain any two quality control objective chemical tests in lithographic plate making.
   b. State the chemical and physical properties of any content of coating used in PS plate.
   c. State the working principle and limitations of light sources used in offset plate making.
   d. Describe application of processing chemicals used in developing PS plate.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Printing Material Handling & Maintenance　　　　　　　Code:M210
Duration: 03.00 Hours　　　　　　　　　　　　　　　　　　　　Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1　Answer any five questions.　　　　　　　　　　　　　　**20**
 a. State any 4 materials used to construct pallets.
 b. Explain pallet recycling & pallet seating.
 c. State 4 functions of lubrication.
 d. Write short note on i) healthy and air condition ii) lighting of warehouse.
 e. Describe personnel training & retraining.
 f. Name two types of maintenance.
 g. Define OEE & state its formula.

Q2　Answer any two questions.　　　　　　　　　　　　　　**12**
 a. Explain with diagram pallet storage rack.
 b. Explain with diagram & state one application .i) journal bearing ii) ball bearing
 c. Explain TPM.

Q3　Answer any two questions.　　　　　　　　　　　　　　**12**
 a. Define i) Viscosity ii) Flash & Fire point iii) Pour point of lubricants.
 b. Define warehouse & state its function.
 c. State 2 advantages of maintenance and compare upto 4 points planned & breakdown maintenance.

Q4　Answer any two questions.　　　　　　　　　　　　　　**12**
 a. Explain AGV & state its 2 advantages.
 b. State 4 factors related to selection of bearing & state 2 advantages of bearing.
 c. List 6 factors considered during equipment purchase.

Q5　Answer any two questions.　　　　　　　　　　　　　　**12**
 a. Describe i) Wire containers ii) Types of lubricant.
 b. Explain warehouse requirements of : i) ceilings ii) floor iii) window & doors.
 c. Describe waste & types of waste generated in printing industry.

Q6　Answer any two questions.　　　　　　　　　　　　　　**12**
 a. Compare between pallet truck & counter-balance walkie stacker.
 b. Write short note on : i) fire protection in warehouse ii) purpose of maintenance.
 c. Differentiate upto 3 points between block pallet & stringer pallet 7 draw a schematic diagram of block pallet.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Color Essentials   Code:M211

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.

Q1 Answer any ten questions.   **20**
   a. Write 2 attributes of color.
   b. List any two subtractive colors.
   c. List any two applications of additive theory.
   d. State spectrum range of human color vision.
   e. Write function of cones in human eye vision.
   f. Define the term 'opacity'
   g. Write any two standard light sources used in printing industry.
   h. Write two application of densitometer.
   i. List two examples of graphic originals.
   j. Define device independent color space.
   k. Write function of rods in human vision.
   l. In CLElab model, value of L=0 & L=100 indicates which colours respectively?
   m. Define the term 'Metamerism'
   n. Which ink requires more colour correction from the following & justify i) yellow ii) magenta iii) cyan.

Q2 Answer any two questions.   **12**
   a. Explain subtractive colour theory with schematic diagram.
   b. Explain function of color filters.
   c. Explain three attributes of colour.

Q3 Answer any two questions.   **12**
   a. With neat diagram, explain any one device independent color space.
   b. What is dot gain? How it is calculated.
   c. Explain pantone color system. Write its two advantages & two limitations.

Q4 Answer any two questions.   **12**
   a. Compare between additive and subtractive theory upto six points.
   b. Compare light and colour upto six points.
   c. With neat diagram, explain working of spectrophotometer.

Q5 Answer any two questions.   **12**
   a. With neat diagram, explain function & working of colorimeter.
   b. With neat diagram, explain spectral behavior of magenta and cyan ink
   c. Explain i) different shapes of dot ii) standard observer angle.

Q6 Answer any two questions.   **12**
   a. Describe i) Additivity failure ii) Proportionally failure
   b. Write function of screen. Explain how screen angles are used & write suitable example of screen angles for four color separation
   c. Calculate color difference based on CIELab model when (i) L_1=92, a_1=12, b_1=46 and L_2=96, a_2=10, b_2 = 42 and (ii) L_1 = 50, a_1 = 8, b_1 = 15 and L_2 = 50, a_2 = 48, b_2 = 15

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Press Management   Code:M401

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
a. State any four objectives of management.
b. Describe necessity of management.
c. List any four advantages of co-operative organization.
d. Define inventory and state advantages of inventory control.
e. State creations covered under copyright act.
f. Describe function of sales and marketing departments.
g. Describe classification of control charts.

Q2 Answer any two questions.   **12**
a. Describe importance of directing and controlling functions of management.
b. Differentiate upto 6 points- quality control and quality assurance.
c. Define SPC and state its 4 advantages

Q3 Answer any two questions.   **12**
a. State 6 functions of purchase department.
b. Describe scope of 5S concept in quality control.
c. Write advantages of and steps involved in control chart.

Q4 Answer any two questions.   **12**
a. Differentiate joint stock organization from partnership (upto 6 points).
b. State laws of demand and supply.
c. State offset printing related recommendations of ISO 12647 standard.

Q5 Answer any two questions.   **12**
a.   Define six sigma, state its 3 advantages and 3 applications.
b.   Define variation and describe its type.
c.   Write six safety related provisions of factories act.

Q6 Answer any two questions.   **12**
a.   Differentiate administration and management.
b.   Write 4 required qualities of good leader and state any two leadership styles.
c.   Describe process capability with suitable example.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Costing and Estimating　　　　　　　　　　　　Code:M402

Duration: 03.00 Hours　　　　　　　　　　　　　　　　Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1　Answer any five questions.　　　　　　　　　　　　　　　**20**
a. Differentiate between fixed and variable costs.(upto 4points)
b. State 2 applications each of fixed cost and variable cost.
c. Write 4 contents of material requisition form.
d. State 4 tools of estimator.
e. State 4 advantages of standard press routine.
f. Write paper sizes for A4, A5, A2, B0
g. State 4 contents of tender document.

Q2　Answer any two questions.　　　　　　　　　　　　　　　**12**
a. Describe any three factor considered for forecasting life of asset.
b. Explain the use of i) Delivery report ii) Invoice.
c. Calculate number of A2 size reams required to print A5 size 52 pages booklet in quantity 5000, offset print on 90 gsm substrate.

Q3　Answer any two questions.　　　　　　　　　　　　　　　**12**
a. Compare upto 3 points actual and budget expenses and explain pricing policy.
b. Define ream, quire and write any 4 factors on which ink consumption depends.
c. State 3 characteristics of GST.

Q4　Answer any two questions.　　　　　　　　　　　　　　　**12**
a. Describe time rate system and work rate system write one example of each.
b. Calculate weight in (kg) of 2 ream of 18" x 23" size 220 GSM paper.
c. State any 3 British paper size and there advantages of ISO paper sizes.

Q5　Answer any two questions.　　　　　　　　　　　　　　　**12**
a. Write 6 factors affecting profitability in business.
b. Write sequences in operation of hard case book job.
c. Write 6 factors to determine rate of binding of 10000 books of A4 size

Q6　Answer any two questions.　　　　　　　　　　　　　　　**12**
a. State 6 factors to be considered to calculate hourly cost rate for two colour offset printing machine.
b. Write short note on work instruction ticket form used in printing.
c. Calculate ink required in kg to print 15000 sheets of a poster in black colour having print area of 8.5"x11"

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Entrepreneurship Development   Code:M403

Duration: 02.00 Hours   Marks:40

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any four questions.   **16**
  a. Define entrepreneur and state his two qualities.
  b. State functions of an entrepreneur.
  c. Define small scale industry and state 2 advantages of same.
  d. State purpose of government scheme for finance.
  e. Explain EOQ.
  f. Write 4 functions of store department.

Q2 Answer any three questions.   **12**
  a. Explain importance of entrepreneurship.
  b. Explain briefly a proposal for bank loan of press.
  c. State 2 requirements for government finance schemes and name 2 national banks.
  d. Write 4 functions of purchase department.
  e. Explain the functions of industry control.

Q3 Answer any three questions.   **12**
  a. Define medium scale industries with example.
  b. Explain how location of industry affects finance proposal.
  c. Explain contents of printing press project report performance.
  d. Write 4 functions of sales and marketing department.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Environmental Science and Disaster Management   Code:M404

Duration: 02.00 Hours   Marks:40

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any four questions.   **16**
a. Write name & use of any 2 natural resources.
b. Describe the meaning of environmental pollution.
c. Describe the meaning of VOC with example.
d. Write 4 causes of water pollution. Explain any one.
e. Write 4 hazards related to flood.
f. Describe 2 examples of noise pollution.

Q2 Answer any two questions.   **12**
a. Write names of any 4 sources of environmental pollution. Also define environmental pollution.
b. State 3 problems each related to natural and alternate resources.
c. Write 6 safety measures taken by printing press.

Q3 Answer any two questions.   **12**
a. Explain the importance of environmental studies.
b. Describe with example i) Physical hazard ii)Chemical hazard
c. Write name and precautionary measure reflected to any six disasters.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Gravure Printing Process | Code:M501

Duration: 03.00 Hours | Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.

Q1 Answer any ten questions. (write meaning)   **20**

a) Coppering	b) Screen angles.
c) Fluff	d) Engraving.
e) Dechrome	f) Dispersion.
g) Electrolyte	h) Viscosity.
i) Doctor blade angle.	j) Tear strength
k) Heat resistant.	l) Whiteness
m) Offset.	n) Brightness

Q2 Answer any three questions.   **12**
a. Compare gravure process with letterpress process.(4 points)
b. Explain the role of copper and chromium in gravure cylinder. (2 points each)
c. Write 4 requirements of film and originals for gravure process.
d. Draw flow chart of traditional gravure image carrier engraving & rechrome plating.

Q3 Answer any three questions.   **12**
a. What is a function of doctor blade? Draw a schematic diagram of any one type of doctor blade.
b. What is ESA? Draw schematic diagram of ESA system.
c. Name any 4 ingredients in solvent ink.
d. Explain two reason behind doctor blade wear.

Q4 Answer any three questions.   **12**
a. Write two merits and two demerits of chemical engraving.
b. Describe the gravure image carrier cylinder with schematic diagram.
c. Describe laser image carrier engraving process.
d. Explain electroplating process with diagram.

Q5 Answer any three questions.   **12**
a. Describe construction of doctor blade holder assembly.
b. Name 4 different substrates printed by gravure process.
c. Describe the cell structure of gravure image carrier with schematic diagram.
d. State 2 ink related troubles along with characteristics and remedies.

Q6 Answer any three questions.   **12**
a. Write four defects occurred in gravure printing doctor blade.
b. Name 2 different metals use in fabrication of gravure image carrier.
c. Name 2 different tests taken in gravure printing.
d. Draw a schematic diagram of any one type of gravure printing machine.

Government Institute of Printing Technology, Mumbai
Even Term End Theory Examination May 2023

Course: Flexographic Printing Process   Code:M502

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
a. Define flexography and state its two applications.
b. Write four requirements of negative used for flexo plate making.
c. Draw a diagram of standard design of flexo printing unit and name its parts.
d. Write working principle of flexo with its characteristics.
e. Write types of substrates with two names of each.
f. Draw a diagram of two roll inking system and name its parts.
g. Describe any two end use requirements of flexo product.

Q2 Answer any two questions.   **12**
a. Draw a diagram of flexographic plate and name its parts, also state their functions.
b. Write 3 advantages and 3 disadvantages of flexographic printing process.
c. State the components of solvent base ink. Write applications of solvent base ink.

Q3 Answer any two questions.   **12**
a. Compare flexo printing process with lithographic offset printing process up to six points.
b. Draw block diagram of CTP plate and write advantages of CTP plate.
c. Name two types of plate cylinders and explain any one with diagram.

Q4 Answer any two questions.   **12**
a. Describe integral masking system of flexo plate making.
b. Describe construction and working of impression cylinder.
c. Describe chambered doctor blade inking system with diagram.

Q5 Answer any two questions.   **12**
a. Explain three requirements of flexographic design.
b. Describe working of stack flexo press with diagram.
c. What is anilox roller? Describe four factors considered for selection of suitable anilox roller.

Q6 Answer any two questions.   **12**
a. Describe any 2 cell structures of anilox roller with diagram.
b. Describe Hybrid presses and state their 2 applications.
c. Compare liquid photopolymer plate making with sheet polymer plate making upto 6 points.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Rigid Packaging   Code:M503

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
   a. Define packaging and write suitable example.
   b. Draw neat labeled diagram of STE carton of size 3x3x4 cm
   c. List any 4 types of board used in packaging.
   d. List 2 advantages & 2 applications of metals used in packaging.
   e. List raw materials used in glass bottle manufacturing.
   f. Name 4 software used for package design.
   g. List any 4 physical test done for transportation of package.

Q2 Answer any two questions.   **12**
   a. Explain 2 primary and 2 secondary functions of packaging.
   b. Write short note on FEFCO and state its functions.
   c. State 2 disadvantages each i) Metal collapsible tubes ii) Aerosol containers iii) Cans

Q3 Answer any two questions.   **12**
   a. Explain primary, secondary package.
   b. Explain corrugated board manufacturing process.
   c. Explain construction of aerosol container with its 2 applications.

Q4 Answer any two questions.   **12**
   a. List any 3 materials each used as i) packaging ii) cushioning.
   b. Write short note on i) A type flute ii) B type flute.
   c. Explain glass bottle manufacturing.

Q5 Answer any two questions.   **12**
   a. State purpose of packaging materials and state 2 advantages.
   b. State 2 advantages, 2 disadvantages and 2 applications of glass packaging.
   c. Write short note on packaging life cycle.

Q6 Answer any two questions.   **12**
   a. Explain manufacturing process of 2 piece can.
   b. Write short note on post manufacturing treatments of glass bottle.
   c. Write short note i) Stack test ii) Crush resistance.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Plano sheetfed printing   Code:M504

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
 a. Define perfecting, write need of perfecting.
 b. Explain working of pile height governor.
 c. Name any four types of dampening system.
 d. What is "under cut" and "cylinder gap".
 e. Write causes of the following printing troubles i) scumming ii) set-off iii) ghosting iv) mis-register.
 f. Write four ingredients of dampening along with one function.
 g. Name any four parts of delivery unit along with one function.

Q2 Answer any two questions.   **12**
 a. Explain working of delivery unit with suitable diagram.
 b. Describe construction of drum inking system with suitable diagram.
 c. Compare single sheet feeder with stream feeder up to 6 points.

Q3 Answer any two questions.   **12**
 a. Describe working of following i) Non sheet detector ii) Two sheet detector iii) Side lay.
 b. Draw a diagram of conventional dampening system and write its working.
 c. Describe working of metal decoration press with suitable diagram.

Q4 Answer any two questions.   **12**
 a. Name three types of rollers involved in inking system and write their working.
 b. Draw a diagram of single colour offset printing machine and write function of each unit.
 c. Write importance of pH, conductivity and water hardness values in fountain solution.

Q5 Answer any two questions.   **12**
 a. Describe dampening unit setting procedure with keys.
 b. Explain elements of test form and write function of each component.
 c. Explain importance of cylinder packing and printing pressure setting on offset press.

Q6 Answer any two questions.   **12**
 a. Name the impression systems used on offset press and explain any one.
 b. Describe working of alcolour dampening system with diagram.
 c. Write two advantages, two limitations and two application of offset printing.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Press work web   Code:M506

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   20
a. Explain the use of bustle (Buzzle) wheels.
b. Explain the meaning of 'persistence of vision'.
c. Write names of 4 units of web offset machine.
d. Describe the purpose of silicon coating.
e. State unit of web tension. Also state meaning of web tension.
f. Draw a schematic diagram of 4 colour CIC type press.
g. State 2 applications each of punching & lamination.

Q2 Answer any two questions.   12
a. Compare offset printing & gravure printing upto 6 point.
b. State 2 functions of reel stand. Draw diagram of any two types of reel stand.
c. Describe construction of Jaw Folder.

Q3 Answer any two questions.   12
a. Write name & function of any 3 parts of zero speed splicer.
b. Explain the mechanism of heat set ink drying.
c. With neat diagram explain how cut off length is adjusted between printing unit & folder.

Q4 Answer any two questions.   12
a. Write 6 applications of slitting and trimming.
b. Draw schematic diagram of 4 colour inline blanket to blanket type press.
c. Describe construction of any 2 reel locations with schematic diagram.

Q5 Answer any two questions.   12
a. Explain function of dancer roller with schematic diagram.
b. Explain construction and working of any one type of chill roller.
c. Explain how external devices are used for checking registration.

Q6 Answer any two questions.   12
a. Compare offset printing with flexography upto 6 points.
b. Describe 3 characteristics of former folding operation.
c. State one problem, its cause & remedy each related to infeed, printing & finishing operations.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Digital Printing   Code:M507

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   20
a. Define digital printing. State its two applications.
b. Describe the function of charge generation material.
c. Describe the function of charge transport material.
d. Write names of 4 substrate used in digital printing.
e. Describe 2 characteristics each of SWOP/GRACOL.
f. Write names of 2 input & 2 output devices.
g. Write names of 4 printer manufacturing companies.

Q2 Answer any two questions.   12
a. Compare digital printing with conventional printing.(6 points).
b. Draw schematic diagram of electrophotography and write names of major stages.
c. Write general composition of ink used in inkjet process.

Q3 Answer any two questions.   12
a. Explain the process of electrophotography.
b. Write 6 specifications of large format printer.
c. Describe i) Hard Proofing ii) Soft Proofing.

Q4 Answer any two questions.   12
a. State 3 characteristics each of liquid toner and dry toner.
b. Compare inkjet printing with electrophotography (6 points)
c. Explain functions of RIP.

Q5 Answer any two questions.   12
a. State 3 advantages and 3 limitations of digital printing.
b. Describe thermal transfer process. State its 2 applications.
c. State 6 points checked during preflight operation.

Q6 Answer any two questions.   12
a. Write names of 2 technologies used for digital proofing. Also state the meaning of VDP, POD, remote publishing and web2print.
b. Explain working principle & construction of inkjet printer.
c. State 3 troubles, their causes and remedies related to the large format digital printing.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Electronic Colour Correction   Code:M508

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:

1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
   a. Define i) Colour ii) Hue iii) Value iv) Chroma.
   b. Define and state one example each i) Spot colour ii) Process colour.
   c. Define bit depth of colour. Write 2 examples.
   d. Describe meaning of black point compensation.
   e. Write names of any 4 scanner manufacturing companies.
   f. Define resolution. State the unit of resolution for monitor, printer, printed image.
   g. Describe i) Data transmission ii) Data compression.

Q2 Answer any two questions.   **12**
   a. Explain with example – i) Additivity failure ii) Proportionality failure.
   b. Explain Metamerism, its causes and remedies.
   c. Explain working principle of spectrophotometer and state its 2 applications.

Q3 Answer any two questions.   **12**
   a. Explain Additive colour theory with schematic diagram.
   b. Define colour gamut and explain colour gamut mapping.
   c. Write screen angles for CMYK for offset process. Define moiré pattern and state its 2 causes.

Q4 Answer any two questions.   **12**
   a. Explain function of RIP.
   b. Explain meaning of device dependent and device independent colour system with example.
   c. I) Lowest density = 0.08, Medium density = 0.17, Highest density = 1.35, calculate the hue error.
      II) Density of first colour = 0.98, Density of second colour = 1.41, density of combination (overprint)=1.62 calculate trapping.
      III) Write formula to calculate ∆E and state meaning of each of them in it.

Q5 Answer any two questions.   **12**
   a. Explain purpose & workflow of preflight.
   b. Explain rendering intent and its 2 types.
   c. Explain CIP4.

Q6 Answer any two questions.   **12**
   a. Explain working principle of PMT, CMOS, CCD.
   b. Describe purpose and 2 advantages of colour management.
   c. Explain construction and working of colourimeter.

Government Institute of Printing Technology, Mumbai

Even Term End Theory Examination May 2023

Course: Flexible Packaging   Code:M509

Duration: 03.00 Hours   Marks:80

Instructions to Candidates:
1. Attempt all questions and illustrate your answer with neat sketches wherever necessary.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary

Q1 Answer any five questions.   **20**
a. Differentiate between thermoset and thermoplastic upto 4 points.
b. State any 4 additives used in plastics.
c. Explain extrusion moulding of bottle.
d. Compare stretch wrapping with shrink wrapping upto 4 points.
e. State 4 barrier properties that are essential to consider while packing food products.
f. State advantages and disadvantages of CAP (2 points each)
g. Write a short note on edible packaging.

Q2 Answer any two questions.   **12**
a. State 3 materials used in flexible packaging and mention their applications
b. Describe Tetra pack in detail with neat diagram.
c. Describe what is Aseptic packaging?

Q3 Answer any two questions.   **12**
a. With a diagram explain the concept of Bag- in-Box.
b. Explain vacuum packaging for meat products.
c. Explain intelligent and active packaging.

Q4 Answer any two questions.   **12**
a. With a diagram explain blown film extrusion process.
b. Explain the construction of retort pouch.
c. Explain in short different types of packaging used for beverages (at least 2 packages).

Q5 Answer any two questions.   **12**
a. Write a short note on any 2 types of sealers.
b. Describe shrink wrapping. State its application.
c. Describe any one type of lamitube with its 2 applications.

Q6 Answer any two questions.   **12**
a. With neat diagram, explain wet lamination technique.
b. With labeled diagram, explain vertical form fill seal machine and write its application.
c. Write 3 packaging material requirements for i) Butter ii) Cold drink

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