TEST DATA RESULTS COLLATION

BLEU : n-gram precision
ROUGE : n-gram recall
METEOR : n-gram with synonym matching both precision and recall
CIDER : term frequency inverse document frequency tf-idf weighted n-gram similarity i.e. Word frequency of each word ,then angular cosine similarity of input sentence and output sentence generated by the machine.
SPICE: Semantic Image Caption Evaluation :- semantic relationship between words in sentence i.e scene graph comprising object, attribute and relationship.

COMPARISON OF EVALUATION METRICS :-

SPICE > CIDER > METEOR > ROUGE > BLEU

SUCCESSFUL RESULTS:-

Captions for image 6359118252_**portrait-of-richard-wedgewood**.jpg: (TEST)
 0) **portrait of a man** (p=0.026355)
 1) self portrait (p=0.015624)
 2) portrait of a young man (p=0.006972)

Evaluation Score :-
SPICE : 0.732
CIDER : 0.657
METEOR: 0.399
ROUGE: 0.348
BLEU: 0.346

Captions for image **goldfish**.jpg:(TEST or TRAIN)
  0) **fishes** (p=0.028382)
  1) untitled (p=0.005838)
  2) the <UNK> (p=0.004477)

Evaluation Score :-
SPICE : 0.427
CIDER : 0.000
METEOR : 0.000
ROUGE : 0.000
BLEU : 0.000

Captions for image **sunflowers**.jpg:(TEST or TRAIN)
  0) still life (p=0.019244)
  1) still life with fruit stand book and fruit (p=0.008066)
  2) **still life with flowers** (p=0.007859)

Evaluation Score :-
SPICE : 0.816
CIDER : 0.000
METEOR : 0.000
ROUGE : 0.000
BLEU: 0.000

Captions for image 2752781121_**st-jerome**-1575.jpg:(TRAIN)
 0) the immaculate conception (p=0.005423)
 1) **st jerome (p=0.003852)**
 2) the immaculate conception with saint joachim and saint anne 1640 (p=0.003775)

Evaluation Score :-
SPICE : 1.
CIDER: 1.000000
METEOR : 1.000
ROUGE: 1.000
BLEU:1.000

Captions for image 3431274821_**crucifixion**.jpg:
 0) **crucifixion** (p=0.031974)
 1) crucifixion (p=0.020127)
 2) christ on the cross adored by two donors (p=0.011800)

Evaluation Score :-
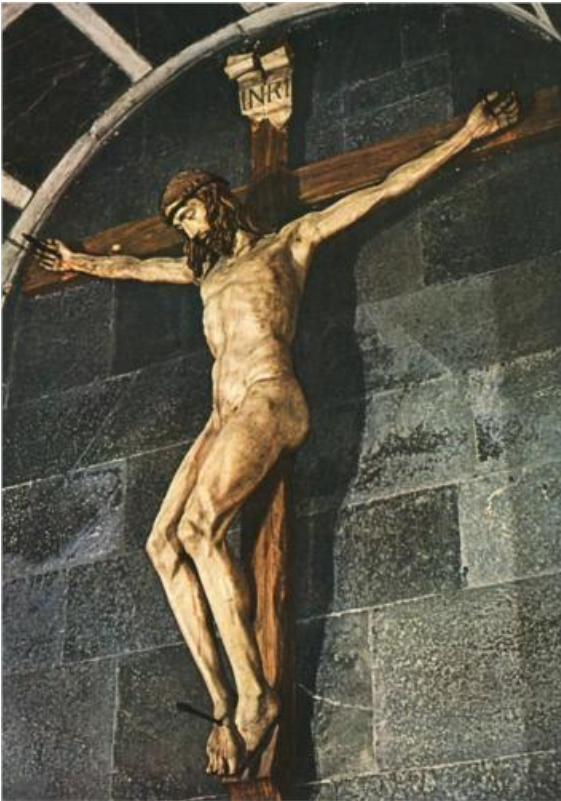SPICE: 1.000
CIDER : 1.000
METEOR : 1.000
ROUGE: 1.000
BLEU: 1.000

Captions for image 580334391212103_**san-antonio-river-1920**.jpg:(TEST)

 0) **the river vorya at abramtsevo** (p=0.005003)

 1) landscape (p=0.004309)

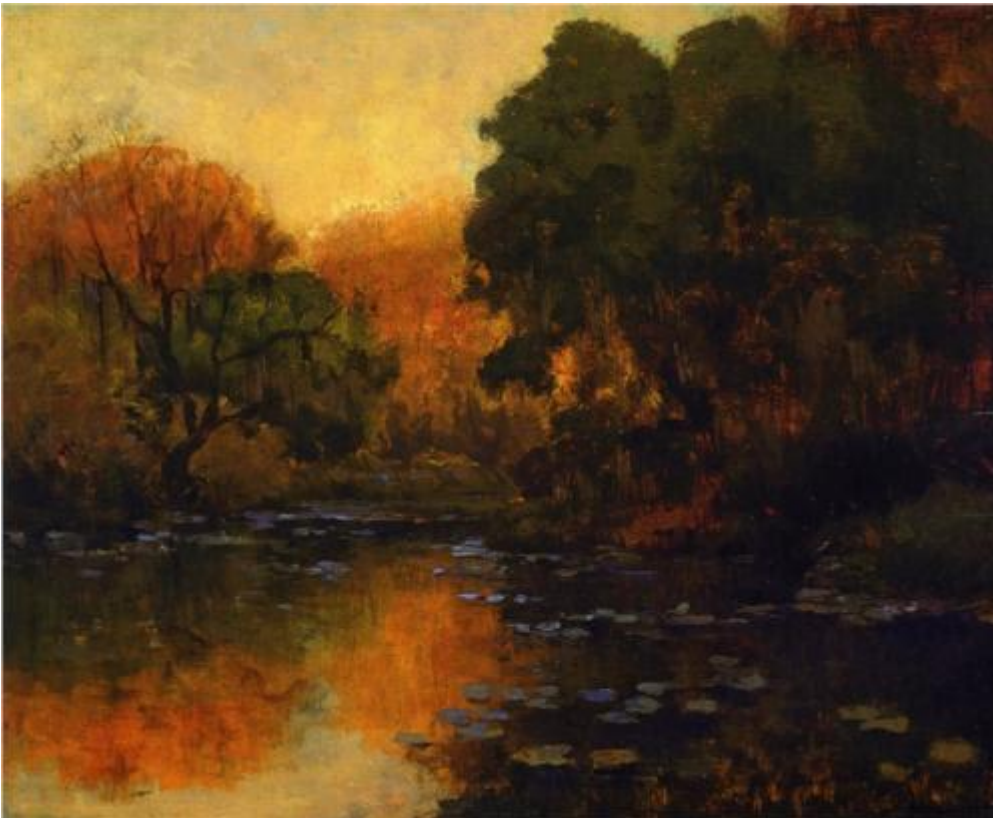 2) the seine at port villez 1883 (p=0.003326)

Evaluation Score :-

SPICE : 0.491

CIDER : 0.250

METEOR: 0.226

ROUGE: 0.211

BLEU: 0.201

Captions for image 23344879532_**the-resurrection(1)**.jpg:(TRAIN)
 0) st luke painting the virgin 1568 (p=0.022418)
 1) **the resurrection** (p=0.011069)
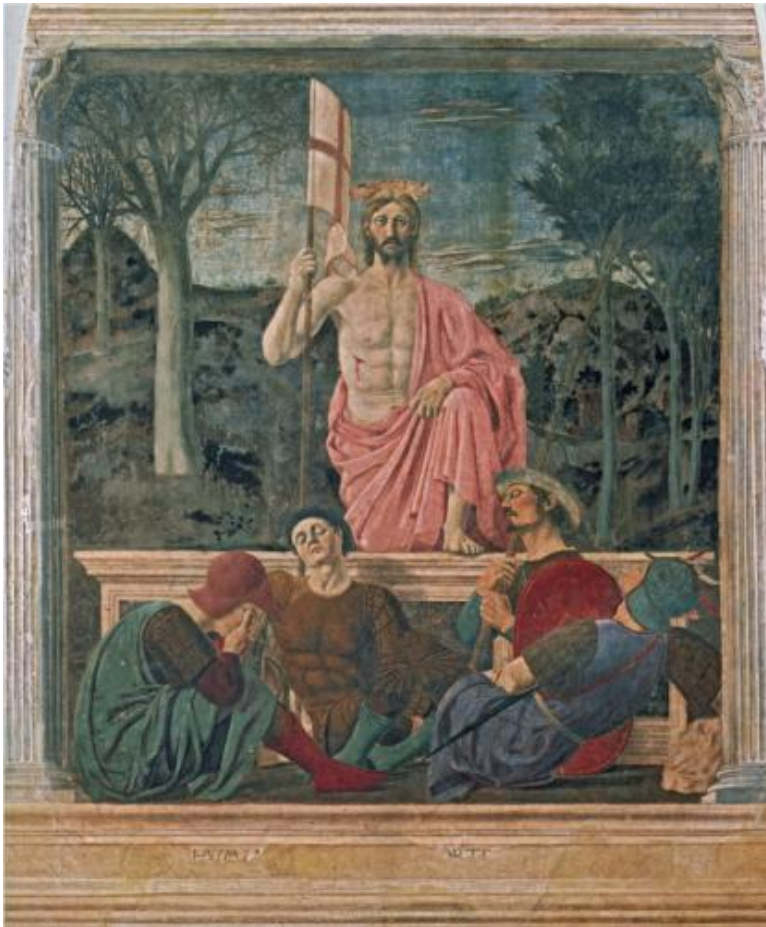 2) the annunciation (p=0.007542)

Evaluation Score :-
SPICE : 1.000
CIDER : 1.000
METEOR : 1.000
ROUGE : 1.000
BLEU : 1.000

Captions for image 4442114885_**the-musician-s-table-1913**.jpg:
 0) **violin and clarinet on a table 1912** (p=0.016496)
 1) violin and glass 1915 (p=0.012660)
 2) still life with bottle and glass 1914 (p=0.009115)

Evaluation Score :-
SPICE : 0.692
CIDER : 0.260
METEOR : 0.231
ROUGE :0.212
BLEU : 0.205

Captions for image **toledo_detail_sky.**jpg:(TRAIN or TEST)

 0) **view of the isaac cathedral at moonlight night 1869 (p=0.016103)**
 1) grand canal looking north east from santa croce to san geremia (p=0.012229)
 2) grand canal looking south east from the campo santa sophia to the rialto bridge (p=0.009016)

Evaluation Score :-
SPICE : 0.489
CIDER : 0.000
METEOR : 0.000
ROUGE : 0.000
BLEU : 0.000

Captions for image 3252655265_**portrait_of_obolenskaya-na-1833**.jpg:(TRAIN)
  0) portrait of a woman (p=0.006514)
  1) **portrait of a young woman** (p=0.003167)
  2) portrait of the artist s wife marie 1889 (p=0.002465)

Evaluation Score :-
SPICE : .712
CIDER : .656
METEOR : 0.577
ROUGE : 0.532
BLEU : 0.520

Captions for image 572534349010457_**horse_rider**_1882.jpg:(TEST)
 0) **the jockey** (p=0.006083)
 1) the kelp gatherers 1889 (p=0.005172)
 2) the jockey 1899 (p=0.004830)

Evaluation Score :-
SPICE : 0.673
CIDER : 0.000
ROUGE : 0.000
METEOR : 0.000
BLEU : 0.000

Captions for image 972308836_**beach-scene**.jpg:
 0) the robbery 1616 (p=0.009409)
 1) **beach scene trouville 1875** (p=0.007283)
 2) the beach at trouville 1868 (p=0.005841)

Evaluation Score :-
SPICE : 0.838
CIDER : 0.709
METEOR : 0.492
ROUGE : 0.488
BLEU : 0.484

Captions for image 990473413_**seascape**-1.jpg:(TRAIN)
 0) the tempest 1899 (p=0.041150)
 1) **sailboats at argenteuil 1874** (p=0.011979)
 2) sailboats (p=0.009514)

Evaluation score :
SPICE : 0.338
CIDER : 0.000
METEOR : 0.000
ROUGE : 0.000
BLEU : 0.000

Captions for image 1301535865_**study-of-the-human-figure-anterior-view**.jpg:(TEST)
 0) **nude study** (p=0.012454)
 1) study for the medieval war scene 1865 (p=0.006373)
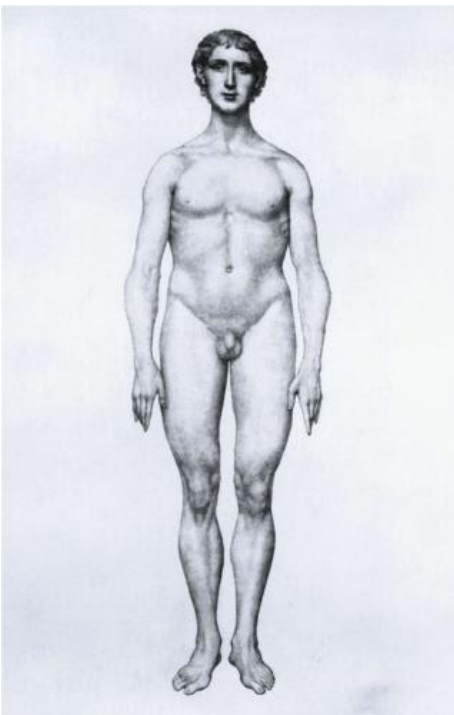 2) nude study for the large bathers 1887 (p=0.005864)

Evaluation Score :
SPICE : 0.448
CIDER : 0.161
METEOR : 0.038
ROUGE : 0.031
BLEU : 0.026

Captions for image 1408664424_**portrait-of-vladimir-artemyevitch-rajewski-1846**.jpg:(TRAIN)
 0) **portrait of a man** (p=0.016632)
 1) portrait of an unknown man from saltykov family (p=0.005647)
 2) portrait of a man 1667 (p=0.005441)

Evaluation Score :-
SPICE : 0.712
CIDER : 0.598
METEOR : 0.588
ROUGE : 0.589
BLEU : 0.588

Captions for image **landscape_with_huts**.jpg:
 0) **landscape with houses in mangalia** (p=0.004817)
 1) houses in balchik 1933 (p=0.004433)
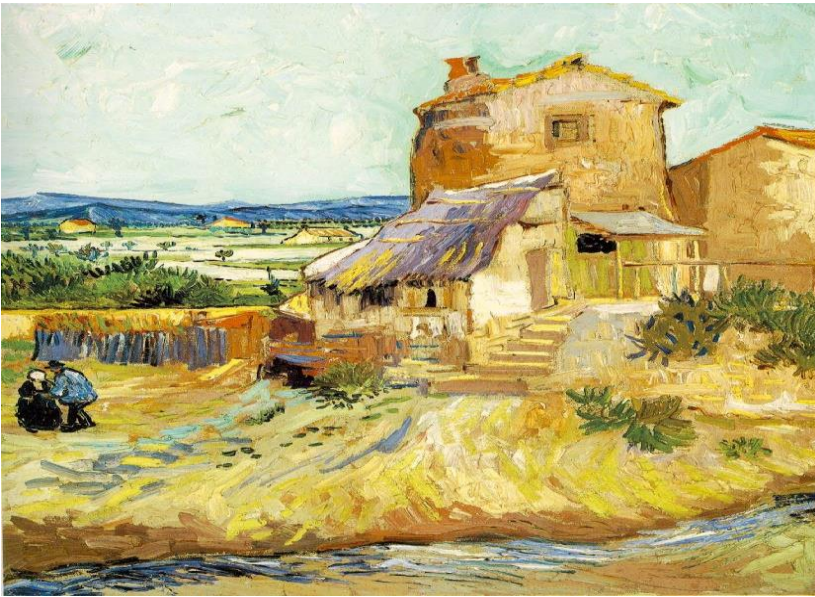 2) houses (p=0.003787)

Evaluation Score :-
SPICE : 0.735
CIDER : 0.476
METEOR : 0.471
ROUGE : 0.438
BLEU : 0.472

Captions for image **water_lilies**.jpg: (TRAIN or TEST)
  0) **water lilies 2 (p=0.034660)**
  1) water lilies 3 (p=0.029403)
  2) water lilies 1 (p=0.026859)

Evaluation Score :
SPICE: 1.000
CIDER: 1.000
METEOR: 1.000
ROUGE: 1.000
BLEU: 1.000

Captions for image **flag**.jpg:

 0) **flag** (p=0.013674)
 1) untitled (p=0.008948)
 2) untitled (p=0.006213)

Evaluation Score :-
SPICE : 1.000
CIDER : 1.000
METEOR : 1.000
ROUGE : 1.000
BLEU : 1.000

Captions for image test_2.jpg:

 0) horses bathing (p=0.007964)
 1) a premiere 1888 (p=0.005905)
 2) horses in a stable 1791 (p=0.005207)

Captions for image **still_life_with_oranges**.jpg:

0) still life with flowers (p=0.015903)
1) still life (p=0.012242)
2) **still life with flowers and fruit 1601** (p=0.011168)
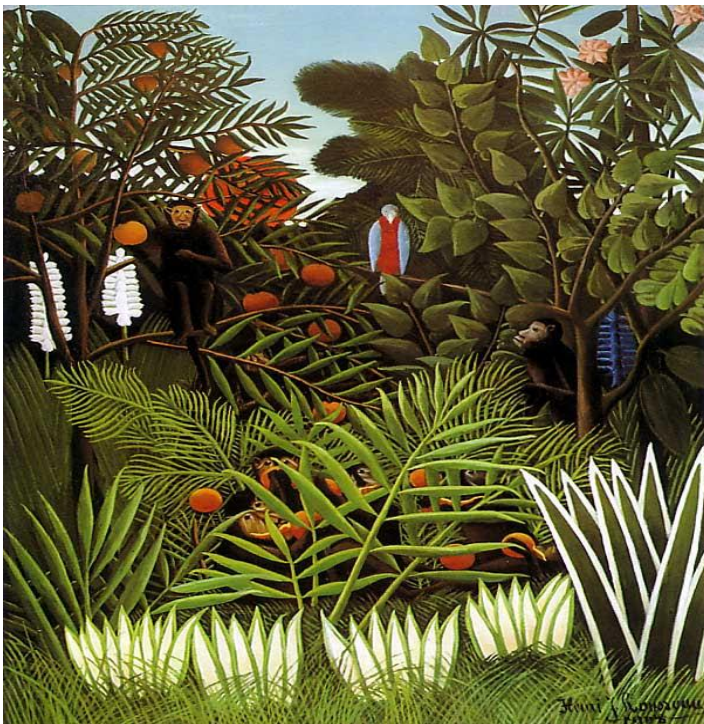
Evaluation Score :-
SPICE : 0.849
CIDER : 0.575
METEOR : 0.517
ROUGE : 0.503
BLEU : 0.505

Captions for image **woman_looking_parrot**.jpg:(TRAIN)
 0) self portrait (p=0.007216)
 1) **portrait of a woman and parrot** (p=0.006294)
 2) untitled (p=0.004522)

Evaluation Score :-
SPICE : 0.639
CIDER : 0.335
METEOR : 0.387
ROUGE : 0.365
BLEU : 0.352

Captions for image **degas_dance_class**.jpg:
 0) **dance class**(p=0.010067)
 1) in the generalife granada 1912 (p=0.005900)
 2) the bricklayers (p=0.005423)

Evaluation Score :-
SPICE : 0.808
CIDER : 0.709
METEOR : 0.601
ROUGE : 0.586
BLEU : 0.579

Captions for image **madonna.**jpg:
 0) **madonna with child** (p=0.015410)
 1) st augustine polyptych detail (p=0.007938)
 2) madonna enthroned with saints (p=0.005588)

Evaluation Score :-
SPICE : 0.803
CIDER : 0.449
METEOR: 0.346
ROUGE: 0.338
BLEU : 0.327

Captions for image **modern_art.**jpg :
 0) **modern art** (p=0.028295)
 1) the pact of culture 1931 (p=0.008227)
 2) the packet of coffee 1914 (p=0.004459)

Evaluation Score :-
SPICE : 0.827
CIDER : 0.336
METEOR : 0.320
ROUGE : 0.311
BLEU : 0.302

Captions for image **village**.jpg:
 0) untitled (p=0.004656)
 1) **the banks of the seine at argenteuil 1880** (p=0.003289)
 2) the banks of the river epte at giverny (p=0.003052)

Evaluation Score :-
SPICE : 0.400
CIDER : 0.000
METEOR : 0.000
ROUGE : 0.000
BLEU : 0.000

Captions for image josette.jpg:
 0) **painting by Josette** (p=0.045931)
 1) untitled (p=0.005119)
 2) untitled (p=0.004973)

Evaluation Score :-
SPICE : 1.000
CIDER : 1.000
METEOR : 1.000
ROUGE : 1.000
BLEU : 1.000

Captions for image woman_and_girl_reading.jpg:
 0) **mother reading to her child** (p=0.013573)
 1) untitled(p=0.005077)
 2) untitled 1(p=0.004436)

Evaluation Score :-
SPICE : 0.610
CIDER : 0.227
METEOR : 0.299
ROUGE : 0.287
BLEU : 0.298

Captions for image hut_covered_with_snow.jpg:
 0) **houses covered with snow 1907** (p=0.006882)
 1) street (p=0.004819)
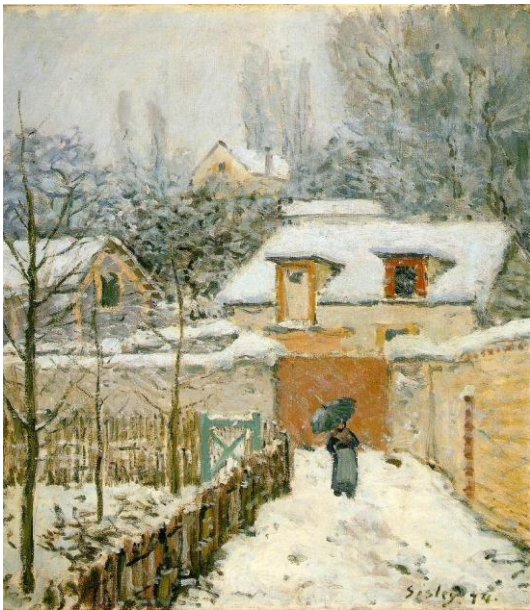 2) street in hu i (p=0.004563)

Evaluation Score :-
SPICE : 0.834
CIDER : 0.782
METEOR : 0.780
ROUGE : 0.755
BLEU : 0.752

Captions for image woman_reading.jpg:
 0) **woman reading from paper** (p=0.010677)
 1) the untitled (p=0.007082)
 2) portrait of the composer anton rubinstein 1887 (p=0.004227)

Evaluation Score :-
SPICE : 0.639
CIDER : 0.602
METEOR : 0.551
ROUGE : 0.511
BLEU : 0.509

Captions for image rousseau_snake.jpg:
  0) **the burghers of calais** (p=0.037591)
  1) untitled (p=0.031569)
  2) the burghers of calais (p=0.018273)

Captions for image blue-horse.jpg:
  0) untitled (p=0.018716)
  1) dancer adjusting her slipper 1885 (p=0.007211)
  2) dancer adjusting her sandel (p=0.004434)

Captions for image el_greco_laocoon_detail.jpg:
  0) nude (p=0.004990)
  1) nude on a divan 1912 (p=0.003486)
  2) nude on a couch (p=0.003450)

Captions for image fall.jpg:
 0) still life with letters 1925 (p=0.018752)
 1) still life (p=0.014301)
 2) still life with a violin 1911 (p=0.006887)

Captions for image guernica.jpg:
 0) untitled (p=0.009466)
 1) untitled abstraction (3) (p=0.007160)
 2) untitled abstraction (2) (p=0.002848)

Captions for image miss_lola.jpg:
  0) the last supper camel 57 (p=0.009335)
  1) the last supper 1986 1 (p=0.009098)
  2) the interior of the pantheon rome (p=0.005554)

Captions for image potato_eaters.jpg:
0) st jerome (p=0.009316)
1) the annunciation (p=0.008729)
2) st jerome 1490 (p=0.004144)

Captions for image 2642681174_the-awakening-night-1974.jpg:
 0) a group of pine trees 1889 (1) (p=0.003525)
 1) a group of figures on the beach (1) (p=0.002173)
 2) study for the last supper judas (p=0.001777)